Measuring Visual Homogeneity and Congruence in Breast Cancer Awareness Campaigns

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ABSTRACT

Breast cancer awareness advertising is globally defined by the colour pink and the iconic pink ribbon. While this branding has elevated the cause, it has also sparked criticism regarding "pinkwashing," where companies exploit it for commercial gain. This study investigates whether these distinctions manifest in the visual design of advertisements. A quantitative content analysis was conducted on 326 static advertisements from 52 countries (2010–2024), measuring dominant colours and coding each advertisement for advertiser type, brand-cause congruence, and pink ribbon usage. Results reveal that neither advertiser type nor brand-cause fit significantly predicts colour choice commercial campaigns are visually indistinguishable from non-profit messages. Instead, the visual landscape is driven almost entirely by the pink ribbon's presence. Symbolic norms have achieved a hegemony that overpowers individual brand strategies, producing a constrained visual language.

1. Introduction

Colour is a vital tool for product recognition and branding. In health communication, pink is inextricably linked to breast cancer, primarily through the Pink Ribbon. Since the 1990s, this globally recognized icon has shifted public discourse from secrecy to open dialogue, symbolizing femininity, hope, and empathy.

However, the ribbon's ubiquity has fueled cause-related marketing (CRM), where brands leverage its "powerful semiotics" for profit. This commercialization has sparked criticism regarding authenticity, particularly when companies sell products linked to the disease while promoting awareness a practice termed "pinkwashing." Critics argue this "pastel injustice" allows corporations to commodify the movement, potentially obscuring environmental and social causes.

Despite extensive ethical debate, a gap remains in understanding how these strategic distinctions manifest visually. Does a "pinkwashed" advertisement look different from a genuine public service announcement? This study conducts a content analysis of 326 global advertisements to investigate the visual lexicon of the genre. By examining "institutional identities" and "perceived congruence," the paper explores whether different advertisers employ distinct visual strategies or if the field has become a homogenized visual culture dictated by the pink ribbon itself.

1.2. Literature Review

1.2.1 The Pink Ribbon in Advertising and Cause-Related Marketing

The pink ribbon has evolved into an internationally recognized emblem, inextricably linked with breast cancer awareness. Beyond a simple loop of fabric, it represents strength, hope, and empathy, creating a cultural space where a disease once shrouded in secrecy can be discussed openly (Harvey & Strahilevitz, 2009).

The shift toward this ubiquitous symbol occurred in 1992, when Self magazine and the Estée Lauder company collaborated for the magazine's second annual Breast Cancer Awareness Month (King, 2010; Medina, 2005). Focus groups identified pink as the most "comforting, reassuring, and non-threatening" colour, effectively representing heterosexual femininity (Sweeney & Killoran-

McKibbin, 2016; Young, 2014). That autumn, Estée Lauder distributed 1.5 million pink ribbons, catapulting the icon to national prominence (Medina, 2005; Taylor & Knibb, 2019). This initiative is often cited as a pioneer in product-related philanthropy, where partial sales support a cause (Young, 2014). While breast cancer was the first to adopt a ribbon, there are now over 50 different ribbon colours for various cancers.

1.2.2 Semiotics and Visual Language

The pink ribbon is a central icon in cause-related marketing (CRM), a strategy where brands affiliate with social causes to bolster profits and corporate image (King, 2010; Sheehan & Tusinski Berg, 2018; Sweeney & Killoran-McKibbin, 2016). Advertisers leverage its powerful semiotics:

1. Colour: In Western societies, pink codes for femininity, playfulness, calm, and health (Medina, 2005; Sweeney & Killoran-McKibbin, 2016; Taylor & Knibb, 2019).
2. Shape: The soft, looped form evokes youthfulness, beauty, and community, portraying the disease in a less threatening light (Medina, 2005).

However, these connotations are not universal. Madlock (2016) notes that while many associate the ribbon with survival, some Black women perceive "pink ribbon stuff" as being primarily for white women (p.39). Despite this, they often feel a "compelled performance" to wear the ribbon to avoid appearing unsupportive of their own community.

Advertisers frequently merge the ribbon with products such as a shoelace shaped into a loop to transfer positive associations to the brand (Medina, 2005; Sheehan & Tusinski Berg, 2018). The Susan G. Komen Foundation, a leader in this field, has been described as a "hypercharity" (Einstein, 2012, p.71). While these organizations generate massive funds, critics argue they prioritize corporate alignment and marketing exposure over addressing the root causes of the disease (King, 2010; Ventresca, 2022).

2.1 Congruence in Cause Marketing

2.1.1 The Role of Fit and Credibility

A critical factor in CRM success is perceived fit the alignment between a brand and its chosen cause. Research indicates that close alignment improves brand credibility and purchase intent, while a "poor fit" can trigger consumer scepticism (Becker-Olsen et al., 2006). However, the necessity of fit varies:

1. High-Reputation Brands: Lafferty (2007) found that for highly credible brands, a strong fit is less critical than for less-trusted companies.
2. Fit-as-Fluency: Kuo and Rice (2015) discovered that simple visual harmony (e.g., shared colour schemes) can increase participation intentions regardless of thematic connection.
3. Product Type: Hedonic (pleasure) products benefit from high fit through positive brand feelings, whereas utilitarian (practical) products see higher purchase intentions when the cause is suitable (Melero & Montaner, 2016).

2.1.2 Identity and Authenticity

Consumer response is also shaped by self-concept. A match between a consumer's identity and both the brand and cause boosts purchase intentions (Goldsmith & Yimin, 2014). Familiarity further complicates this; a high-fit, high-credibility partnership works best when the audience is already familiar with the cause (Kim et al., 2017).

Authenticity remains paramount. Women are more motivated by health advertisements that use reliable data and genuine celebrity endorsements (Sánchez Antelo et al., 2024). Conversely, creative but "unrealistic" campaigns such as those using "pretty perfect boobs" often fail to resonate with survivors who prefer representations of diverse bodies and the physical realities of treatment (Taylor & Knibb, 2019; Yfantidou & Skandali, 2025).

2.1.3 Pinkwashing: The Ethics of Commercialization

The commercial success of the pink ribbon has led to widespread adoption across the fitness, fashion, and cosmetics industries (Sweeney & Killoran-McKibbin, 2016). This has birthed the term "pinkwashing," which describes companies that position themselves as leaders in the fight against breast cancer while engaging in practices that may contribute to the disease (Lubitow & Davis, 2011).

2.1.4 Social and Environmental Injustice

Pinkwashing is often viewed as a form of "social injustice." It allows corporations to control the narrative while obscuring environmental toxins a major concern for Black women who face higher mortality rates and disproportionate exposure to chemicals in beauty products (Lubitow & Davis, 2011; Madlock, 2016). Advocacy groups like Breast Cancer Action use the "Think Before You Pink" campaign to demand accountability from corporations whose "fuzzy pink campaigns" are more focused on the "colour green (money)" (Elliot, 2007, p. 529; Sulik, 2011).

2.1.5 Contradictions and Transparency

A stark example of pinkwashing is the use of the ribbon by alcohol brands, despite alcohol being a known risk factor (Harvey & Strahilevitz, 2009). A study by Hall et al. (2024) found that when consumers are informed of the alcohol-cancer link, they rate pinkwashed ads as highly misleading and show increased support for warning labels.

2.1.6 Transparency Statistics in CRM:

1. 70% of CRM messages provide only an abstract or vague relationship between the brand and cause (Pracejus et al., 2003).
2. Financial Vagueness: Consumers often misestimate donation amounts; some campaigns offer no guarantee that funds reach research (AbiGhannam et al., 2018; Sheehan & Tusinski Berg, 2018).
3. The NFL Case: In the 'Crucial Catch' campaign, while 100% of "proceeds" were claimed to go to charity, this represented only 8% of the retail price, with the rest going to manufacturers and retailers (Carlson & Le, 2017).

2.1.7 The Tokenism of Pink

Critics argue the ribbon has become a tokenistic gesture (Moore, 2008). For instance, the Dansko Shoe Company implied sales-linked donations in 2010, when a set donation of $25,000 had already been made regardless of sales (Young, 2014). Furthermore, the "power of pink" may be counterproductive. Devlin and Dillard (2016) found that heavily gender-salient ads (featuring pink branding and the Komen logo) triggered defensive reactions in women, lowering their perceived risk. In contrast, neutral ads featuring medical logos (like the American Medical Association) were more effective at increasing preventative care intentions.

This suggests that the conventional "pink" approach, which emphasizes beauty and feminine charms, may actually amplify fears and alienate the very women it intends to help (Moore, 2008).

2. Method

3.1 Sample

This content analysis drew upon a sample of 326 breast cancer awareness advertisements. All items analysed were static visual advertisements, encompassing both print media and digital formats. To qualify for inclusion in the sample, all images needed to feature an identifiable sponsor. No audio-visual material, such as videos or animations, were included. Advertisements were collected from advertising and magazine archives, and specialised trade publications.

3.2 Coding Variables

3.2.1 Advertisement Type

The sample was categorised into two overarching advertiser types. The majority (n = 150) were Public Service Announcements (PSAs), typically commissioned by non-profit entities (e.g., NGOs, NPOs, or governmental agencies), and often disseminated through media channels free of charge, for purely philanthropic reasons (Sera, 2017). The remaining advertisements fell within the domain of for-profit (FP) advertising, which was further divided into cause marketing (CM) and cause-related marketing (CRM). CM (n = 122), also referred to as awareness marketing (Minton & Cabano, 2022), includes campaigns by commercial enterprises aimed at promoting social causes while simultaneously enhancing corporate reputation or driving sales. CRM (n = 54) involves explicit partnerships between brands and named non-profit organisations, with the latter receiving financial or material benefits through the campaign. However, as Pracejus et al. (2003) have noted, CRM

messages are frequently vague or ambiguous, raising concerns about their transparency and legitimacy. In the current sample, only messages stating the amount donated (e.g., "For every mile you drive, BMW will donate $1 to the Susan G. Komen Breast Cancer Foundation"), or clearly detailing actions taken (e.g., "Get a free mammography" at Abu Dhabi's Lifeline Hospital) were included in the CRM category. Other statements such as "Lacoste proudly supports the Young Survivor Coalition" or "J. Lohr Vineyards & Wines in support of breast cancer awareness" were categorised as CM.

3.2.2 Dominant Colours

The dominant colours of each advertisement were measured by colour quantization using x128's *Color Quantizer* version 0.7.4.4 (x128, 2024) and the *Dominant Color Finder* tool from onlinejpgtools.com (Browserling, 2025). For each image, up to five dominant colours were recorded. Surface area percentages were calculated using ImageJ version 1.5.3 (National Institutes of Health & Laboratory for Optical and Computational Instrumentation, 2024). When dominant hues were visually similar, their percentages were added together. For example, values such as 27% light pink and 21% hot pink were compounded to give 48% pink overall. Colours representing less than 5% of the overall total area were not recorded. While textual elements were included in the colour coverage, logos were excluded from the colour assessment.

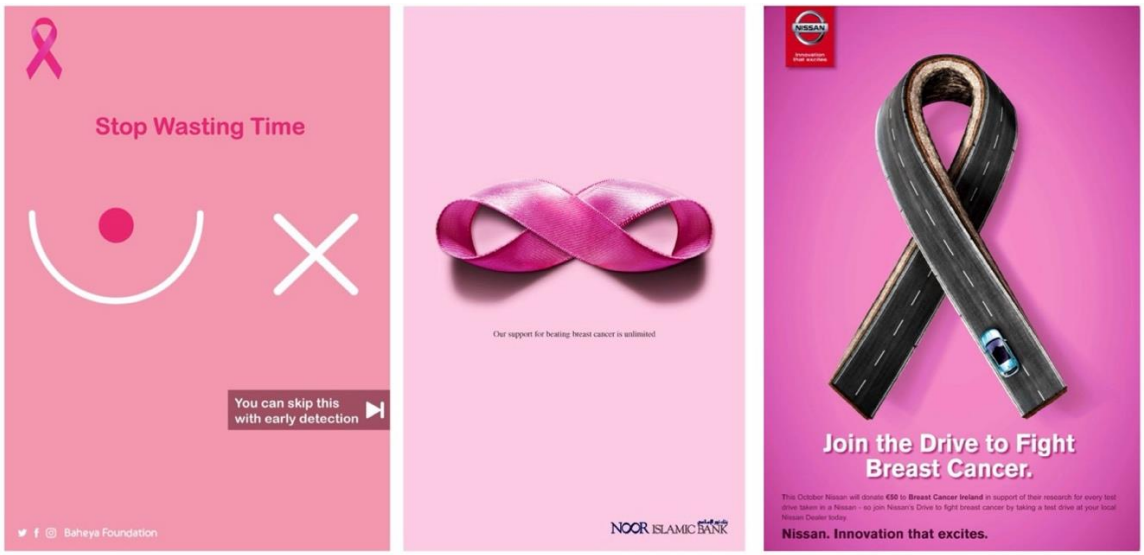
For advertisements featuring photographs or drawings of people, skin colour was coded in addition to the dominant colours, and recorded as a single *body* value, regardless of the actual skin colour represented in the advertisement. Some lighter skin tones, such as tones A and B on the Monk skin tone scale (Monk, 2023) can be perceived as pink, but were coded as *body*, and not included in any area of a poster being coded as *pink*. Similarly, brown skins (G to I) were coded with the same *body* code as other skin tones. The same rule was applied to hair, which was coded as *body* regardless of colour. Areas of the advertisements featuring black and white photographs were uniformly excluded from the dominant colour measurements.

3.2.3 Pink Ribbon

The design of the pink ribbon symbol itself is very simple and well know. It is however often modified for creative purposes, or simply alluded to using visual metaphors and similar devices. The presence of the pink ribbon was coded in the four ways detailed in Table 1 and shown in the examples of Figure 1.

Table 1. Variable Coding Table for the Pink Ribbon

Value	Description
1	Pink ribbon is present in the design, in its original form, either as part of the logo of the advertiser, or as a standalone graphic mark.
2	Pink ribbon is present in the design, but is integrated into one or more other visual elements. It is still represented as a piece of fabric, but is no longer a logo as such.
3	Pink ribbon is present, but no longer made of fabric. The shape and/or colour help recognise it, but it is effectively represented as a visual metaphor.
4	Pink ribbon is absent from the design.



Pink ribbon present in standard logo format. Coding value 1

Pink ribbon present in another format. Coding value 2

Pink ribbon present as visual metaphor. Coding value 3

Figure 1. Three Representative Examples of Pink Ribbon Representation With Coding Values (Baheya Foundation, 2019; Nissan, 2015; Noor Islamic Bank, n.d.)

3.2.4 Cause/Brand Congruence

Most studies that explore the cause/brand congruence used scenario-based experiments and surveys (Becker-Olsen et al., 2006; Goldsmith & Yimin, 2014; Kim et al., 2017; Kuo & Rice, 2015; Lafferty, 2007). The present study proposed to create an objective scale to evaluate how congruent a brand's activities are with its chosen cause.

This scale considers questions such as:

1. Core Business Relevance: Does the brand's primary products/services directly address the cause (e.g. a pharmaceutical company working on cancer drugs has high relevance to a cancer cause)? Or is it unrelated to the cause's domain (e.g. an electronics manufacturer and a health cause)?
2. Target Audience & Brand Image Alignment: Is there an overlap between the brand's target customers or brand image and the cause's constituency? For example, a women's fashion brand supporting a women's health cause has some natural audience alignment, even if the product isn't health related.
3. Impact on the Cause: Are the brand's products/practices supportive of the cause's goals (promoting health), neutral, or potentially harmful? A company whose products actively harm the cause (e.g. contributing to disease risk) would have negative congruence.

Using these considerations, we assigned a congruence score from 0 to 9 as detailed in Table 2. The top score of 9 is allocated to fully philanthropic campaigns by NPOs / NGOs, as well as governmental bodies and other not-for-profit entities. A score of 8 indicates full congruence, when the brand's core business activities are directly related to the breast cancer. High scores of 6 or 7 show a reasonable fit, for brands that are closely related to health or wellness, or to key factors in prevention and well-being but without being specialised in fighting the disease. Moderate scores of 3 to 5 indicate some tangential or audience-related connection to breast cancer, but the link is relatively weak or distant. Typically, this means the brand is not in a health field but might cater to a demographic strongly affected by or concerned with the cause. Lower scores of 1 or 2 suggest that a brand's business has no clear connection to the cause or its stakeholders. In this case, the partnership appears not only philanthropic but also clearly marketing-driven, with little inherent logic tying the two together. For breast cancer campaigns, this applies to industries such as automotive, electronics, finance, or home appliances. A score of 0 is reserved for negative congruence where a brand's products or practices actively conflict with the cause's objectives and would be categorised as breast cancer pinkwashing.

Table 2. Brand/Cause Congruence Scale for Breast Cancer Awareness Advertisements

Code	Outline	Examples
9	NPO / NGO / Governmental and other not-for-profit entity	- Breast Cancer awareness trusts - Departments/ministries of Health
8	Core mission directly fights breast cancer (detection, diagnosis, treatment, research, or patient care). Cause is embedded in the company's identity	- Oncology hospitals and cancer clinics - Pharma or biotech firms with breast-cancer drugs - Diagnostic-imaging equipment makers (mammography, ultrasound) - Medical-device firms supplying biopsy needles, surgical markers, or breast prosthetics
7	Business in the health-care ecosystem or women's preventive care, but not breast cancer alone	- Health-insurance carriers with robust women's-health screening programs - Generic Hospitals - Radiation-therapy machine manufacturers
6	Business in the health & wellness arena. Activities support healthier lifestyles, not focused on cancer	- Chain gyms / fitness studios - Whole-food or nutrition brands - Health supplement companies - Health-oriented companies
5	Products promote healthy lifestyle that can lower cancer risk. Link is credible but not clearly medical	- Wearable fitness, sports equipment - Gyms, fitness studios, sports apparel - Healthy food, mineral water, sports-nutrition - Sanitary products companies
4	Link is audience-based (female market) or symbolic; products for daily life but not health	- Lingerie and intimate-apparel brands - Cosmetics and beauty product lines
3	Shared female audience or identity symbolism. Health link is weak	- Mainstream fashion/apparel (non-lingerie) - Generic health insurance - Women lifestyle magazines or channels - Personal-accessories (bags, shoes, jewellery), fragrance and spa services
2	Minimal logical link; audience overlap is small. Partnership is likely perceived as generic philanthropy	- Foodstuff with largely female customers - Everyday marketed as "for her" - Consumer-electronics in pink editions - Generic food stores
1	No intrinsic connection to breast cancer or women's health. Partnership perceived as using cause for marketing rather than for philanthropy	- Automotive manufacturers - Consumer electronics & appliance makers - Financial-services firms - Generic stores and companies with no link to health or food
0	Company's products or practices contradict the cause, potentially increasing health risks. Campaign seen as exploitative and may trigger backlash for pinkwashing	- Fast-food chains or sugary-beverage brands running pink-ribbon promos - Tobacco or vaping companies - Alcoholic drinks brands with limited-edition pink packaging

3. Results and Discussion

3.1 The Dominant Visual Lexicon

A descriptive statistical analysis of the entire sample was conducted to establish a baseline understanding of the visual lexicon employed in breast cancer awareness advertising. The analysis focused on the top three colours used in each advertisement, provided they covered more than 5% of the total area. The mean percentage of area coverage (M), standard deviation (SD), range and

frequency of use for each of the 13 measured colour variables are presented in Table 3,. This table quantifies how many advertisements in the sample (N=326) utilized a given colour as one of its top three visual components, highlighting the core colours that constitute the genre's conventional palette and those that are systematically excluded.

The results reveal that a small handful of colours dominate the visual field. Pink is, unsurprisingly, the most prominent chromatic hue, with a mean coverage of 34.05%, and the most frequent as it is present in 54.6% of the sample. However, when taken together, the most frequently used visual elements are achromatic: Black (M = 22.08%), White (M = 21.05%), and Grey (M = 10.12%), which are together present in a total of 84.6% of the advertisements. The use of 'Body' tones, representing skin and hair, is also notable (M = 13.08%). In contrast, the rest of the colour spectrum is largely absent. Hues such as Green, Purple, Orange, and Yellow have mean coverage values of less than 1%, indicating their rarity in this advertising genre. This initial overview points toward a visual language built not on a broad spectrum of creative choice, but on a limited set of conventionalized options.

Table 3. Descriptive Statistics of Colour Palette Allocation in Breast Cancer Awareness Advertisements (n=326). Values show the percentage of advertisement area covered by the specified colour. Missing values were coded as 0

Colour Variable	M	SD	Max. (%)	Frequency (n)	Percentage of Sample (%)
Pink	34.05	37.14	100	178	54.6
Brown	4.31	14.12	94	118	36.2
Body	13.08	21.68	99	111	34
White	21.05	24.96	100	69	21.2
Blue	2.59	11.08	95	47	14.4
Red	2.98	11.55	95	40	12.3
Green	0.81	6.03	84	29	8.9
Purple	0.36	3.51	45	28	8.6
Orange	0.17	2.05	29	28	8.6
Yellow	0.02	0.3	5	8	2.5
Black	22.08	29.54	96	4	1.2
Grey	10.12	21.15	89	3	0.9
B&W photo	10.42	28.1	100	0	0

The descriptive data in Table 3 does more than simply confirm the prevalence of pink. The high standard deviations for the most common colours Pink (SD=37.14), Black (SD=29.54), White (SD=24.96), and B&W photo (SD=28.10) suggest a lack of uniform application; rather than most advertisements containing a moderate amount of these colours, the data indicates a polarized distribution. On one hand, there is a vibrant, pink-centric approach, exemplified by advertisements that are saturated with the colour. Pink is at least present in over half the samples (n=178), and covers over 75% of the surface area of 98 of these advertisements. On the other hand, there is a stark, monochromatic strategy that eschews pink entirely (apart from regularly featuring the pink ribbon logo) in favour of black, white, and grey tones.

4.2 The Relationship Between Advertiser Type, Brand/Cause Congruence and Visual Strategy: An Analysis of Non-Significance

Given the distinct aims of PSAs (public health education), and CM or CRM, a logical expectation would be the emergence of distinct visual strategies tailored to these unique goals. To investigate this, a series of one-way Analyses of Variance (ANOVAs) was conducted. The significance level for all tests was set at $p<.05$. A non-significant result ($p\geq.05$) would indicate that

any observed differences in the mean usage of a colour between advertiser types are likely due to random chance rather than a systematic relationship.

The results of the one-way ANOVAs are summarized in Table 4.The findings are consistent and conclusive: for every single colour variable measured, the analysis failed to find a statistically significant difference between the three advertiser groups. The p-values for all 13 ANOVAs are well above the .05 threshold, ranging from p=.123 for the colour Red to p=.981 for the colour Grey. Furthermore, the partial eta squared values are uniformly negligible, with the highest value being a mere.012 for Red. This indicates that advertiser type explains, at most, 1.2% of the variance in the use of any given colour, and for most colours, it explains far less than 1%. For the colour Pink the signature hue of the breast cancer cause advertiser type accounts for only 0.2% of the variance in its usage (η2=.002).

Table 4. One-Way ANOVA for Colour Palette by Advertiser Type. Note: Only key colours are displayed for brevity; all 13 colour variables yielded non-significant results (p≥.05).

Colour Variable	Advertiser Type	M	SD	F(2, 323)	p-value	Partial η2
Pink	PSA	35.8	38.35	0.38	0.684	0.002
	CM	32.53	36.38			
	CRM	33.74	36.17			
Body	PSA	12.39	21.05	0.386	0.68	0.002
	CM	14.49	23.32			
	CRM	11.51	19.46			
White	PSA	22.84	26.68	1.159	0.315	0.007
	CM	18.25	21.9			
	CRM	23.13	26.22			
Black	PSA	22.09	30.14	0.052	0.949	<.001
	CM	22.56	29.15			
	CRM	20.98	29.08			
Grey	PSA	9.21	20.14	0.019	0.981	<.001
	CM	10.87	22.1			
	CRM	10.32	21.68			
B&W photo	PSA	13.06	30.82	1.237	0.292	0.008
	CM	7.23	23.49			
	CRM	9.98	27.24			
Red	PSA	4.38	14.62	2.112	0.123	0.012
	CM	1.48	6.84			
	CRM	2.87	11.23			

Building on the finding that advertiser type does not predict visual strategy, the next analysis investigates another potential explanatory factor: the perceived congruence between the brand and the cause detailed in Table 2. It can be hypothesized that brands with low congruence might use more of the colour pink to legitimise their involvement, while high-congruence advertisers might feel more freedom to innovate visually. This section tests this hypothesis. To assess the relationship between the continuous Brand/Cause Congruence variable and the percentage of colour coverage for each of the 13 colour variables, a Pearson correlation analysis was conducted. This statistical test measures the strength and direction of a linear relationship between two continuous variables. A significant correlation (p<.05) would suggest that the level of brand/cause fit is systematically related to colour choice. The results of the correlation analysis are presented in Table 5. The analysis reveals no statistically significant correlations between Brand/Cause Congruence and the use of any of the 13

measured colours. The correlation coefficients I are all close to zero, and the p-values are all well above the .05 significance threshold.

Table 5. Pearson Correlation Between Colour Palette and Brand/Cause Congruence. Note: Only key colours are displayed for brevity; all 13 colour variables yielded non-significant correlations (p≥.05).

Colour Variable	Pearson's r	p-value
Pink	-0.045	0.418
Body	0.061	0.273
White	0.012	0.829
Black	-0.029	0.601
Grey	0.088	0.113
B&W photo	0.075	0.178
Red	-0.015	0.788

The preceding analysis established that neither advertiser type nor brand/cause congruence are significant predictors of colour choice. This section tests an alternative explanatory framework: that the primary organizing principle of the visual field is an advertisement's relationship to the single most dominant symbol of the cause the pink ribbon. This variable classifies advertisements into four distinct groups based on their treatment of the ribbon: "1 Present," where the ribbon is explicitly shown; "2 Absent," where the ribbon is not used at all; "3 Metaphorical," where the ribbon is alluded to through other forms or concepts; and "4 Variation," where a non-standard or deconstructed version of the ribbon is used. A series of one-way ANOVAs was conducted, comparing the mean colour usage across these four Pink Ribbon groups to assess if they correlate with systematically different and statistically significant colour palettes.

The results of this second set of ANOVAs, presented in Table 6, stand in contrast to the previous analyses. The Pink Ribbon status emerges as a strong and statistically significant predictor of colour choice for the key colours that define the visual field. The most dramatic effect is seen with the colour Pink. The F-statistic is high ($F(3,322)=85.95$), the p-value is highly significant ($p<.001$), and the effect size is substantial. The Pink Ribbon status accounts for 44.5% of the total variance in the use of pink ($\eta 2=.445$). The group means show that advertisements with the ribbon "Present" have a mean pink coverage of 56.63%, while those where the ribbon is "Absent" have a mean pink coverage of only 7.81%.

Conversely, for the achromatic colours, the relationship is inverted. For Black, White, and B&W photo, the "Absent" group shows significantly higher mean usage than the "Present" group. The Pink Ribbon status explains 12.3% of the variance in Black usage, 10.3% of the variance in White usage, and 7.4% of the variance in B&W photo usage all statistically significant relationships. This suggests a design decision to omit the pink ribbon directly tied to the adoption of a monochromatic palette.

Table 6. One-Way ANOVA for Colour Palette by Pink Ribbon Status. Note: Only statistically significant results (p<.05) are displayed for brevity.

Colour Variable	Pink Ribbon Status	M	SD	F(3, 322)	p-value	Partial η2
Pink	1 Present	56.63	34.01	85.95	<.001	0.445
	2 Absent	7.81	19.34			
	3 Metaphorical	30.64	41.05			
	4 Variation	28.53	29.87			
Body	1 Present	10.51	19.98	3.39	0.018	0.031
	2 Absent	18	25.13			
	3 Metaphorical	2.57	8.81			

	4 Variation	13	19.1			
White	1 Present	15.36	21.11	12.08	<.001	0.103
	2 Absent	31.07	28.66			
	3 Metaphorical	16.5	23.95			
	4 Variation	17.58	21.84			
Black	1 Present	14.86	23.83	15.25	<.001	0.123
	2 Absent	33.56	34.42			
	3 Metaphorical	18.07	28.84			
	4 Variation	23.32	28.8			
B&W photo	1 Present	3.86	16.03	8.71	<.001	0.074
	2 Absent	20.91	37.12			
	3 Metaphorical	2.07	10.12			
	4 Variation	11.18	27.67			

The lack of statistically significant findings presented in Tables 5 and 6 is, in itself, the most significant finding of this analysis. It provides quantitative evidence for the clear convergence in the visual communication of breast cancer awareness. The institutional identities and divergent strategic goals of FP and NFP advertisers do not translate into measurably different visual palettes. A PSA is just as likely as a CRM campaign to be saturated in pink; a CM initiative is just as likely as a PSA to employ a stark, black-and-white aesthetic. The primary determinant of an advertisement's colour palette seems to be not the identity of the organization behind it, but the strategic choice it makes regarding the pink ribbon.

The data shows that the mean percentage of pink Is remarkably stable across PSAs (35.80%), CM (32.53%), and CRM (33.74%). The same holds true for black, white, and all other colours. The perceived fit between a brand and the breast cancer cause has no discernible impact on the advertiser's colour palette. A brand with high perceived congruence (e.g., a health-focused PSA, Congruence=9) is no more or less likely to use pink, black, or any other colour than a brand with low perceived congruence or even one accused of pinkwashing (e.g., a fast food brand, Congruence=0). Individual advertiser characteristics, whether categorical (type) or scaled (congruence), are thus superseded by the powerful, conventionalized visual codes of the cause itself.

The empirical investigation has yielded two contrasting findings about the communication norms in this area:

1. The visual strategies employed by Public Service Announcements, Cause Marketing campaigns, and Cause-Related Marketing initiatives have converged to the point of being statistically indistinguishable. The analysis of colour palettes reveals no significant differences attributable to advertiser type or to brand/cause congruence.
2. This visual field is not chaotic but is highly organized around a single, powerful principle: the advertisement's relationship to the pink ribbon symbol. The decision to include, omit, or reinterpret the ribbon is the primary predictor of an advertisement's colour scheme, explaining a substantial portion of the variance in the use of pink, black, white, and body tones.

On a theoretical level, these findings provide large-scale, quantitative support for long-standing qualitative and critical arguments about the power of "pink culture." The analysis demonstrates empirically how the symbolic system of a single health cause can become so powerful and pervasive that it dictates communication norms across the public, private, and non-profit sectors. The "brand" of breast cancer awareness, embodied by the pink ribbon, has achieved a level of cultural hegemony that largely eclipses the individual brand identities of the organizations that communicate it. This has resulted in a homogenized communication landscape, defined by a primary tension between pink-saturated optimism and monochromatic seriousness. This suggests that the field has

reached a state of maturity where the symbol of the cause has become more powerful than the Identity of any single organization promoting It, posing significant challenges for strategic differentiation, and raising important questions about the long-term effectiveness of a visually uniform approach to health communication.

The convergence of visual strategies across advertiser types presents a significant strategic paradox for brands. The symbolic power of the pink ribbon is so strong that the visual lexicon of the cause effectively overpowers the individual brand's iimage. When CM and CRM campaigns are rendered visually indistinguishable from non-profit messages, individual brand images are effectively incorporated into the collective identity of pink culture. This creates a 'prisoner's dilemma' for marketers (Anderson, 2010; Corfman & Lehmann, 1994), where deviating from the established visual conventions risks appearing unsupportive of the cause, but conforming reduces the opportunity for brand differentiation. This homogenisation significantly weakens the ability of organizations to establish distinctive visual identities, as the dominance of standardized visual codes compresses the differences in colour palettes and visual style that are typically key tools for brand recognition and recall.

Beyond the strategic hurdles for individual brands, when PSAs and commercial campaigns become visually indistinguishable, significant public health and ethical risks are introduced. When audiences cannot visually discern between a non-profit health directive (PSA) and a profit-driven marketing initiative (CM or CRM), the scepticism often directed at corporate 'pinkwashing' may inadvertently contaminate genuine public health communications. Since source credibility is a key driver of health communication effectiveness (Kareklas et al., 2015), sharing the visual cues of institutional legitimacy with commercial advertisers risks diluting that authority and undermining functional goals of behavioural change. This underscores the need for non-profit and governmental health communicators to consider whether strategic visual differentiation could strengthen the perceived authenticity and impact of their messaging, even at the cost of departing from established genre conventions.

In addition to the challenge of differentiation, this uniformity raises important questions about the long-term effectiveness of a visually uniform approach to health communication. Future research could build on these findings in several directions. A qualitative content analysis of the textual and narrative elements of the advertisements could determine if the observed visual homogenization is mirrored by a similar thematic homogenization. Furthermore, while this analysis has now incorporated the Brand/Cause Congruence variable and found it to be a non-significant predictor of colour choice on its own, future research could still explore more complex statistical models. It is possible that congruence interacts with other variables, such as advertiser type or symbolic strategy, in ways that a direct correlation analysis would not reveal, potentially uncovering more subtle layers of strategic thinking.

4.3 Limitations

The sample shows some geographical imbalance with some countries or regions having much larger numbers of campaigns (USA n=71, Japan n=40, Europe n=66). The geographical skew of the sample warrants a deeper reflection on the generalizability of the identified visual homogeneity. While the study spans 52 countries, the overrepresentation of campaigns from the USA, Japan, and Europe, together comprising 50% of the data despite representing only 15% of the global population, suggests that the results may disproportionately reflect the norms of a few dominant creative markets. This imbalance is not a neutral sampling artifact, but a symptom of the uneven geography of the global advertising industry, where hubs such as New York, London, Paris, and Tokyo codify visual standards that are then disproportionately featured in the trade publications and advertisement repositories used for this study. Consequently, the universal visual language documented here may actually be a projection of Global North semiotics, potentially obscuring alternative visual metaphors or colour associations used in regions like sub-Saharan Africa, South Asia, or Latin America. In these contexts, the symbolic hegemony of the pink ribbon may be contested by different cultural norms regarding femininity and illness disclosure. Future research using more purposive sampling from underrepresented regions, following a model such as Bashir and Yasmin (2024), could help establish whether this visual homogenisation is truly a transnational phenomenon or simply a product of a globalised, Western-centric advertising production.

4. Conclusion

This study demonstrates that the visual landscape of breast cancer awareness (BCA) advertising has reached a state of profound homogenization. Quantitative analysis reveals that neither the advertiser typeranging from non-profit PSAs to commercial CRM initiatives nor the perceived brand-cause congruence serves as a significant predictor of an advertisement's color palette. Instead, visual strategies are dictated almost entirely by the strategic choice regarding the pink ribbon symbol. The decision to include or exclude this icon accounts for a substantial portion of the variance in the use of pink, black, and white, suggesting that symbolic norms have achieved a level of cultural hegemony that eclipses individual organizational identities.

These findings highlight a significant strategic paradox where the dominance of standardized visual codes weakens the ability of brands to establish distinctive identities. Marketers face a "prisoner's dilemma" in which conforming to established "pink" conventions is necessary for perceived legitimacy, yet doing so reduces the opportunity for brand differentiation. Furthermore, the visual indistinguishability between profit-driven campaigns and non-profit health directives poses ethical risks; the skepticism typically directed at "pinkwashing" may contaminate genuine public health messages. These risks diluting the source credibility and institutional authority required to drive effective behavioral change.

The study's geographical skew toward the Global North suggests that the identified visual homogeneity may primarily reflect the norms of dominant Western creative markets. The universal visual language documented here potentially obscures alternative metaphors or cultural norms regarding femininity and illness used in regions such as sub-Saharan Africa, South Asia, or Latin America. Consequently, future research should utilize more purposive sampling from underrepresented regions to establish whether this symbolic hegemony is a truly transnational phenomenon or a product of globalized, Western-centric advertising production.

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