Women’s Disempowerment and Preference for Risky Skin Whitening Products: Experimental Evidence from India

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Free market advocates consider consumer choice unambiguously welfare-enhancing, but research has shown that consumers are often not able to make choices best aligned with their wellbeing. We contribute to this debate in the context of women making decisions regarding skin whitening products widely available in emerging markets. Specifically, we experimentally examine whether or not women being in a state of disempowerment influences their preference for skin whitening products. Two experiments find such an effect for the strong and medically risky products, but not for the milder ones. An additional experiment reveals evidence consistent with the above effect being driven by disempowerment leading to increased openness to risk for achieving fairer skin. These effects are particularly prominent among women using whitening products regularly, and are gender-specific.

Keywords: Women's Empowerment; Skin Whitening; Colorism; Corporate Social Responsibility; Emerging Markets


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INTRODUCTION
Global conversations about corporate social responsibility (CSR) increasingly scrutinize firms regarding whether their products truly benefit society (Hosmer, 1994; Wowak, Mannor, and Wowak, 2014). Although standard economic models based on the idea of utility maximization take more choice to be unambiguously welfare-enhancing, scholars have argued that availability and use of certain products can in reality be detrimental to the society (Crane et al., 2014; Karnani, 2007). Research in behavioral economics and psychology has now established that consumers can indeed be tempted into buying products that undermine their own well-being (Akerlof and Shiller, 2015; Ariely, 2009; Köszegi and Rabin, 2007; Thaler and Sunstein, 2009).

Concerns regarding negative societal impact arise naturally in the context of “vice goods”, including drugs, alcohol, and tobacco (Jain, 2012; Wertenbroch, 1998). But they have also been expressed regarding a much broader range of products, such as soft drinks, fast food, and dietary supplements (Crane, 2001; Huang, Khwaja, and Sudhir, 2016; Ye, Cronin, and Peloza, 2015). Proponents of more corporate self-regulation seek a paradigm of CSR that involves more than engaging in standalone “giving back” activities (such as corporate volunteering or charitable giving programs). Specifically, consideration of business ethics proposes that firms should abstain from pursuing profitable business opportunities that might be detrimental to society. Particular concerns around marketing and sale of certain products arise regarding perpetuation of undesirable institutions and practices, such as those that may reinforce sociocultural biases related to gender, class, ethnicity, and color (Dixon and Telles, 2017; Fleming and Jones, 2013; Glenn, 2008; Karnani, 2007).

In the context of emerging markets, the issue is particularly salient as companies increasingly strive to reach mass markets with a stated goal of “doing well by doing good” (Prahalad, 2005; Rangan et al., 2007; London and Hart, 2011). Our research examines a
product commonly sold in emerging markets: skin whitening creams targeting consumers (typically women) to help lighten their skin complexion. Taking a free-market perspective, Hammond and Prahalad (2004) argue that a reasonably priced skin whitening cream can make even a poor woman feel empowered as she now has access to a “consumer product formulated for her needs” (p. 36). In their view, firms selling such products are doing well (financially for themselves) and also doing good (to the society). Others like Karnani (2007) counter the free-market view by arguing that information asymmetry between the firm and the less informed consumer might lead to a market failure, proposing instead that “if she was truly empowered, she would probably refuse to buy a skin whitener in the first place” (p. 1354). In their opinion, firms selling such creams are doing well (by extracting economic rents) but not doing good (as their marketing strategies make women feel inadequate about themselves). As the debate so far has been based largely on opinions and anecdotes, the goal of our research is to bring a rigorous experimental approach to investigate the potential link between women disempowerment and preference for skin whitening products.

The scale of the overall beauty industry underscores its potential impact. With revenues estimated at $460 billion globally (Research and Markets, 2015), the sector is often under scrutiny for potentially adverse effects on women (Jha, 2015; Lavine, Sweeney, and Wagner, 1999). Evaluating themselves in terms of their appearance— as motivated by the marketing strategies of the beauty industry— can place women at risk of anxiety, depression, and reduced mental performance (Fredrickson et al., 1998). As extant research suggests that disempowerment can lead to stress (Sherman et al., 2012), anxiety or despair may indeed be a part of the story. Within the overall beauty sector, the segment for skin whitening products has faced the most severe accusations related to corporate social irresponsibility (The Economist, 2012; The Guardian, 2013). Nevertheless, the segment has grown rapidly, and is projected to reach $23 billion by 2020 spurred especially by the growth in emerging markets
In Nigeria, South Africa, and Togo, 77%, 35%, and 59% of women, respectively, regularly use skin-lightening products; in China, Malaysia, the Philippines, and South Korea, approximately 40% of women use such products (WHO, 2011)."

Consumer preference for lighter skin has indeed been documented globally (Jha, 2015), and this is no surprise as a fairer skin complexion is correlated with better life outcomes even within the same ethnic group (Hamilton, Goldsmith, and Darity, 2009). The disproportionate use of skin-lightening products by women highlights that the phenomenon of skin color and colorism is not gender-neutral (Dixon and Telles, 2017). Empirical research has also established an association between women’s skin tone and important outcomes such as educational attainment, wages earned, and success in marriage market (Banerjee et al., 2013; Hamilton et al., 2009; Hunter, 1998). Having fairer skin is therefore seen as a path to better status (Glenn, 2008; Keith and Herring, 1991). Relatedly, there are arguments that the underlying preference for light skin itself arises from deeply-embedded sociocultural biases, such as class differences with origins in colonial histories (Glenn, 2008). Raising an important question concerning business ethics, many scholars contest the notion that preferences for lighter skin should be interpreted as neutral individual preferences (Glenn, 2009; Hall, 2013; Dixon and Telles, 2017).

Consistent with the above perspective, views among Indian policymakers and civil society involve accusations of skin whitening creams’ current marketing approaches, claiming they perpetuate “racism” and “are demeaning for women” (The Hindu, 2013; The Indian Express, 2016a; The Indian Express, 2016b). To the extent that profit-maximizing actions of firms can aggravate such preferences and the underlying social inequities by creating psychological disempowerment among the darker-skin-colored women, the goals of
the firm and society can become misaligned (Mendoza, 2015). However, to our knowledge, there is no systematic study measuring the actual effects of disempowerment on this preference. While Karnani (2007) insightfully opined about the potential role of disempowerment in the demand for skin whitening creams, the focus of his research was to study the case of “Fair & Lovely”, a skin whitening cream marketed by Unilever in order to demonstrate that Fair & Lovely is indeed doing well (i.e., it is profitable) but not doing good (i.e., it has negative implications for public welfare).

In order to advance the above discussion, we systematically investigate the potential effect of women’s disempowerment on their preference for skin whitening creams. An empirical challenge in analysing this issue is to establish causality. For example, women might prefer skin whitening products for reasons we do not observe, and these reasons might also be correlated with their being disempowered or not. To overcome such identification challenges, we employ an experimental approach relying on interventions involving a disempowerment versus empowerment framing using the “power prime” methodology commonly used in psychology research (Galinsky, Gruenfeld, and Magee, 2003; Smith and Trope, 2006; Galinsky et al., 2008; Jordan, Sivanathan, and Galinsky, 2011). Specifically, we randomly assign women to experimental conditions where they temporarily feel disempowered or empowered, and compare their preferences for skin whitening products after this intervention. Because we measure participants’ preferences through survey-based instruments, these randomized experiments are “survey-based experiments”.

The existence of two types of skin whitening products in India— mild but safe cosmetic creams sold by reputed firms and strong but risky pharmaceutical creams sold by local firms for the purpose of more drastic skin whitening— provides a unique empirical setting for a study of the phenomenon. Whereas critics like Karnani (2007) have mostly raised questions regarding cosmetic skin whitening creams, our research examines whether
the effects of disempowerment might be particularly prominent for the riskier creams. We find that disempowerment has an effect on women’s preference for the risky skin whitening creams but not for the mild ones. Further, the role of women’s willingness to take increased risk for having fairer skin is one of the mechanisms explaining this relationship. Our evidence also suggests that women’s frequency of use of skin whitening creams moderates the relationship between disempowerment and willingness to take risk. Finally, these results are indeed gender-specific: samples of men participants do not show these results.

This study therefore contributes to the literature with a new perspective on the relationship between women’s empowerment (or the lack of it) and preference for skin whitening products while furnishing evidence on increased willingness to take risk as a potential mechanism. In doing so, it also makes a methodological contribution in terms of adding to the growing literature employing experimental research design in management research (Burbano, 2016; Chatterji et al., 2016; Raveendran, Puranam, and Warglien, 2016). Extant literature on skin color is extensive but primarily about the United States; by studying the context of and conducting our experiments on participant pools from a large developing country, this paper advances the limited global literature on the topic outside the western societies and which has mostly been historical and descriptive (Dixon and Telles, 2017). We hope this research serves as a critical first step in bringing academic rigor to this important debate, while also introducing additional complexity in terms of theory and evidence to both (a) debates about CSR and business ethics in general and beauty products and skin whitening creams in particular and (b) the effects of disempowerment on risk preferences.

**EMPIRICAL CONTEXT: SKIN WHITENING PRODUCTS IN INDIA**

The words “fair” and “beautiful” are treated almost synonymously with respect to women in several emerging markets (Li et al., 2008). India is a leading market for skin whitening, with skin complexion operating as an important boundary marker for a person’s caste and class.
Constituting almost half of the overall skincare market, the skin whitening segment alone was estimated at $535 million in 2013 (Karnani, 2014). Yet the sector continues to be mired in controversy, with questions being raised by academics, media, activists, and policy makers.

Academic debates related to skin whitening products have typically focused on the controversial, yet relatively mild, cosmetic creams marketed for skin whitening (Karnani, 2007). Particularly prominent among these is “Fair & Lovely” from Unilever, a household brand name that commands almost 60% of the industry revenues in India (Karnani, 2014). Such products, at least when sold by reputed firms, utilize relatively benign methods for achieving lighter skin (such as a sun-block component to protect against sun-induced pigmentation stimulation). The concerns around these have therefore not been about being medically unsafe, but about their marketing potentially overstating product effectiveness and exploiting existing sociocultural biases (Karnani, 2007; Agarwal and Roy, 2012).

What is less commonly recognized is that the skin whitening sector in India also includes strong pharmaceutical products sold as whitening creams with a promise of achieving more immediate and drastic skin whitening (The Hindu, 2013; The Telegraph, 2015; The Times of India, 2015). These products typically use controversial active ingredients, such as a bleaching agent called hydroquinone (Mahe et al., 2003). Such ingredients inhibit melanin production in the short run, but can lead to hyper-pigmentation, premature ageing, allergies, and other adverse effects (Shankar, Giri, and Palaian, 2006). An Indian dermatologist we interviewed cautioned: “Such products should never be used without doctor’s advice. They are unsafe, but still get used for skin whitening.”

Figure 1 based on data from All India Organization of Chemists and Druggists (AIOCD) and IMS Health, also used in other research on the pharmaceutical sector (Bhaskarabhatla, Chatterjee, and Karreman, 2016), shows that the annual revenues of
hydroquinone-based dermatological products in India market have grown 8.5 times over the period 2008-17, during which the overall dermatological market has grown only 2.8 times. Local firms, with over 90% of the market share, are the dominant sellers of these pharmaceutical products. Given their potential misuse, these pharmaceutical products are in principle regulated to be sold only for medical use with a prescription from a registered medical practitioner. However, in reality, they are easily available as consumer products over the counter. As another Indian doctor we interviewed explained: “Such products are widely abused despite being labelled as pharmaceutical products. Unregulated, cheap distribution in retail market by several local manufacturers have led to rampant abuse.” A pharmacist further elaborated: “Mostly people come for skin whitening purposes without doctor's prescription. Though there are laws, nothing has been seriously enforced.” A pharmacist, located close to a garment factory (in Bangalore, India), where many low-income women work, similarly noted: “Women working in the garment industry come mostly without prescription and keep asking for it. More customers come through word of mouth.”

While the debate around CSR and regulation of marketing of skin whitening products in general continues, experts agree that the availability and growing misuse of medically unsafe products for skin whitening is particularly troubling. Given the availability of products that vary in their effectiveness and accompanying risks, this sector therefore provides a rich empirical context for our research question. By studying the effects of feeling disempowered, versus empowered, on women’s evaluations of creams of different strengths, we examine whether or not these riskier products demonstrate a potential channel of exploitation by some firms through less than responsible behavior. In what follows below, before explaining our research design in detail, we first formally present our hypotheses.
DISEMPOWERMENT AND PREFERENCE FOR SKIN WHITENING CREAMS

An important factor influencing women’s use of skin whitening products could be their disempowerment, defined as a state when “one’s capacity to receive resources, rewards or punishments is controlled by someone else” (Keltner, Gruenfeld, and Anderson, 2003). This is often conceptualized in chronic or relatively stable terms, as in the case of societal level gender, ethnic, and income inequality within societies (e.g., Adler et al., 1993; Glick and Fiske, 2001; Ridgeway, 1997). Both gender- and color-based inequality and resultant chronic disempowerment may have the potential to influence the decision-making processes triggering women’s interest in skin whitening creams. Supporting this perspective, scholars have long argued that women and members of societally disadvantaged groups such as American racial minorities internalize negative representations of their groups, which manifest in behavioral choices (Allport, 1954; Wolf, 1991). Yet causal conclusions in situations involving chronic disempowerment are extremely challenging to make, because many other factors (including but not limited to education, crime-rates, and access to work opportunities) accompany chronic disempowerment. Thus, striving to examine the possibility of causation, scholars also consider temporary or psychologically primed disempowerment. Substantive evidence suggests that some psychological and behavioral consequences of real-world empowerment relative to disempowerment can be created temporarily through experimental inductions (Galinsky et al., 2003) and are self-reinforcing in real world settings (Magee and Galinsky, 2008).

Both sociological and psychological research show a link between powerlessness and vulnerability in multiple forms that may be relevant to people’s interest in skin whitening creams. For example, when people feel powerless, they focus on immediate relief (Baumeister, 2002; Tice, Bratslavsky, and Baumeister, 2001) and become more oriented to others’ interests and potential social threats (Brinol et al., 2007; Keltner et al., 2003).
Psychological disempowerment also motivates striving to improve appearances of personal social standing, as has been shown through college students’ willingness to pay for luxury goods (Rucker and Galinsky, 2008). In contrast, both societal and psychological power facilitate resilience that often manifests in positive life outcomes, choices that facilitate wellbeing, and improved performance (Guinote, 2007; Narayanan, Tai, and Kinias, 2013; Sherman et al., 2012).

The effects of disempowerment are particularly relevant to socially disadvantaged groups’ preferences related to sociocultural biases. At the intersection of chronic disadvantage and situationally activated power, psychologically primed power protects American women’s mental performance from vulnerability resulting from negative stereotypes about women (Van Loo and Rydell, 2013). Further, people with power tend to feel especially competent, agentic, and confident, whereas people low in power are likely to be more attuned to potential threats and to others’ interests (Keltner et al., 2003). Such processes can make disempowered women particularly vulnerable to deeply embedded skin-color biases.

Thus, building on Karnani’s (2007) argument in strategy literature on the possibility of a connection between women’s disempowerment and consequent interest in skin-whitening creams combined with the research in psychology literature (as described above) on how non-Caucasian women may benefit from having fairer skin and on how psychological disempowerment may lead people to attend to social signaling, we hypothesize:

**Hypothesis 1: Being in a state of disempowerment increases women’s preferences for skin whitening products.**

Although our first hypothesis includes all skin whitening creams because of women’s disempowerment potentially leading to their vulnerability to sociocultural biases, we also explored the effects of disempowerment on women’s preferences for risky pharmaceutical
skin whitening creams and their willingness to take risk to have fairer skin. The omnipresence of relatively mild cosmetic skin whitening creams (e.g., Unilever’s “Fair & Lovely” brand) in many markets in Asia and Africa could be expected to diminish the effect of disempowerment on interest in them. However, disempowerment should more strongly influence women’s preference for the stronger pharmaceutical skin whitening creams because they are expected to produce immediate results even if at the risk of negative side effects.

Although disempowerment is established to be empirically linked with behavioral risk aversion (Anderson and Galinsky, 2006; Keltner et al., 2003), we see reason to carefully examine its relationship to women’s use of risky skin whitening creams. Most centrally, contemporary research shows that psychological disempowerment makes people more open to risks that have potential to increase their power (Schaerer, du Plessis, and Galinsky, 2016a). This might additionally be affected by temporal discounting (Akerlof, 1991; Haushofer and Fehr, 2014; Shefrin and Thaler, 1981), which has recently been examined in relation to power in settings like financial decision-making (Joshi and Fast, 2013; May and Monga, 2014; Moon and Chen, 2014). Specifically, Moon and Chen (2014) found people with power might be more careful in considering long-term outcomes. Further, both Joshi and Fast (2013) and May and Monga (2014) found that low-powered people were often more likely to choose small short-term financial gains over larger long-term financial gains. Given that pharmaceutical skin whitening products are inherently risky (Shankar et al., 2006), we hypothesize that the effects of disempowerment on financial decisions would also apply to women’s disempowerment and preference for risky skin whitening products.

Integrating the above arguments about disempowerment and internalization of socio-cultural biases and willingness to take risk to improve social standing, we expect that disempowered women are more likely than empowered women to evaluate stronger whitening products favourably. We therefore hypothesize:
Hypothesis 2a: Being in a state of disempowerment increases women’s preferences for strong and risky (pharmaceutical) skin whitening products.

Hypothesis 2b: Being in a state of disempowerment increases women’s willingness to take risk to lighten their skin.

EXPERIMENT 1 (USING MECHANICAL TURK)

Our first experiment examined Hypotheses 1 and 2a, and employed Amazon’s “Mechanical Turk” (AMT) platform, increasingly used for conducting experiments in behavioral and management research (Burbano, 2016; Horton, Rand, and Zeckhauser, 2011; Toubia et al., 2013). One advantage of using AMT for experimental research, relative to a laboratory setting, is the access to a larger and more diverse pool of participants (Buhrmester, Kwang, and Gosling, 2011; Paolacci, Chandler, and Ipeirotis, 2010). However, similar to the lab and outside-lab experiments, the external generalizability challenge still remain (Charness and Fehr, 2015; Charness, Gneezy, and Kuhn, 2013). In particular, as Ipeirotis (2010) reports, Indian AMT workers tend to be disproportionately more educated and come more from the middle class compared to the overall Indian population. This limitation needs to be borne in mind while interpreting the generalizability of our findings.

Design of Experiment 1

AMT workers participated in our experiment as they do in other paid tasks (called “Human Intelligence Tasks” or HITs in AMT terminology). Our task was posted for four weeks as “Fill survey on women’s cosmetic products in India” for USD 1.48 (approximately Rupees 100), in line with typical AMT rates in India (Ipeirotis, 2010). Participation was restricted to India-based workers with an average “HIT approval rate” of not less than 90%.1

1 “HIT approval rate” of an AMT worker equals the fraction of the person’s past jobs that were approved by the people posting the jobs as having been satisfactorily completed.
We manipulated women’s temporary state of disempowerment using a “power recall methodology” from psychology (Galinsky et al., 2003; Joshi and Fast, 2013; Smith and Trope, 2006), and established as producing reliable effects in online settings including AMT (Schaerer et al., 2016b). Following established protocol (Galinsky et al., 2003; DeCelles et al., 2012; Tost, Gino, and Larrick, 2013), participants randomly assigned to the “empowered” (high power) condition responded to the prompt: “Please recall a particular incident in which you had power over another individual or individuals. By power, we mean a situation in which you controlled the ability of another person or persons to get something they wanted, or were in a position to evaluate those individuals. Please describe this situation in which you had power - what happened, how you felt, etc.” Participants randomly assigned to the “disempowered” (low power) condition responded to the prompt: “Please recall a particular incident in which someone else had power over you. By power, we mean a situation in which someone had control over your ability to get something you wanted, or was in a position to evaluate you. Please describe this situation in which you did not have power - what happened, how you felt, etc.” Finally, participants in the “neutral” condition responded to the prompt: “Please recall a particular incident in which you had social interaction with another individual or individuals. By social interaction, we mean a situation in which you communicated or worked with someone. Please describe this situation in which you had social interaction - what happened, how you felt, etc.”

Subsequent to the randomly assigned intervention, all participants responded to the same set of questions. The first block of questions pertained to Unilever’s “Fair & Lovely” product, representing a cosmetic cream widely recognized as relatively mild but safe. A second block of questions pertained to the strong but risky pharmaceutical creams that are

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2 Appendix A reproduces the instructions seen by the participants after the power priming exercise and before they answered the questions measuring the outcome variables.
commonly misused as skin whitening products. In both cases, participants indicated their interest in the product on a seven-point scale Uninterested (1) to Interested (7). This way of measuring consumer preference is adopted from Zaichkowsky (1985). The responses served as the two primary outcome variables: *Cosmetic Product Interest* for the cosmetic cream and *Pharma Product Interest* for the pharmaceutical cream.

To ensure robustness of our results, we constructed an additional measure that also includes three other items from Zaichkowsky (1985) relevant for our context: importance, relevance and usefulness of a product. Responses to these items were also recorded using seven-point semantic differential scales: Unimportant (1) to Important (7), Irrelevant (1) to Relevant (7), and Useless (1) to Useful (7). As in Zaichkowsky (1985), our Cronbach alphas were high (both above 0.94) for both cosmetic and pharmaceutical products, so we averaged the four items in each case to construct two additional outcome variables: *Cosmetic Product Rating* for the cosmetic cream and *Pharma Product Rating* for the pharmaceutical cream.

As a third way of measuring perceptions regarding skin whitening products, the participants also reported the effectiveness of cosmetic as well as pharmaceutical products on a seven-point scale from No effectiveness (1) to High effectiveness (7). The responses were recorded as *Cosmetic Product Effectiveness* and *Pharma Product Effectiveness* respectively.

Subsequently, participants completed demographic questions on gender, marital status, age, education, household income, and the state of residence. Finally, following prior research (Lavine *et al.*, 1999), we also asked the respondents about their skin complexion—again using a seven-point scale from Extremely fair (1) to Very dark (7).

Our raw data comprised of responses from 527 women and 532 men. We restricted the analyses only to people who had followed instructions diligently, participated only once, and were not outliers in terms of completion time. The removal of time outliers is important because completing too quickly is a signal of not having worked seriously on the study, and
taking too long to complete signals that participants likely were not working consistently on
the study (these brief priming effects do not last long). We therefore dropped the following:
cases with the power recall response being either too short (less than 50 characters, typically
only a string such as “nothing” or “no such incident”) or unrelated to the instructions (often
with random text such as that copied and pasted from some Internet website), cases involving
duplicate IP addresses, and cases with extreme completion time (less than five minutes or
greater than 60 minutes; median time to complete was 18 minutes). This led to a final sample
size of 389 women (74% of raw responses) and 402 men (76% of raw responses).

Findings from Experiment 1

Providing partial support for Hypothesis 1 and full support for Hypothesis 2a, univariate
analyses reveal that compared to empowered women (mean = 3.78), disempowered women
(mean = 4.46) show greater interest in Pharma whitening creams, \( t(251) = 2.85, p = .005 \) (see
Figure 2).\(^3\) For Cosmetic whitening creams, the difference is negligible (disempowered: 4.79
– empowered: 4.66 = 0.13) and not statistically significant, \( t(251) = 0.53, p = .599 \). Effect
size (effect of disempowerment on interest in products) is Cohen’s \( d = 0.36 \) for the Pharma,
compared with Cohen’s \( d = 0.06 \) for the Cosmetic.\(^4\) For both Pharma and Cosmetic, women
in the neutral group show interest that lies between that of women in the disempowered and
empowered groups, suggesting a lack of curvilinear relationship (see Table 1a).

Insert Figure 2 and Table 1a here

\(^3\) We did not restrict our AMT task to only women as we were concerned men might otherwise lie about their
gender to be eligible. In discussing our findings, we focus on responses from women. Analogous analysis on the
men sample does not find any material effects (see Table 1a). This is in line with our expectations as well as
extant research, as although some men use skin whitening creams, the emphasis on fair skin is socially more
pronounced for women (Dixon and Telles, 2017). Recent research, analysing a unique dataset of matrimonial
advertisements in the context of middle-class Indian arranged marriages, documents that prospective bride’s
skin tone is mentioned by groom-wanted advertisements in 75 percent of the cases, whereas prospective
groom’s skin tone is not mentioned by bride-wanted advertisements (Banerjee et al., 2013). We further examine
gender differences in greater detail in the Experiment 3 and discuss the results.

\(^4\) In the terminology of “common language effect size” (Grissom, 1994; Ellis, 2010), there is a 0.60 probability
that a participant from the disempowered group will express greater interest in Pharma whitening creams than a
participant from the empowered group will.
Although random assignment to experimental conditions should rule out alternative explanations for the effects observed in univariate inferential statistics, as robustness tests, we also conducted regression analyses with covariates to examine the effects of disempowerment on women’s preference for skin whitening products across six outcome variables: Cosmetic Product Interest, Pharma Product Interest, Cosmetic Product Rating, Pharma Product Rating, Cosmetic Product Effectiveness, and Pharma Product Effectiveness (see Table 1b). Because the “neutral” group levels were intermediary on all outcomes of interest, these regression analyses focus on the disempowered versus empowered contrast. We employ “Seemingly Unrelated Regression” (SUR) approach to account for the fact that the error terms between estimation equations might be correlated for the same respondent (though inferences drawn from all results remain unchanged if using OLS instead). Consistent with univariate analyses, Column 1 shows no material effect of being disempowered on Cosmetic Product Interest (coefficient = 0.23, se = 0.25, \( p = 0.353 \)), whereas Column 2 shows a strong effect of being disempowered on Pharma Product Interest (coefficient = 0.75, se = 0.23, \( p = 0.001 \)). This represents a predicted value of 4.50 for Pharma Product Interest of the disempowered women, which is substantially (nearly two-fifths a standard deviation) greater than that of 3.74 for the empowered women.

Insert Table 1b here

The result regarding disempowerment leading to increased preference for the pharmaceutical product but not the cosmetic product also holds when using Cosmetic Product Rating and Pharma Product Rating (Columns 3 and 4) as the dependent variables, providing further support to Hypothesis 2a. The finding is also robust to outcomes of Cosmetic Product Effectiveness and Pharma Product Effectiveness (Columns 5 and 6). Thus, Experiment 1 provides evidence clearly consistent with Hypothesis 2a, but not with respect to cosmetic products thus providing only partial support to Hypothesis 1.
EXPERIMENT 2 (USING QUALTRICS PANEL)

There might be concerns regarding our findings being AMT-specific, for example as the AMT sample is not nationally representative or the demographic information therein is not independently verified. We therefore replicated Experiment 1 using a consulting service called “Qualtrics Panel” from Qualtrics (a leading research and analytics firm), used in other management research as potentially more reliable (though more expensive) than alternate platforms like AMT (Crilly, Ni, and Jiang, 2016; Walters et al., 2017; Gromet, Hartson, and Sherman, 2015). Specifically, we now constructed a new sample that was verified as Indian women between the ages of 18 and 40.

Design of Experiment 2

Similar to previous experiment, the final sample was restricted to participants who had followed instructions on the power recall task, participated only once, and completed the experiment in a reasonable timeframe (5 to 60 minutes; median time to complete was 16 minutes). We also added a few “attention checks” to ensure that responses only from individuals diligently answering the questions were considered (Berinsky, Margolis, and Sances, 2014; Chandler and Shapiro, 2016). For example, one of the items in the section eliciting preferences said “This is an attention check. Please select ‘Not effective at all’ for this statement”, and participants failing this check were screened out. We also built in some redundancy across questions to ensure data quality, such as only including observations where information regarding year of birth and age was internally consistent. The final sample size for Experiment 2 was 318 women.

The experimental design and measures in Experiment 2 were the same as in Experiment 1, with two exceptions. First, having established the “neutral” power writing as intermediary between the empowered and disempowered conditions (i.e., there are no curvilinear effects), we did not include this condition in the replication study to increase
statistical power while retaining cost-effectiveness of the experiment. Second, in addition to all the control variables included in Experiment 1, Experiment 2 also captured two additional factors. To test the potential moderating effects of the frequency of use of skin whitening creams, the participants were asked, “How frequently have you used any skin whitening cream in recent months?” Participants responded on a seven-point scale: Never (1), At most once per month (2), More than once per month (3), More than once per week (4), Almost daily (5), Every day (6), and Multiple times per day (7). Because this is not an interval scale, we constructed a binary variable to identify the participants who regularly use skin whitening creams, Regular Users (= 1 if the participant uses skin whitening creams greater than or equal to more than once per week and = 0 otherwise). Weekly Working Hours measured how long every week she worked in some form of employment or income-generating activities.

**Findings from Experiment 2**

Similar to Experiment 1 and in support of Hypothesis 2a and partial support of Hypothesis 1, univariate analyses of Experiment 2 reveal that compared to empowered women (mean = 3.82), disempowered women (mean = 4.23) tended to show greater interest in Pharma whitening creams, $t(316) = 1.83, p = .068$ (see Figure 3 and Table 2a). As in Experiment 1, there was no effect of power prime on interest in Cosmetic whitening creams, $t(316) = -0.68, p = .495$. Corresponding effect size is Cohen’s $d = 0.21$ for the Pharma, compared with Cohen’s $d = -0.07$ for the Cosmetic.$^5$

Insert Figure 3 and Table 2a here

Because the effects of the power prime were weaker than in Experiment 1, we also explored potential moderating variables among the individual characteristics we had for participants. These analyses identified regular use of skin whitening creams as a potential

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$^5$ There is a 0.56 probability that a participant from the disempowered group will express greater interest in Pharma whitening creams than a participant from the empowered group will.
moderator. Among regular users of skin whitening creams, compared to empowered women (mean = 4.65), disempowered women (mean = 5.39) show greater interest in Pharma whitening creams ($p = 0.003$) with an effect size of Cohen’s $d = 0.47$. There seem to be an evidence for the moderating effects of the frequency of use of skin whitening creams on the interest in Pharma, whereas no such relationship is observed for Cosmetic. Thus, univariate findings from Experiment 2 based on a sample from population distinct from Experiment 1 also support Hypothesis 2a. These findings also suggest that the effect of disempowerment on interest in Pharma creams is greater for regular users of skin whitening creams.

Analogous to Table 1b for Experiment 1, Table 2b shows the regression results for Experiment 2. Column 1 shows no material effect of being disempowered on women’s Cosmetic Product Interest (coefficient = -0.04, $se = 0.23$, $p = 0.854$), whereas Column 2 shows an effect of being disempowered on women’s Pharma Product Interest (coefficient = 0.44, $se = 0.22$, $p = 0.042$). Once more, these findings fully support Hypothesis 2a, and are similar to those of Experiment 1. As before, these results are also robust to using either Pharma Product Rating or Pharma Product Effectiveness as the dependent variables for capturing preferences of the participants.\footnote{There is a 0.63 probability that a regular user participant from the disempowered group will express greater interest in Pharma whitening creams than a regular user participant from the empowered group will.}

Insert Table 2b here

It is important to note that Experiments 1 and 2 do not resolve a concern that people may become increasingly more interested in whitening creams after reading about a similar product—both experiments presented the milder cosmetic cream first and then the riskier pharmaceutical product. To rule out this order effect as a potential explanation for our findings, we tested for the effects of disempowerment on women’s willingness to take greater risk for having fairer skin in Experiment 3. If Experiment 3 (where order effects are not a \footnote{In addition, in analysis not reported here to conserve space, similar results (but with slightly stronger effect sizes) are obtained for the regular users subsample for all our dependent variables.}
confounding factor) reveals findings consistent with hypotheses and with Experiments 1 and 2, this increases our confidence that our findings are not driven by order effects.

EXPERIMENT 3 (USING MECHANICAL TURK)

While we argued that increased risk-taking might be a potential mechanism explaining why women’s disempowerment would lead to greater preference for the stronger and riskier pharmaceutical skin whitening products (Hypothesis 2b), neither Experiment 1 nor Experiment 2 provide direct evidence of this mechanism. There might be concerns regarding the findings of Experiment 1 and 2 being driven by alternative mechanisms such as brand, price, or product marketing. Therefore, to explicitly test whether increased risk-taking is indeed a mechanism, we conducted Experiment 3.

Design of Experiment 3

AMT workers participated in this experiment. The task was posted for four weeks as “Fill short survey on women’s consumer products in India” for USD 1.00. Participation was restricted to India-based workers with an average “HIT approval rate” of not less than 90%. Consistent with prior experiments, we restricted our final sample to participants who had followed instructions on the power recall task, participated only once, and completed the experiment in a reasonable timeframe (5 to 60 minutes; median time to complete was 14.5 minutes). The final sample size for Experiment 3 was 175 women and 194 men.

As in prior experiments, participants in Experiment 3 were randomly assigned to an empowered or disempowered condition, but the dependent variable now measured their willingness to take risk for having fairer skin. Subsequent to the randomly assigned intervention of low vs high power, all participants responded to questions on their willingness to take risk for having fair skin. One question measured the participants’ willingness to take risk in long term by asking “If the risk can manifest only in the long term (years from now), how much risk would you be willing to take for having more fair skin?” Another question
measured the participants’ willingness to take risk in short term by asking “If the risk can manifest even in the short term (within weeks), how much risk would you be willing to take for having more fair skin?” In both cases, participants indicated their willingness to take risk on a seven-point scale No risk at all (1) to Extreme risk (7). The responses served as the two primary outcome variables for risk willingness: Long Term and Short Term.

**Findings from Experiment 3**

The results of Experiment 3 support Hypothesis 2b that proposed women’s disempowerment would lead them towards greater willingness to take risk to lighten their skin (see Figure 4a). Specifically, women who felt disempowered were more willing to take risk to lighten their skin particularly in the short term. Following the analyses from Experiment 2 indicating the effects of disempowerment on women’s interest in risky skin whitening products could be particularly strong among women who are regular users of skin whitening products, we again analysed a subsample of regular users (consistently defined as use greater than or equal to more than once per week). Regular users showed stronger effects of disempowerment than the full sample (Figure 4a).

Men did not respond to disempowerment with increased willingness to take risk to lighten their skin. Figure 4b visually depicts how (for full sample as well as for regular users subsample), compared to empowered men, disempowered men show less (rather than greater) willingness to take risk for having fairer skin, both in long term and in short term. This is consistent with the findings of Experiment 1 that showed effects of disempowerment on greater interest in Pharma whitening creams for women, but not for men.

Insert Figures 4a and 4b here

Because the effects of the disempowerment prime only emerged among women (Experiment 1) and particularly strongly among women who regularly used skin whitening products (Experiment 2), we focus on this subgroup in hypothesis testing analyses. The
regular users sample of women shows an increase in risk willingness in both long term and short term with strong effect sizes for both the long term (Cohen’s $d = 0.30; p = 0.176$) and for the short term (Cohen’s $d = 0.42; p = 0.059$).\(^8\) In contrast to women, no such relationship is observed for men. Thus, univariate findings from Experiment 3 support Hypothesis 2b and these findings suggest that the effect of disempowerment on women’s increased willingness to take risk for having fairer skin is greater for regular users of skin whitening creams. Table 3a shows descriptive statistics for the key variables by experimental condition.

Insert Table 3a here

Table 3b shows the regression results for Experiment 3. Column 2 shows material effect of being disempowered on women’s increased willingness to take risk in short term (coefficient = 0.40, se = 0.24, $p = 0.103$) for having fairer skin, whereas Column 4 shows stronger corresponding effects of disempowered on the regular users sample of women (coefficient = 0.71, se = 0.34, $p = 0.040$). The effects of women’s disempowerment on willingness to take long-term risk were not significant in the full (coefficient = 0.19, se = 0.23, $p = 0.429$) or regular users samples (coefficient = 0.39, se = 0.32, $p = 0.22$). In contrast to women, no such relationship is observed for men.

Insert Table 3b here

**DISCUSSION, LIMITATIONS AND CONCLUSION**

This research brings new evidence to inform the issue of marketing of controversial products and the role of psychological disempowerment in people’s use of products that put their well-being at risk. Specifically, we have examined how an experimentally induced state of disempowerment influences women’s preferences for skin whitening products in India. In

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\(^8\) There is a 0.58 probability that a regular user woman participant from the disempowered group will show greater long term risk willingness than a woman participant from the empowered group will. Similarly, there is a 0.62 probability that a regular user woman participant from the disempowered group will show greater short term risk willingness than a regular user woman participant from the empowered group will.
doing so, our research extends the academic literature on colorism to beyond the typical context of a Western society, which prominent scholars have identified as an important direction in this stream of work (Dixon and Telles, 2017).

Randomized assignment of participants into different conditions enables us to draw causal inference. Our first two experiments, using different participant samples, find consistent evidence that disempowerment increases women’s preference for the strong but risky pharmaceutical skin whitening creams, but not for mild but safe cosmetic creams. Our third experiment sheds light on the willingness to take increased risk for having fairer skin as a mechanism driving this relationship. Further, the effects of disempowerment on women’s increased willingness to take risk seem to be higher for the regular users of skin whitening creams. As we do not observe these effects for men in our samples, our findings concur with an assertion that the phenomenon of colorism is not gender-neutral (Dixon and Telles, 2017).

Our findings reinforce a perspective that disempowered people might be more vulnerable to decision biases that negatively affect their own long-term well-being (Haushofer and Fehr, 2014). Our specific contribution is to advance what has so far been anecdotes-based debate on how skin whitening products can or cannot perpetuate sociocultural biases and lead to exploitation of vulnerable women (Karnani, 2007; Hammond and Prahalad, 2004). Rather than considering the skin whitening sector as being homogenous, we bring a perspective that considers product differentiation in the extent of expected effectiveness and the health risks that go along with these. Our findings show that women in a state of disempowerment might indeed be at increased risk of using certain products such as strong skin whitening creams that inflict greater long-term harm.

Going beyond the specific issue of skin whitening products, our research thus highlights a broader point with respect to disempowered people in our context being more willing to take risk to improve their status. In doing so, we contribute to the literature
showing how the link between disempowerment and risk-taking might be context-specific: while a few recent papers have demonstrated a positive relationship in certain settings (Haushofer and Fehr, 2014; Joshi and Fast, 2013; May and Monga, 2014; Schaerer, du Plessis, and Galinsky, 2016a), others have found a negative relationship in other contexts (Anderson and Galinsky, 2006; Keltner et al., 2003). Relatedly, readers may wonder following our results if disempowerment more broadly leads people to taking action. This does not seem to be the case, as there exists a robust literature showing that disempowerment leads to taking less action. This has been demonstrated in terms of disempowerment leading to a reduction in physical actions taken to improve one’s situation (Galinsky et al., 2003) as well as in feeling more inhibited against taking action (Narayanan et al., 2013).

We have examined just one part of the interconnected and complex processes underlying sociocultural biases, colorism, and women’s disempowerment. Although we do not directly test this, our theorizing is consistent with the idea that disempowerment might lead to sensitivity to product marketing. We suspect that in the larger systems of cultures in which these products are marketed and used, this could be a part of the story. However, this piece of the bigger picture is unlikely to be driving our effects. This is because participants were not exposed to any marketing material between the disempowerment prime and when they reported their preferences for product use in any experimental conditions. For sensitivity to product marketing to be a viable alternative mechanism, it would need to explain the entire pattern of results, i.e., (a) the relationship between disempowerment and increased preference for riskier pharmaceutical whitening creams but not for milder cosmetic creams, (b) that the results hold for women but not for men, and (c) that there is a relationship between disempowerment and increased willingness to take risk for having fairer skin for women but not for men. Thus, although we see marketing sensitivity as an interesting extension hypothesis, we do not think it is a viable alternative mechanism for the current findings. This
is particularly true given that the milder cosmetic product preferences (which are more heavily advertised) were not influenced by the disempowerment prime.

Admittedly, our experimental design comes with limitations. For example, although the temporary power prime we employ as an intervention is a well-established research protocol in behavioral research (Galinsky et al., 2003), the effects of this intervention might be relatively mild and fleeting. Our experiments also rely on stated preferences rather than measuring actual purchasing behavior of consumers. While we would have ideally liked to study effects on actual purchasing choices, the pharmaceutical creams widely misused for skin whitening purposes are medically unsafe as a general skin whitening product, and hence for ethical reasons cannot be directly used in experimental studies like ours.9

On the issue of generalizability, we should also note that our participant pool is unlikely to represent women not easily reachable through English-language surveys or online platforms. So a natural extension of our research would be to conduct experiments specifically involving such consumers (Christensen, Siemsen, and Balasubramanian, 2015). It would also be of interest to conduct analogous studies for other types of products— both within the beauty sector (e.g., other controversial beauty products) and beyond (e.g., high-calorie and low-nutrition foods and beverages; see Dubois, Rucker, and Galinsky, 2012)— and investigate how the issues we have examined manifest in these other contexts.

Regarding future research avenues, it is worth noting that our observed lack of association between disempowerment and preference for the milder creams is in itself insufficient for making conclusive statements regarding their welfare effects. One perspective could be that such products heavily marketed and sold by established self-regulating firms are

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9 Although stated preferences are not a perfect proxy for actual purchase, marketing, psychology and economics literatures often employ these as legitimate and important means of measurement— especially in experimental settings. The debate on use of stated preferences in research is far from settled. For example, in defence of this approach, Ajzen and Fishbein (1980) document that there is typically a significant relationship between stated preferences and actions. More recently, a meta-analysis by Glasman and Albarracin (2006) shows attitudes and behavior to be empirically related with correlation coefficients between .48 and .54 (95% confidence interval).
not influenced by disempowerment. However, marketing of these products may nevertheless reinforce biases related to colorism, hence still having a spillover effect on consumers’ vulnerability to the riskier pharmaceutical products. In other words, sales of riskier products might not have arisen if the reputed firms had not legitimized the sector in the first place and were not creating demand for the overall sector. These concerns are further aggravated in settings where persuasive advertising might trump informative advertising (Crisp, 1987). Future research could explore such possibilities, for example, by studying whether advertising of the milder creams affects consumer demand even for the riskier creams.

Resolving the issue of how to ensure companies conduct business responsibly is particularly important for countries with underdeveloped institutions (Khanna and Palepu, 2013). Often foreign firms are more likely to be blamed for corporate social irresponsibility in the media (Crilly et al., 2016; Kolbel, Busch, and Jancso, 2017). The implications of our differential findings for the milder cosmetic creams (mostly manufactured and sold by reputed multinational firms) and the riskier pharmaceutical whitening creams (mostly manufactured and sold by less well-known domestic firms) suggest more research needs to be done to unpack the role of domestic firms in the context of business ethics and corporate social irresponsibility. Creating intermediaries that protect rights of vulnerable segments, educate customers, reduce information asymmetries between producers and consumers, and coordinate sector-level efforts can potentially help align market outcomes with societal interests. Rather than relying only on self-regulation by firms or only on policy enforcement, recent literature suggests that the most effective approach is an appropriate balance and integration of the two (Mahoney, McGahan, and Pitelis, 2009; Mendoza, 2015).

The likelihood of such spillover effects often also comes up in the context of other controversial products, such as marketing for cigarettes increasing the demand for harmful tobacco products (including domestically made “bidis” in India) and that for modern liquor increasing the demand for alcohol in general (including moonshine, which is of questionable quality and often leads to severe side effects including numerous deaths every year).
Many scholars question whether or not firms could self-regulate and be socially responsible on their own, and consider policy intervention a more effective solution (Chatterji and Listokin, 2007; Fleming and Jones, 2013; Karnani, 2007). Such arguments often turn into ideological debates regarding whether firms can or even should focus on anything other than profitability and shareholder value (Freeman et al., 2010; Friedman, 1970; Stout, 2012; Weitzel and Rogers, 2015). So a less controversial direction continues to be identifying conditions under which a firm can make a “business case” for being socially responsible (Bode, Singh, and Rogan, 2015; Cheng, Ioannou, and Serafeim, 2013; Henisz, Dorobantu, and Nartey, 2014; Klein et al., 2012; Madsen and Rodgers, 2015; Muller and Kräussl, 2011). At the same time, we consider it important for academics to consider societal impact not only as an instrument for business but also as an end in itself. Following Hinings and Greenwood (2002), research on strategy and organizations could do more to also develop insight into how “organizations affect the pattern of privilege and disadvantage in society” (p. 411). Our hope is that more research will embrace this challenge.

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Table 1a. Descriptive statistics for the participants (both women and men) in Experiment 1

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Note: All dependent variables are measured on seven-point scales. *Married* indicates marital status. *Age* is measured in years. *Education* is 6 for post graduate, 5 for graduate, 4 for Grade 12 or equivalent, 3 for Grade 10 or equivalent, 2 for between Grades 5 and 9, and 1 for below Grade 5 (including no formal schooling). *Household Income* takes a value of 1 for monthly household income less than Rupees 10,000 and 11 for at least Rupees 100,000, with values 2 through 10 denoting income bands increasing in Rupees 10,000 intervals. *Skin Complexion* is 1 for extremely fair, 2 for fair, 3 for slightly fair, 4 for neither fair nor dark, 5 for slightly dark, 6 for dark, and 7 for very dark.
Table 1b. Regression analysis comparing disempowered versus empowered women in Experiment 1

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<td>0.088</td>
<td>-0.139</td>
<td>-0.043</td>
</tr>
<tr>
<td></td>
<td>(0.190)</td>
<td>(0.181)</td>
<td>(0.158)</td>
<td>(0.153)</td>
<td>(0.175)</td>
<td>(0.157)</td>
</tr>
<tr>
<td></td>
<td>[0.323]</td>
<td>[0.673]</td>
<td>[0.246]</td>
<td>[0.564]</td>
<td>[0.425]</td>
<td>[0.780]</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.056</td>
<td>-0.057</td>
<td>-0.054</td>
<td>-0.066</td>
<td>-0.065</td>
<td>-0.081</td>
</tr>
<tr>
<td></td>
<td>(0.045)</td>
<td>(0.042)</td>
<td>(0.037)</td>
<td>(0.036)</td>
<td>(0.041)</td>
<td>(0.037)</td>
</tr>
<tr>
<td></td>
<td>[0.196]</td>
<td>[0.182]</td>
<td>[0.143]</td>
<td>[0.063]</td>
<td>[0.109]</td>
<td>[0.026]</td>
</tr>
<tr>
<td>Skin Complexion</td>
<td>-0.164</td>
<td>-0.168</td>
<td>-0.194</td>
<td>-0.163</td>
<td>-0.232</td>
<td>-0.012</td>
</tr>
<tr>
<td></td>
<td>(0.105)</td>
<td>(0.100)</td>
<td>(0.086)</td>
<td>(0.085)</td>
<td>(0.097)</td>
<td>(0.087)</td>
</tr>
<tr>
<td></td>
<td>[0.119]</td>
<td>[0.093]</td>
<td>[0.026]</td>
<td>[0.054]</td>
<td>[0.016]</td>
<td>[0.090]</td>
</tr>
<tr>
<td>Constant</td>
<td>7.907</td>
<td>5.019</td>
<td>7.698</td>
<td>5.201</td>
<td>7.433</td>
<td>4.342</td>
</tr>
<tr>
<td></td>
<td>(1.333)</td>
<td>(1.269)</td>
<td>(1.109)</td>
<td>(1.074)</td>
<td>(1.229)</td>
<td>(1.098)</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Observations</td>
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<td>253</td>
<td>253</td>
<td>253</td>
<td>253</td>
<td>253</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.164</td>
<td>0.131</td>
<td>0.187</td>
<td>0.127</td>
<td>0.119</td>
<td>0.140</td>
</tr>
</tbody>
</table>

Note: These results are based on a Seemingly Unrelated Regression (SUR) framework that accounts for correlation in the error terms across different models. Standard errors in parentheses; p-values in square brackets; indicators for state of residence employed but not shown.
Table 2a. Descriptive statistics for the participants (only women) in Experiment 2

<table>
<thead>
<tr>
<th>Variables</th>
<th>Empowered Group (N=157)</th>
<th>Disempowered Group (N=161)</th>
<th>Disempowered - Empowered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std Dev</td>
<td>Mean</td>
</tr>
<tr>
<td>Dependent variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cosmetic Product Interest</em></td>
<td>3.88</td>
<td>2.23</td>
<td>3.71</td>
</tr>
<tr>
<td><em>Pharma Product Interest</em></td>
<td>3.82</td>
<td>2.00</td>
<td>4.23</td>
</tr>
<tr>
<td><em>Cosmetic Product Rating</em></td>
<td>4.05</td>
<td>1.94</td>
<td>3.84</td>
</tr>
<tr>
<td><em>Pharma Product Rating</em></td>
<td>4.02</td>
<td>1.73</td>
<td>4.26</td>
</tr>
<tr>
<td><em>Cosmetic Product Effectiveness</em></td>
<td>3.92</td>
<td>1.81</td>
<td>3.89</td>
</tr>
<tr>
<td><em>Pharma Product Effectiveness</em></td>
<td>3.94</td>
<td>1.59</td>
<td>4.17</td>
</tr>
<tr>
<td>Individual characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Married</em></td>
<td>0.64</td>
<td>0.48</td>
<td>0.55</td>
</tr>
<tr>
<td><em>Age</em></td>
<td>29.4</td>
<td>5.76</td>
<td>28.8</td>
</tr>
<tr>
<td><em>Education</em></td>
<td>5.44</td>
<td>0.59</td>
<td>5.37</td>
</tr>
<tr>
<td><em>Household Income</em></td>
<td>4.96</td>
<td>1.31</td>
<td>5.01</td>
</tr>
<tr>
<td><em>Skin Complexion</em></td>
<td>2.84</td>
<td>1.12</td>
<td>3.08</td>
</tr>
<tr>
<td><em>Weekly Working Hours</em></td>
<td>3.02</td>
<td>1.51</td>
<td>3.23</td>
</tr>
</tbody>
</table>

Note: *Household Income* is defined on a different scale in this experiment (1 for monthly household income less than Rupees 5,000 and 7 for more than Rupees 160,000, with intermediate values 2 through 6 denoting income bands increasing in logarithmic order). *Weekly Working Hours* takes one of five values: 1 for less than 10 hours a week, 2 for 10-20 hours a week, 3 for 20-30 hours a week, 4 for 30-40 hours a week, and 5 for more than 40 hours a week. The remaining variables are same as in Table 1a.
### Table 2b. Regression analysis comparing disempowered versus empowered women in Experiment 2

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Cosmetic Product Interest</th>
<th>Pharma Product Interest</th>
<th>Cosmetic Product Rating</th>
<th>Pharma Product Rating</th>
<th>Cosmetic Product Effectiveness</th>
<th>Pharma Product Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>Disempowered</td>
<td>-0.042 (0.231)</td>
<td>0.44 (0.217)</td>
<td>-0.092 (0.651)</td>
<td>0.302 (0.115)</td>
<td>0.135 (0.489)</td>
<td>0.315 (0.909)</td>
</tr>
<tr>
<td></td>
<td>0.854 [0.042]</td>
<td>0.203 [0.042]</td>
<td>0.191 [0.115]</td>
<td>0.186 [0.090]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>1.213 (0.311)</td>
<td>0.253 (0.292)</td>
<td>1.013 (0.273)</td>
<td>0.261 (0.257)</td>
<td>0.926 (0.262)</td>
<td>0.149 (0.250)</td>
</tr>
<tr>
<td></td>
<td>0.386 [0.000]</td>
<td>0.000 [0.000]</td>
<td>0.310 [0.000]</td>
<td>0.550 [0.000]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.015 (0.027)</td>
<td>0.025 (0.025)</td>
<td>-0.017 (0.023)</td>
<td>0.023 (0.022)</td>
<td>0.004 (0.022)</td>
<td>0.032 (0.021)</td>
</tr>
<tr>
<td></td>
<td>[0.564]</td>
<td>[0.310]</td>
<td>[0.472]</td>
<td>[0.294]</td>
<td>[0.873]</td>
<td>[0.138]</td>
</tr>
<tr>
<td>Education</td>
<td>-0.420 (0.210)</td>
<td>-0.267 (0.197)</td>
<td>-0.308 (0.185)</td>
<td>-0.315 (0.174)</td>
<td>-0.223 (0.177)</td>
<td>-0.226 (0.169)</td>
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<tr>
<td></td>
<td>[0.046]</td>
<td>[0.176]</td>
<td>[0.096]</td>
<td>[0.071]</td>
<td>[0.208]</td>
<td>[0.181]</td>
</tr>
<tr>
<td>Household Income</td>
<td>0.044 (0.098)</td>
<td>0.071 (0.092)</td>
<td>0.017 (0.086)</td>
<td>0.050 (0.081)</td>
<td>0.034 (0.082)</td>
<td>0.049 (0.078)</td>
</tr>
<tr>
<td></td>
<td>[0.650]</td>
<td>[0.436]</td>
<td>[0.843]</td>
<td>[0.534]</td>
<td>[0.679]</td>
<td>[0.534]</td>
</tr>
<tr>
<td>Skin Complexion</td>
<td>-0.329 (0.099)</td>
<td>-0.132 (0.092)</td>
<td>-0.283 (0.087)</td>
<td>-0.178 (0.081)</td>
<td>-0.255 (0.083)</td>
<td>-0.135 (0.079)</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.154]</td>
<td>[0.001]</td>
<td>[0.029]</td>
<td>[0.002]</td>
<td>[0.088]</td>
</tr>
<tr>
<td>Weekly Working Hours</td>
<td>0.354 (0.081)</td>
<td>0.280 (0.076)</td>
<td>0.300 (0.071)</td>
<td>0.211 (0.067)</td>
<td>0.277 (0.068)</td>
<td>0.165 (0.065)</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.011]</td>
</tr>
<tr>
<td>Constant</td>
<td>6.499 (1.291)</td>
<td>4.149 (1.211)</td>
<td>6.464 (1.335)</td>
<td>4.908 (1.067)</td>
<td>5.209 (1.087)</td>
<td>4.579 (1.036)</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Observations</td>
<td>318</td>
<td>318</td>
<td>318</td>
<td>318</td>
<td>318</td>
<td>318</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.231</td>
<td>0.157</td>
<td>0.238</td>
<td>0.147</td>
<td>0.231</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Note: These results are based on a Seemingly Unrelated Regression (SUR) framework that accounts for correlation in the error terms across different models. Standard errors in parentheses; p-values in square brackets; indicators for state of residence employed but not shown.
Table 3a. Descriptive statistics for the participants (both women and men) in Experiment 3

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>Std Dev</td>
<td>Mean</td>
<td>Std Dev</td>
<td>Mean</td>
<td>Std Dev</td>
<td>Mean</td>
<td>Std Dev</td>
</tr>
<tr>
<td>Dependent variables</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Willingness: Long Term</td>
<td>Empowered</td>
<td>3.71</td>
<td>1.84</td>
<td></td>
<td></td>
<td></td>
<td>4.08</td>
<td>1.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Willingness: Short Term</td>
<td>Empowered</td>
<td>3.56</td>
<td>1.99</td>
<td></td>
<td></td>
<td></td>
<td>3.96</td>
<td>1.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual characteristics</td>
<td>Married</td>
<td>0.55</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td>0.57</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>31.1</td>
<td></td>
<td>8.98</td>
<td></td>
<td></td>
<td></td>
<td>30.9</td>
<td>9.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>5.24</td>
<td></td>
<td>0.52</td>
<td></td>
<td></td>
<td></td>
<td>5.22</td>
<td>0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household Income</td>
<td>3.71</td>
<td></td>
<td>1.49</td>
<td></td>
<td></td>
<td></td>
<td>3.75</td>
<td>1.47</td>
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</tbody>
</table>
| Note: Risk Willingness: Long Term and Risk Willingness: Short Term are measured on seven-point scales.
Table 3b. Regression analysis comparing disempowered versus empowered participants in Experiment 3

<table>
<thead>
<tr>
<th>Group Sample</th>
<th>Full Women</th>
<th>Regular Users Women</th>
<th>Full Men</th>
<th>Regular Users Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variables</td>
<td>Long Term</td>
<td>Short Term</td>
<td>Long Term</td>
<td>Short Term</td>
</tr>
<tr>
<td>Disempowered</td>
<td>0.185</td>
<td>0.397</td>
<td>0.394</td>
<td>0.706</td>
</tr>
<tr>
<td>Married</td>
<td>0.142</td>
<td>0.618</td>
<td>0.272</td>
<td>0.971</td>
</tr>
<tr>
<td>Age</td>
<td>-0.018</td>
<td>-0.04</td>
<td>-0.05</td>
<td>-0.063</td>
</tr>
<tr>
<td>Education</td>
<td>0.070</td>
<td>-0.100</td>
<td>-0.181</td>
<td>-0.329</td>
</tr>
<tr>
<td>Household Income</td>
<td>0.322</td>
<td>-0.299</td>
<td>-0.269</td>
<td>-0.257</td>
</tr>
<tr>
<td>Observations</td>
<td>175</td>
<td>175</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.298</td>
<td>0.324</td>
<td>0.305</td>
<td>0.371</td>
</tr>
</tbody>
</table>

Note: These results are based on a Seemingly Unrelated Regression (SUR) framework that accounts for correlation in the error terms across different models. Standard errors in parentheses; p-values in square brackets; indicators for state of residence employed but not shown. N = 193 for men because state is missing for one observation.
Notes: In India market, revenues of hydroquinone-based dermatological products have grown 8.5 times from INR 460 million (approx. USD 7 million at exchange rate of 1 USD = 64 INR) in 2008 to INR 3.9 billion (approx. USD 61 million) in 2017. Such remarkable increase in revenues of hydroquinone-based dermatological products have occurred at an annual growth rate of 27%. In contrast, the total dermatological market revenues have grown only 2.8 times at an annual growth rate of 12%. Revenues for 2008-2012 were obtained from AIOCD (All India Organization of Chemists and Druggists) and revenues for 2014-2017 were obtained from IMS Health. Missing revenue figures for 2013 were interpolated as the average of 2012 and 2014.

Figure 1: Rising sales of pharma products (containing hydroquinone) for skin whitening in India market
Figure 2: Women’s interest in cosmetic vs pharma products (Experiment 1)

Figure 3: Women’s interest in cosmetic vs pharma products (Experiment 2)
Figure 4a: Women’s willingness to take risk for having fairer skin (Experiment 3)

Figure 4b: Men’s willingness to take risk for having fairer skin (Experiment 3)
Appendix A. Instructions regarding the skin whitening products

In Experiment 1, after the power priming exercise, all respondents were shown the following message:

“Thank you for telling us about your social experience. Next, you can answer some questions about some cosmetic products. Please answer honestly about these products, telling us what is true for you, as there are no right or wrong answers to any of these questions.”

For the mild but safe products, the instruction (in Experiment 1) was:
“Please answer the following questions with respect to Fair & Lovely, the leading skin whitening cream in India.”

For the strong but risky products, the instruction (in Experiment 1) was:
“Please answer the following questions with respect to pharmaceutical creams, gels, or lotions that are available as skin whitening products only from chemist shops or pharmacies.”

In Experiment 2, after the power priming exercise, all respondents were shown the following message:

“Thank you for telling us about your social experience. Next, we will ask you about skin whitening products that are commonly sold in India to help women achieve fairer skin complexion. Please share your honest views about these products as there are no right or wrong answers to any of these questions. You will first answer a few questions about Fair & Lovely (a cosmetic skin whitening cream normally available at retail shop and stores). Then you will answer similar questions about pharmaceutical skin whitening creams (stronger creams normally available only at chemist shops or pharmacies).”

For the mild but safe products, the instruction (in Experiment 2) was:
“Please answer the following questions with respect to Fair & Lovely, a cosmetic skin whitening cream.”

For the strong but risky products, the instruction (in Experiment 2) was:
“You will now answer similar questions about pharmaceutical skin whitening creams (which are stronger creams normally available only at chemist shops or pharmacies).”