# Colorism and Cosmetics: Investigating Limited Shade Ranges in the Beauty Industry in Japan and India*

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This research paper explores the issue of colorism in the context of the beauty industry in Japan and India. Drawing on data from an article published by The Pudding, the paper focuses on the association between the lightness and saturation of foundation shades provided by leading makeup brands in India and Japan. The findings reveal a preference for lighter shades in international brands, whereas domestic brands offer a broader spectrum of shades with warmer undertones. The study uncovers a negative correlation between the saturation and lightness of foundation shades, with Japanese foundation shades being paler and having an ashier tone, and Indian foundation shades being substantially lighter than the natural skin tone. The scarcity of foundation shades for individuals with darker skin tones can lead to their marginalization and exclusion, perpetuating the issue of colorism in the beauty industry.

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*Code and data supporting this analysis is available at:

# 1 Introduction

The issue of colorism has been a persistent and pervasive concern across the world. In societies where attractiveness is highly valued, women often rely on makeup to enhance their appearance, with companies capitalizing on these insecurities to promote their products. With the growing popularity of makeup brands, the beauty industry has perpetuated and exacerbated colorism, particularly in Japan and India, which are among the largest beauty markets in Asia.

The roots of colorism in Japan and India have historical and cultural origins that have contributed to the perpetuation of this issue in modern society. In Japan, the association of fair skin with beauty and status can be traced back to its aristocracy, who were able to avoid outdoor labour and maintain a pale complexion (Phoenix 2014). This idea became ingrained in Japanese society and is reinforced through media, advertising, and popular culture. The influence of Western beauty standards, introduced through the influx of mass media from the United States after World War II, has also contributed to the shift towards lighter skin tones in Japan (Phoenix 2014).

Similarly, in India, the issue of colorism has been exacerbated by the history of colonialism, with the British favouring Indians with lighter skin for government jobs. This discrimination based on skin colour has persisted in Indian society, with fair skin being equated with higher social status and dark skin being associated with lower status (Jayawardene 2016). The impacts of colorism in India are widespread, affecting social mobility, education, employment, and marriage.

In addition to the negative impact on individuals, colorism also has wider societal consequences. Individuals with darker skin tones face exclusion and marginalization, as well as limited access to products and services, leading to unequal opportunities in various aspects of life (Phoenix 2014). The globalization of beauty standards has further compounded the issue, with Western ideals of beauty being prioritized and perpetuated by the beauty industry.

To better understand the issue of colorism in Japan and India, the present study draws on data from an article published by The Pudding, a digital publisher specializing in data journalism. The original article examined the lack of diversity in makeup shades offered by major cosmetic brands (Jason Li 2018). However, the current study will focus specifically on the context of Asia and the role of colorism in perpetuating limited shade ranges, with a particular focus on Japan and India.

This paper examines the association between the lightness and saturation of foundation shades provided by leading makeup brands in India and Japan. The findings revealed that international brands exhibit a preference for lighter shades, whereas domestic brands offer a broader spectrum of shades with warmer undertones. A linear regression model was employed, and a noteworthy negative correlation was discovered between the saturation and lightness of foundation shades. Specifically, as saturation rises, the expected lightness of the foundation shade diminishes. The study further unveiled that, on average, Japanese foundation shades are paler and have an ashier tone, whereas Indian foundation shades are substantially lighter than the

natural skin tone. This scarcity of foundation shades for individuals with darker skin tones can lead to their marginalization and exclusion.

# 2 Data

This paper was produced using the R statistical programming language (R Core Team 2022). here was used to reference file locations (Müller 2020). The data was examined and cleaned using the packages janitor (Firke 2021), dplyr (Wickham et al. 2023), and tidyverse (Wickham et al. 2019). Tables were made knitr (Xie 2023) and broom (0.7.11 2021), and formatted with kableExtra (Zhu 2021). ggplot2 (Wickham 2016) was used to plot and scale the graphs.

## 2.1 The Dataset

The dataset was specifically curated for application in The Pudding essay entitled "Beauty Brawl," which was published in June of 2018 (Jason Li 2018). The data was obtained through a systematic process that involved identifying prominent beauty brands in the United States, Nigeria, India, and Japan, as well as consulting various sources that verified their status as best-selling products within their respective domestic markets. The research team accessed each of the brand's official websites in May of 2018 and isolated their liquid foundation collection that possessed the most extensive variety of available shades. For each colour swatch displayed for the product, the corresponding hex colour values were recorded. Subsequently, Adobe Photoshop was utilized to extract the lightness value of each colour using the CIE Lab colour model.

To further classify the sampled products, two additional columns were incorporated into the dataset. These columns included "Brand," which provided the complete written title of the brand responsible for producing the specific foundation shade, and "Product," which listed the full name of the sampled foundation product. It should be noted that for certain brands, this foundation line represented their sole range of liquid foundation, while for others, it constituted the product line containing the largest quantity of available shades.

Moreover, it is worth noting that each product within the dataset is exclusively assigned to a single group. In the dataset, a total of seven distinct groups were employed for classification:

- 0: Fenty Beauty's PRO FILT'R Foundation Only
- 1: Make Up For Ever's Ultra HD Foundation Only
- 2: US Best Sellers
- 3: BIPOC-recommended Brands with BIPOC Founders
- 4: BIPOC-recommended Brands with White Founders
- 5: Nigerian Best Sellers
- 6: Japanese Best Sellers
- 7: Indian Best Sellers

The dataset included information on the hexadecimal colour code (hex), hue (angle on the colour wheel), saturation (degree of colour/chroma), and brightness (also known as value, which measures the lightness or darkness halfway point) values of the foundation shades. The