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Counter-Stereotypical Products: Barriers to Their Adoption and Strategies to Overcome Them

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Abstract

Counter-stereotypical products (CSPs) are targeted at groups that are opposite to the stereotypical users of these products (e.g., face-cream for men, construction tools for women). Such products entail adoption barriers, as they are associated with a dissociative out-group (e.g., men avoid products used by women). A theoretical framework is developed to investigate such barriers by outlining consumers' cognitive and affective responses to CSPs; namely: *stereotyping* (CSP is considered appropriate only for the stereotypical user group), *subtyping* / *subgrouping* (CSP is useful for certain individuals or subgroups), and *derogating* (disparaging the CSP due to a perceived threat to self). Study 1 verified these responses and demonstrated their effect on the evaluation of CSPs targeting men versus women. Overall, CSPs targeting men faced more barriers than those targeting women, and this was especially so for publicly consumed CSPs (e.g., purse for men) as compared to privately consumed ones (e.g., hair-remover for men). Study 2 examined the effect of a common marketing tool - product design color (e.g., using blue for men and pink for women) - in reducing the above barriers. It was found that blue is effective in reducing stereotype-based barriers for CSPs targeting men. For CSPs targeting women, using pink was only effective for women scoring high on femininity, and it backfired for those scoring low on femininity.

Keywords: stereotyping; counter-stereotypes; product adoption; gender; color.

A few years ago, Spanx introduced a new product – body-shaping undergarment for men – promoted as “designed to give an average-sized man a more streamlined look” (Quittner, 2009).

Spanx has been very successful with their body shaping undergarments for women, and this was its recent foray into the male market. The reaction to this product was mixed and the product failed to catch-on. While some reviews touted it as the next big thing (Saint Louis, 2010), others questioned whether Spanx for Men was a threat to masculinity (Nolan, 2010). Similar to this, construction tools and auto-repair kits can be considered as stereotypically associated with men, and they may not be able to successfully cross the boundary to appeal to women. Several brands attempt to cross this boundary by introducing such *counter-stereotypical products* (CSPs) (ones that are stereotypically associated with one demographic group and are thus atypical of the opposing out-group). However, there is little research that has systematically examined the psychological barriers to the adoption of such products and strategies to overcome these barriers.

The effect of counter-stereotypes has scarcely been researched in marketing. Among the few exceptions, Matta and Folkes (2005) have examined the effect of counter-stereotypical service providers. However, their research focused on the effect of such providers (e.g., a female financial advisor) on the perceptions of other employees and the firm, and not on identifying the barriers to accepting such providers due to the associated stereotypes. A few other studies have examined the effect of brand-related stereotypes (e.g., Escales & Bettman, 2005; White & Dahl, 2007), and on consumer evaluations of cross-gender brand extension (e.g., *Channel* – a brand associated with women – launching shirts, pants or jackets for men; Jung & Lee, 2006). These studies examined the effect of brand-level stereotypes, but the products themselves (e.g., shirts for men) were not new and counter-stereotypical to the targeted group. The current research is focused on the adoption of CSPs that are entirely new to the target market (e.g., purse for men). These CSPs are likely to face resistance in the target group given their stereotypical associations with the original user group (e.g., Spanx body-shaping undergarment for men may be perceived as a feminine product, and thus avoided by the male target group). Understanding the psychological bases of this resistance can help firms develop strategies to overcome the adoption barriers.

The current research investigates these very issues and seeks to uncover the obstacles to the adoption of CSPs. Using the existing literature on stereotyping and social-identity threat, a theoretical framework is developed to identify the different psychological (cognitive and affective) barriers to the adoption of such products. The first two barriers are more cognitively based and occur as consumers try to understand and categorize a CSP that is originally associated with an out-group. Namely, *stereotyping* (CSP is considered as appropriate only for the stereotypical group and is inappropriate for the target group) and *sub-typing / subgrouping* (CSP is appropriate only for specific users or sub-groups within the targeted group). The third barrier is more affectively based; namely, *derogating* and it occurs when the CSP threatens the self-identity of the targeted users. Moreover, since consumers are more concerned about self-image management in a public setting (Berger & Heath, 2007; White & Dahl, 2006; 2007), publicly consumed CSPs (e.g., purse for men) are likely to face more barriers than privately consumed ones (e.g., hair-remover for men). In our studies, we focus on CSPs targeting the two gender groups (men vs. women), as these opposing social groups are the most commonly targeted by CSPs, and there are distinct gender stereotypes that hamper the adoption of such products in the marketplace. Study 1 used a set of four CSPs targeting men versus women and consumed in a private versus public setting. It was found that the CSPs faced the above identified barriers to a different extent, and the type of barriers had a direct effect on the evaluation of these CSPs. Specifically, derogating (due to threat to self) had the most negative impact on CSP evaluation, followed by the barrier of stereotyping, and lastly sub-typing/sub-grouping, which was the least significant barrier. In addition, it was found that CSPs targeting men (vs. women) and those consumed publicly (vs. privately) entailed more barriers (both cognitive and affective ones) and lower evaluations. Study 2 examined the effectiveness of altering the product design (namely, color) on CSP adoption (e.g., using pink for construction tools made for women, and blue for face grooming products for men). It was found that this strategy had a significant positive effect for CSPs targeting men. For CSPs targeting women, using pink was effective only for women scoring high on femininity, but it backfired for those scoring low on femininity and leads to lower evaluations. This implies that the

commonly used strategy of altering the product design to match the preferences of the target market (e.g., the “pink it and shrink it” strategy when targeting women) is not always effective.

In the subsequent sections, first the literature in marketing and psychology on the effect of stereotypes on product and people perception is reviewed. This literature is then applied to the context of CSPs targeting men versus women, and potential psychological barriers to the adoption of such products are identified. Subsequently, two experimental studies examine these impediments and the efficacy of product design strategies in overcoming these barriers. Finally, the key theoretical and managerial contributions of this research are discussed.

Literature Review

There is extensive research in marketing that examines factors that influence the consumer adoption of new products (e.g., the seminal works of Gatignon & Robertson, 1985; Ostlund, 1974; Rogers, 1983). In the context of CSPs, the most relevant factors affecting their adoption are those of compatibility (with existing values and norms) (Rogers, 1983) and perceived risk (Ostlund, 1974). While CSPs offer benefits to their target market (e.g., face grooming products for men can improve the skin and its youthfulness), their lack of compatibility with existing stereotypes (e.g., face care products are used predominantly by women) pose psychological risks to the target group, and thus entail barriers to their adoption (e.g., the potential for embarrassment and ridicule among peers). Prior research (e.g., Alreck, 1994; Eagly & Steffen, 1984) suggests that members of a social group have certain social role requirements (e.g., men being strong and women being nurturing), as well as prohibitions (e.g., men are discouraged to enjoy certain activities, such as knitting). A CSP, by definition, is incompatible with and violates these stereotypes about the targeted consumers. It challenges their long-held beliefs about what they should or should not do and feel. In addition, CSPs are linked to dissociative out-groups, which poses social identity threat (e.g., leggings are associated with women and men avoid products linked to this group; White & Dahl, 2006; 2007). As such, consumers have to resolve this inconsistency to mitigate the psychological risks inherent in CSPs. How consumers deal with this inconsistency is a key determinant to the adoption of such products. Do they adjust their beliefs and evaluate the CSP

objectively for its benefits, or do they maintain their existing stereotypical beliefs and protect their self-identity by discounting the value of the CSP? To answer these questions three streams of literature are reviewed: (1) the application of stereotypes in making judgments about people and products (Fiske et al., 1987; Hamilton & Sherman, 1994; Kunda & Spencer, 2003), (2) how individuals make sense of instances that disconfirm established stereotypes (e.g., Hewstone et al., 1994; Kunda & Oleson, 1995; Weber and Crocker, 1983), and (3) the role of social-identity threat in the evaluation of brands and products associated with opposing out-groups (e.g., Escales & Bettman, 2005; White & Dahl ; 2006; 2007). The aim is not to provide an exhaustive review of this literature but focus on elements that apply to CSPs.

Stereotyping and Its Effect on the Perception of CSPs

A considerable amount of literature in psychology has shown that a primary motive for people to employ stereotypes (i.e., salient beliefs about traits and behaviors based on social group membership) is to *understand* and make judgments about others efficiently (Brewer, 1988; Fiske et al., 1987; Fiske, 2000; Hamilton & Sherman, 1994; see Kunda & Thagard, 1996 for a review). As such, these stereotypes are often activated automatically based on the salient group membership of an individual (e.g., the gender, race or ethnicity of a person) (Bargh, 1999). The activation of these stereotypes aids in comprehension, as one can rapidly classify the encountered individual (e.g., Asian American woman) and draw immediate inferences (e.g., shy and intelligent) (Hamilton & Sherman, 1994; Kunda & Thagard, 1996). In the context of CSPs, the use of stereotypes would be the most basic, and even automatic, process for making judgments. CSPs automatically activate the stereotypical group associated with these products (e.g., facial skin care would automatically activate the women user group, while construction tools would automatically activate the male user group). Accordingly, the associated stereotypical traits and behaviors are also activated (e.g., facial-skin care is a feminine activity used to enhance physical appearance). These traits and behaviors are in turn conflicting with the targeted counter-stereotypical group (e.g., men are not feminine and do not spend much time to enhance physical appearance). These automatic associations would lead to inferences that CSPs are

appropriate only for the established stereotypical group, and are thus inappropriate for the counter-stereotypical group. This stereotype-based inference-making is referred to as the *stereotyping* response, which is expected to be a key cognitive barrier to the adoption of CSPs.

The Role of Counter-Stereotypes in Responding to CSPs

Research has also examined how people make sense of and resolve the inconsistency inherent in instances that disconfirm established stereotypes (e.g., how do people judge a male nurse or a female construction worker) (Hewstone et al., 1994; Kunda & Oleson, 1995; Weber & Crocker, 1983). Predominantly, this stream of research suggests that stereotypes are notoriously difficult to change. Instead of changing stereotypes, people opt for cognitive processes that allow them to accommodate the stereotype-inconsistent instances in order to maintain their stereotypes (Kunda & Oleson, 1995; Weber & Crocker, 1983). One such cognitive strategy to deal with counter-stereotypical instances is to *subtype* them (i.e. consider them an exception to the typical category members) (Hewstone et al., 1994; Weber & Crocker, 1983). This strategy allows people to “fence-off” the disconfirming instance, while maintaining their stereotypical beliefs about the category (Kunda & Oleson, 1995). In the context of CSPs, consumers may treat such products (e.g., face cream for men) as an exception (i.e., only for unique individuals or situations) and “fence off” the users as outside the mainstream market (for male grooming products). This helps consumers understand the existence of CSPs while maintaining their stereotype that such products are predominantly for the opposing out-group.

In addition to subtyping, researchers have also identified *subgrouping* as a response to disconfirming instances. Subgrouping has been defined as “organizing information into multiple clusters of individuals who are similar to one another in some way and different from other group members” (Maurer, Park, & Rothbart, 1995, p.813). While subtyping entails dividing group members into two groups (confirmers versus non-confirmers), subgrouping involves viewing members as belonging to multiple groups that confirm (or disconfirm) the group stereotype in different ways (e.g., the group of older people can consist of subgroups of “grandmotherly”, “older statesman” or “senior

citizen”). In the case of CSPs, subgrouping can occur when consumers identify a potential subset of users within the target group (e.g., face care products may be appropriate for homosexual men). In the current research, both subtyping and subgrouping are considered as two categorization-based responses that entail excluding a CSP from the mainstream users of the targeted group (termed as the *subtyping /subgrouping* barrier).

CSPs Perceived as a Threat to Self

Prior research suggests that, apart from the cognitive motive of comprehension, the need to protect, maintain, and enhance one’s self-image (Kunda & Spencer, 2003) is a strong affective motive for people to employ stereotypes in making judgments (Fiske, 2000; Blair, 2002). This may be particularly the case when a CSP’s violation of the stereotypes associated with the targeted group poses a threat to the self-identity of the group (e.g., men may view using leggings as a threat to their masculine identity). According to social identity theory (Tajfel & Turner, 1986), self-identity is based on both individual factors as well as on the social groups to which one belongs. As such, individuals are motivated to see their social identity positively and react negatively to the relevant out-groups (Fein & Spencer, 1997; Sinclair & Kunda, 2000; Tajfel & Turner, 1986). For example, Escales and Bettman (2005) showed that individuals report negative self-brand connections to brands associated with an out-group. Similarly, White and Dahl (2006) showed that men avoid products labeled as “ladies-cut steak”, and Tepper (1994) found that younger age individuals avoided products offering a “senior citizen discount.” This response may be further strengthened among people who hold an a-priori negative attitude towards the out-group (e.g., prejudice about black people being violent or women being weak; Dixon et al., 2012). In the context of current research, the stereotypical traits and behaviors associated with a CSP may evoke a *social-identity threat* among the targeted group. For example, products such as cosmetics and jewelry, which have strong associations with femininity, may threaten male traits of being strong and masculine. In response, motivated to protect self-worth, consumers may derogate the products or their users, and reject them.

Another source of threat to self in the context of CSPs is related to the concept of *stereotype*

threat. The latter is defined as the anxiety faced by individuals in situations that risk confirming a negative stereotype about their own group (Steele & Aronson, 1995). For instance, women, who are stereotyped to be less proficient in math, often perform poorly in math tests due to the anxiety arising from this negative stereotype (Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995). Lee, Kim and Vohs (2011) showed that women experienced a similar stereotype threat (and resulting anxiety) when negotiating with car salespersons and when interacting with financial service providers. As a result, women preferred interacting with female rather than male services providers in these contexts. For CSPs, women may experience a similar stereotype threat when exposed to products that highlight negative stereotypes associated with their in-group (e.g., construction tools specifically designed for women may imply that women are less proficient in using the regular tools). As a result, they may denounce and avoid such CSPs.

In summary, CSPs can evoke two types of threats to self: (a) social identity threat evoked by traits or behaviors linked to the out-group (e.g., hair remover for men may evoke traits of femininity, which men seek to avoid) and (b) stereotype threat arising from the anxiety of confirming negative stereotypes about one's in-group (e.g., car maintenance tools for women may imply women have lower proficiency in this domain). Both these threats would result in consumers' negative affective reaction towards such CSPs, namely *derogating*, which is another significant barrier to the adoption of these products.

Theoretical Framework Outlining the Barriers to the Adoption of CSPs

Based on the above literature review our theoretical framework - depicted in Figure 1 - describes the different psychological barriers to the adoption of CSPs. Overall, we propose that CSPs automatically activate the stereotypical user group associated with these products. This poses significant psychological risks for the target market, as the CSPs activate traits and behaviors that are normatively opposite to those associated with the targeted group. In response, using a stereotyping-based process, some consumers would quickly disregard and reject these products as inappropriate for their target market (which captures the *stereotyping* barrier). Some consumers may not outright reject

CSPs, and instead consider them appropriate for certain individuals or subgroups within their social group (i.e., the *subtyping* or *subgrouping* response, respectively). For instance, some consumers may recognize that even though facial-skin care products are typically associated with women, they could be appropriate for certain men (e.g., celebrities) or in certain contexts (in winters to avoid dry skin). In addition to the above two types of cognitive responses, consumers may also develop a negative affective response towards a CSP. Namely, *derogating*, when they perceive CSPs as a threat to their self, either due to traits / norms associated with the opposing out-group or due to a threat of confirming a negative stereotype about their own in-group, as described earlier. Please see Table 1 for an illustrative example for each of the above barriers, as obtained from qualitative interviews¹ conducted for selected CSPs targeting men versus women (see Appendix 1 for the list of CSPs used).

(Insert Figure 1 and Table 1 about here)

As shown in Figure 1, each of these barriers is proposed to affect the evaluation and adoption intention towards CSPs. It is posited that the strongest barriers are entailed in the *derogating* response (due to threat to self). Prior research has shown that people are highly sensitive to threatening feedback (to self) and respond negatively to such threats in order to maintain their self-esteem (Ethier & Deaux 1994; Leary & Baumeister 2000). For instance, a social-identity threat (e.g., men perceiving that using face-care products is a threat to their masculinity) would result in the target group derogating the CSP and a strong negative evaluation of the product. Similarly, certain CSPs may evoke a stereotype threat (e.g., a female interviewee responded that, “people are afraid to hire women

¹ Two trained interviewers used a series of probes to elicit impressions about four CSPs pertaining to men versus women (the respondents were 6 men, aged 19 to 54, and 6 women, aged 20 to 53). Two of these CSPs were atypical for men (namely, facial skin-care products, and professional services of nursing and day-care providers) and the other two were atypical for women (namely, a car magazine on racing and car maintenance, and professional services of auto-mechanic and plumbing). The interview instrument was designed to first elicit the initial impressions about these CSPs, and then to probe the barriers to adoption / potential users of such products. The interviews lasted 28 to 60 minutes and were audio-recorded and transcribed for further analysis. Two new trained research assistants in consultation with the two authors classified the responses into the barriers identified earlier (namely, *stereotyping*, *subtyping* / *subgrouping*, and *derogating*). More details about these interviews and analysis are available upon request from the authors.

(as auto-mechanics or plumbers) because they don't think she could do it (well);" see Table 1). Such a perceived threat would also result in derogating the CSP and having a strong negative evaluation of the product.

In comparison to the above, the *stereotyping* response entails an unfavorable attitude towards the CSP due to its mere association with an out-group. Prior research has shown that consumers respond unfavorably to products / brands (even labels) associated with opposing social groups (e.g., Escalas & Bettman, 2005; White & Dahl, 2006). Although stereotyping leads to unfavorable evaluation of CSPs, the intensity of the negative response will be lower as compared to derogating. In contrast to stereotyping, the *subtyping* / *subgrouping* response is a means to fence-off CSPs from the mainstream target consumers and consider them appropriate only for certain individuals / sub-groups of the market. That said, these cognitive strategies do acknowledge that CSPs could indeed be useful for some segments of the counter-stereotypical user group. Accordingly, if an appropriate subtype or subgroup of users has been identified then CSP evaluations are likely to be less negative than those in the stereotyping responses.

In contrast to these barriers, some members of the target group may perceive CSPs as beneficial to the target group (despite the association with the opposing out-group). For example, some women may consider construction tools (typically associated with men) as appropriate for women, as they can help with everyday tasks at home. Such a response – termed *non-stereotyping* - would entail the least negative response to CSPs. In summary (see figure 1):

H1: The evaluation of CSPs would be lowest among consumers that entail a derogating response, followed by those responding with stereotyping, followed by ones subtyping or subgrouping, and the highest among those that respond by non-stereotyping.

If the adoption barriers to CSPs are primarily based on existing stereotypes about the typical user groups for such products, the impact of such stereotypes is likely to vary depending on the consumption context (e.g., private vs. public). In private settings, the role of self-identity is less relevant as compared to when products are consumed publicly / in the presence of others (Berger &

Heath, 2007; White & Dahl, 2006; 2007; White, Simpson & Argo, 2014). In public settings, consumers are concerned about self-image management, and are known to avoid consuming products related to a dissociative out-group (Berger & Heath, 2007; White & Dahl, 2006; 2007). Accordingly, for CSPs consumed in a public setting (e.g., leggings for men), the potential threat to social-identity will be more salient than CSPs consumed privately (e.g., hair remover for men). In response, to protect self-esteem (Ethier & Deaux, 1994; Eidelman et al., 2006), publicly consumed CSPs are more likely to be derogated by the target group than privately consumed CSPs. In addition, consumers will also be more likely to engage in cognitive mechanisms to reject such publicly consumed CSPs, either through stereotyping responses or through subtyping / subgrouping by categorizing them outside the boundary of products suitable for the target group (Kunda & Oleson, 1997; Weber & Crocker, 1983). Thus, overall:

H2: Publicly consumed CSPs would entail more derogating (H2a), stereotyping (H2b) and subtyping / subgrouping (H2c), and less non-stereotyping (H2d) responses as compared to privately consumed CSPs.

Since all the above barriers are expected to reduce evaluation:

H3: Publicly consumed CSPs would be evaluated less favorably by the target group than the privately consumed ones.

The next section now presents an experimental study conducted to test the proposed theoretical framework (figure 1) and the above hypotheses for the adoption barriers to CSPs.

Study 1: The Stereotype-Based Barriers to the Adoption of CSPs

Pre-Test

First, an initial set of 12 CSPs² were selected that targeted men versus women. Each CSP was counter-stereotypical to its targeted group and stereotypical of the opposing demographic group. In addition, the products varied on the extent to which they were privately versus publicly consumed. One hundred seventy-eight undergraduate students from the participant pool of a North American university (61.8% males; mean age of 20 years; $SD = 2.09$) participated in the pre-test for extra course credit. For each CSP the perceived stereotypicality for each gender was measured, using two items: “how typical is the CSP of products used by men / women” and “how good an example is it of products used by men / women” (both 1-to-7 scales; not-at-all to extremely). These pairs of items were combined to create a measure of the stereotypicality of each CSP for men and for women, respectively. For the final four chosen CSPs, the correlations within these pairs of items were highly significant and ranged from .58 to .92 (all p -values $< .001$). The final four CSPs (two each for men and women) were chosen based on their consumption context (private vs. public) and their believability. For men, the two chosen CSPs were: body hair remover wax (associated more with women vs. men: 6.07 vs. 3.08; $t(43) = 10.37, p < .001$)³ and purse (6.90 vs. 1.49; $t(48) = 30.62, p < .001$). Body hair remover wax was privately consumed CSP, while purse is publicly consumed as it is commonly visible in public. For women, the two chosen CSPs were: after-shave lotion (privately consumed) and ice-hockey video game (publicly consumed; as it is often played in the presence of or with others). Both pairs of CSPs for men and women were equally believable (all p -values $> .10$). A measure was also created for the extent of *counter-stereotypicality* of each CSP by subtracting its perceived stereotypicality for the target gender from that for the opposing gender. Please note that although the CSPs targeting men and women may differ in their extent of counter-stereotypicality (see

² For men, the CSPs were: manicure / pedicure kit, body lotion, body hair remover wax, purse, celebrity / gossip magazine, and leggings / tights; and for women the CSPs were: barbeque kit, after-shave lotion, construction tools, war video game, basketball video game, and ice-hockey video game.

³ All p -values reported with a t-test (throughout the manuscript) are based on a one-tailed test for significance.

Table 2), our focus was on the comparisons of CSPs (private vs. public) within each gender group and not across genders.

Method

Three hundred eighty-one undergraduate students (68.5% male; mean age of 20 years; $SD = 2.35$), from the same pool as the pre-test, participated in the main study for extra course credit as well as for financial compensation (\$10 each). The study was a 2 (CSP target: men vs. women) X 2 (CSP context: private vs. public) between-subjects⁴ design. The participants were randomly assigned to one of the two CSPs (private vs. public) corresponding to their gender. Each participant saw a brief description and picture of the CSP, and then answered questions pertaining to the product. First, participants listed all thoughts that came to their mind when reading about the CSP. The valence of these thoughts was coded by a trained research assistant into positive, negative (labeled as “derogating”) or neutral. All the coding was verified in consultation with the authors and discrepancies resolved by discussion. Specifically, the presence versus absence (coded as 1 vs. 0) of the different types of affective responses (positive, derogating, neutral) was coded for each participant⁵. After the thought listings, participants evaluated the CSP on four items (liking, useful, valuable, impressive; all 1-to-7 scales from not-at-all to very much; $\alpha = .92$). Subsequently, participants classified the CSP into one of following four categories: “it is appropriate for women (men) only”, “for some individual men (women) / groups of men (women)”, “for majority of men (women).” The above set of categories provided a direct measure for the cognitive responses of stereotyping, subtyping / subgrouping, and non-stereotyping, respectively (as shown in figure 1). This direct measure was used because (a) the above barriers are primarily based on categorization, and (b) participants may not spontaneously do so (in thought listings) unless explicitly asked for such a

⁴ Note that the participants were only shown CSPs targeting their own self-reported gender.

⁵ The number and proportion of each of these thoughts were also coded, and the results were similar to those obtained with the coding based on presence (vs. absence) of these thoughts.

response. Finally, participants indicated the extent to which the CSPs were stereotypically associated with men versus women (using the same items as in the pre-test).

Analysis and Results

Manipulation checks. The results showed that all the four CSPs were counter-stereotypical to their respective targeted genders (see table 2). Both the CSPs targeting men - hair-remover wax and purse – were more stereotypical of women as compared to men (5.66 vs. 2.79; $t(144) = 14.39$, $p < .001$; and 6.11 vs. 1.78; $t(115) = 25.52$, $p < .001$, respectively). Similarly, the two CSPs targeting women – after-shave lotion and the ice-hockey video game - were more stereotypical of men as compared to women (5.10 vs. 3.63; $t(66) = 3.89$, $p < .001$; and 5.24 vs. 3.01; $t(52) = 6.58$, $p < .001$, respectively).

(Insert Table 2 about here)

Barriers to the adoption of CSPs. The adoption barriers identified in our theoretical framework (as shown in figure 1) were measured based on the thought listings (affective) and the classification measure (cognitive) for each CSP. Table 2 shows the proportion of participants within each CSP for the two key affective response categories (i.e., positive vs. negative / derogating), and for the cognitive response measure (i.e., stereotyping, subgrouping / subtyping, non-stereotyping). The data for the two sets of CSPs targeting men versus women were first analyzed separately. As shown in Table 2, purse for men (public CSP) had a lower proportion of positive thoughts as compared to hair-remover wax for men (private CSP) (.26 vs. .34; $t(259) = -1.50$; $p = .07$)⁶, and a higher proportion of derogating⁷ thoughts (.16 vs. .07; $t(259) = 2.25$; $p = .01$). Similarly, for women, ice-hockey video game (public CSP) had a lower proportion of positive thoughts than did the after-

⁶ Similar results were obtained with a difference-in-proportions test, but for the sake of consistency with the scale measures only the t-tests are reported throughout.

⁷ Examples of the derogating responses among men were: “too feminine, men may be embarrassed to buy it” (hair-remover wax); “no man would buy this item because it reduces their masculinity” (purse for men).

shave lotion (private CSP) (.37 vs. .63; $t(117) = -2.91$; $p = .002$), and a marginally higher proportion of derogating⁸ thoughts (.06 vs. .01; $t(111) = 1.26$; $p = .10$). Overall, these results support H2a that publicly consumed CSPs entail more derogating response as compared to privately consumed CSPs (both for men and for women).

An analysis of the classification data revealed that there were a significantly higher proportion of stereotyping responses for public as compared to private CSPs, but only for the CSPs targeting men and not for those targeting women (see table 2). For men, there was a higher proportion of participants stereotyping the purse (considering it appropriate only for women) as compared to the hair-remover wax (.43 vs. .17; $t(259) = 4.93$; $p < .001$). However, for women, there was only a directionally higher proportion of participants stereotyping the ice-hockey video game (considering it appropriate only for men) as compared to the after-shave lotion (.09 vs. .06; $t(118) = .71$; $p = .24$). The latter results suggest that H2b was supported significantly for CSPs targeting men but not so for the CSPs targeting women.

Analysis of the subgrouping / subtyping response revealed that there was no difference in the proportions for the CSPs targeting men⁹. For women, there was a significantly higher proportion of participants classifying the public CSP (ice-hockey video game) as appropriate for certain groups of individual women (subgrouping / subtyping) as compared to the private CSP (after-shave lotion) (.49 vs. .19; $t(118) = 3.60$; $p < .001$). These results support H2c for the CSPs targeting women but not so for those targeting men.

Finally, for the non-stereotyping category it was found that for both men and women, the public CSP had a lower proportion of such responses as compared to the private CSP. For CSPs targeting men, a significantly lower proportion of participants found purse was appropriate for majority of men

⁸ A sample derogating response was: “This seems sexist. Women already play ice hockey, and there’s nothing stopping us from playing the usual games with male players” (ice-hockey video game for women).

⁹ Participants were also asked to indicate appropriate subtypes / subgroups. The most commonly mentioned ones for CSPs targeting men were: “hairy men, athletes, swimmers” (for hair-remover wax); “homosexuals, metrosexuals” (for purse for men).

(non-stereotyping) as compared to the hair-remover wax (.05 vs. .32; $t(259) = -5.63$; $p < .001$).

Similarly, a significantly lower proportion of women found ice-hockey video game as appropriate for majority of women (non-stereotyping) as compared to the after-shave lotion (.41 vs. .75; $t(118) = -3.87$; $p < .001$). These results provide support for H2d for both the sets of CSPs targeting men and for those targeting women.

Evaluation of CSPs. An ANOVA on the evaluation of CSPs was conducted with CSP target (men vs. women) and CSP context (private vs. public) as the two independent factors. The results revealed a main effect of CSP target ($F(1, 377) = 23.37$; $p < .001$) and of CSP context ($F(1, 377) = 43.68$; $p < .001$), while the interaction between the two was not significant ($F(1, 377) = 1.15$; $p < .30$). Overall, the CSPs targeting women were evaluated more favorably than those targeting men (3.63 vs. 2.88; $t(377) = 4.83$; $p < .001$). Also, public CSPs were evaluated less favorably than private ones (2.75 vs. 3.76; $t(377) = -6.61$; $p < .001$). Specifically, for men, purse was evaluated less favorably than hair-remover wax (2.46 vs. 3.31; $t(259) = -5.05$; $p < .001$); and for women, ice-hockey video game was evaluated less favorably than after-shave lotion (3.04 vs. 4.22; $t(118) = -4.42$; $p < .001$). These results support H3 that the evaluation of public CSPs is lower than that for private ones.

Barriers to adoption and the evaluation of CSPs. The overall theoretical model (shown in figure 1) was tested that the barriers to adoption of CSPs are driven by stereotype-based responses and that as these responses changed (e.g., derogating vs. stereotyping vs. subtyping / subgrouping) there was an effect on the evaluation of these products. A one-way ANOVA revealed that the different types of adoption barriers had a significant effect on CSP evaluations ($F(3, 377) = 48.78$; $p < .001$). A pair-wise comparison between these different barriers revealed that the CSP evaluations increased significantly (in order) from derogating to stereotyping to subtyping / subgrouping to non-stereotyping. All pair-wise contrasts between these different barriers were significant (all p -values $< .05$). These results suggest that the different stereotyping responses indicate a different intensity of barriers to the adoption of CSPs. Specifically, derogating indicated the largest barriers (i.e., lowest evaluations; $M = 1.92$), followed by stereotyping ($M = 2.47$), followed by subtyping / subgrouping (M

= 3.05), and lastly non-stereotyping which indicated lowest barriers (i.e., highest evaluations; $M = 4.25$) to CSPs. These results support H1 that the evaluation of CSPs increases as the adoption barriers change in the above-specified order.

Discussion

This study examined the effect of CSP consumption context (public vs. private) on the proposed stereotype-related barriers and the evaluation of such products. It used CSPs that were publicly versus privately consumed, and then measured the different stereotype barriers and CSP evaluations. For men, it was found that the public CSP (purse) faced more barriers of stereotyping and derogating as compared to the private CSP (hair remover wax). For women, it was found that the public CSP (ice-hockey video game) entailed more subtyping / subgrouping responses as compared to the private CSP (after-shave lotion). Conversely, for both men and women, the private CSPs had more non-stereotyping responses (product considered appropriate for all members) as compared to the public CSPs. As a result of these different barriers, public CSPs were evaluated less favorably than the private CSPs (for both genders).

The data from all four CSPs was combined to test the proposed theoretical framework in figure 1. As proposed (in H1), it was found that consumer evaluations of the CSPs increased as their responses shifted from derogating to stereotyping to subtyping / subgrouping to non-stereotyping (in this order). These results lend credence to our proposed theoretical typology of the adoption barriers to CSPs, and their effect on the evaluation of these products.

The above notwithstanding, the nature and extent of stereotype-related barriers were distinct for CSPs targeting men versus women. The extent of barriers was higher for men as compared to women and accordingly, the CSP evaluations were higher for women as compared to men. As evident from table 2, the overall proportion of responses for all three of the stereotype-related barriers – stereotyping, derogating, subtyping / subgrouping – were higher for men as compared to women. Conversely, the non-stereotyping and positive responses were lower for men as compared to women. This could be because CSPs targeting men have much stronger stereotypes associated with the typical

users of women than with men, and men are more affected by CSPs' potential threat to their masculine self-identity as compared to women. This is especially evident for the publicly consumed CSP (purse for men), which entailed the lowest evaluations (and highest barriers) among all the products examined in the study.

Although the above findings seem to suggest that women are more receptive to CSPs, some prior research indicates that, a key source of derogation response, stereotype threat (i.e., anxiety of confirming a negative aspect of their in-group) may be perceived more strongly by women as compared to men (Kim et al., 2011; Pronin, Steele & Ross, 2004). Since only the overall negative responses were coded, the gender differences for this particular form of (stereotype) threat may be masked. Therefore, in a post-hoc analysis, a research assistant coded when participants explicitly indicated a stereotype threat (as per the definition). Analysis of this particular stereotype threat response revealed that for CSPs targeting men there were no responses in this category for either of the two CSPs. In contrast, for CSPs targeting women, there were a significantly higher proportion of stereotype threat thoughts for ice-hockey video game (public CSP) as compared to after-shave lotion (private CSP) (.21 vs. .01; $t(117) = 3.65$; $p < .001$) (see table 2). This suggests that, although women in general are more receptive to CSPs, those targeting women may evoke a higher stereotype threat as compared to those targeting men (i.e., an anxiety of conforming an existing negative stereotype; e.g., being perceived as less skilled at sports such as ice-hockey). This issue will be examined further in the next study.

Overall, the results from Study 1 suggest that there are significant (and distinct) stereotype-related barriers to the adoption of CSPs. In other words, a-priori stereotypes (and stereotypical users) associated with the CSP may hamper their adoption. As such, strategies that help reduce these stereotypical associations could aid in the adoption of CSPs. In Study 2 we examined one such strategy: using product design (color) to reduce the stereotypical associations of CSPs. We also investigate how product color influences CSP adoption differently for men versus women.

Using Product Design (Color) to Reduce the Barriers to the Adoption of CSPs

As we predicted and found in Study 1, CSPs automatically evoke associations about the stereotypical user group for these products. These associations hamper the adoption of CSPs by the targeted group. Accordingly, any interventions or strategies that can attenuate these stereotypical associations can reduce the barriers we identified to CSP adoption. One such intervention commonly used in the industry is to modify the design elements of the CSP (e.g., changing the color or shape of the product / package when introducing face-care products for men or construction tools for women; such as using blue colors for men and pink for women). The rationale is that customizing the CSP design to the target group preferences (e.g., to match the color preference of men and women) will make the product more acceptable. This strategy, while commonly practiced, has not been empirically tested for its efficacy in reducing the stereotype-based barriers to CSPs. Specifically, it is not known whether changing product color of CSPs (blue for men; pink for women) reduces stereotyping, subtyping, and derogation barriers? Also, is this strategy equally effective for both cognitive and affective barriers, and for both men and women? Our next study investigated these very issues, which are theoretically linked to the adoption barriers identified earlier (figure 1) and are practically important to marketing managers introducing CSPs.

Product design is a well-established strategic tool for differentiation in the marketplace (Bloch, 1995; Veryzer & de Mozota, 2005). Within design, the visual appearance of the product has a significant influence on consumer evaluations. Product appearance is shown to have an influence on the aesthetic, symbolic, functional, ergonomic and identification / categorization value (Creusen & Schoormans, 2005). In the context of CSPs, the symbolic and identification values are most relevant. CSPs are strongly identified with the stereotypical user group and are accordingly categorized as appropriate for that group (i.e., the stereotyping barrier). The latter identification also imparts symbolic value to these products, which may be threatening to the targeted counter-stereotypical group (e.g., hair remover for men can threaten the masculine self-identity). This was evident in the derogating barrier identified earlier. As such, interventions that can reduce a CSP's identification with

the stereotyped group can help attenuate the stereotype-driven adoption barriers we identified in our previous study.

Research in cognitive psychology and marketing has demonstrated the role of prototypical features (the ones most typical of a category) in product categorization judgments (Rosch et al., 1976). The prototypical *visual* features (e.g., color, shape) are very salient and accordingly can have a strong influence on product categorization and attitudes (Cruisen & Schoormans, 2005; Loken & Ward, 1990; Yamauchi & Markman, 2000). Visual features that are prototypical of the user group aid in identification / categorization, are easier to process, and positively influence evaluations (Meyers-Levy & Tybout, 1989). In addition, visual features also impart symbolic meaning that is congruent with a particular user group. For example, research has shown that certain colors and shapes are perceived as more masculine (e.g., blue color, and straight edges in product design), while others are considered more feminine (e.g., pink color and rounded-edges) (e.g., Bellizzi, Crowley, & Hasty, 1983; Cruisen & Schoormans, 2005).

For CSPs, the visual features can be designed such that they are more congruent with the targeted counter-stereotypical user, and thus incongruent with the stereotypical group. As such, this can inhibit the identification of the CSP with the stereotypical group and reduce the adoption barriers. For instance, male facial skin care products packaged in a masculine color (e.g., in blue) with straight edges may appear less stereotypical of a women's product. Similarly, construction tools designed in pink may reduce the perception that such tools are stereotypically used by men. In general, using colors typically preferred by the targeted gender can aid in reducing the stereotyping barrier to CSPs and this can reduce the extent to which these products are perceived as counter-stereotypical. Thus, it is proposed that:

H4: CSPs designed in colors typically associated with the targeted gender (e.g., blue for men and pink for women) will be perceived as less counter-stereotypical to their target group as compared to those designed in neutral colors.

The above said, it is expected that the above strategy of product design while potentially effective for certain CSPs (e.g., those targeting men), could backfire for other CSPs (e.g., those targeting women). In addition, it is also predicted that the effect of using a stereotype consistent color (vs. neutral color) would depend upon the extent to which the targeted user group (men or women) identifies with their stereotyped self-concept (i.e., their own masculinity vs. femininity). These effects are now discussed in-turn for women versus men.

The Effect of Color on the Adoption of CSPs Targeting Women

For women, the effect of design elements on CSP evaluation will entail two opposing effects arising from threat to self. As stated in H4 earlier, using stereotypically female colors (e.g., pink) will reduce the counter-stereotypicality of the CSPs, and this would lower the perceived threat to the feminine social identity of women. This would have a positive effect on the evaluation of CSPs. Conversely, the use of pink may further accentuate the negative stereotypes associated with women in the context of certain CSPs (e.g., pink construction tools may further highlight the stereotype that women are less capable of using the conventional tools for men). This would have a negative effect on the evaluation of CSPs.

It is proposed that the extent to which women identify with the feminine self-concept will moderate the above opposing effects of design color on CSP evaluation. Women that identify highly with the feminine self-concept (i.e., rate themselves higher on the trait of femininity and lower on the trait of masculinity; Bem, 1974) would consider feminine product design (e.g., pink color) more congruent to their self, and hence more favorable (as compared to a neutral color). The use of feminine colors will reduce the counter-stereotypicality of the CSP and it would be more appealing to this segment. In contrast, women that identify less with the feminine self-concept (i.e., rate equally or lower on femininity versus masculinity) would consider the feminine product design more aversive than a neutral design. This is because such women seek to avoid the feminine stereotypes and are more likely to experience stereotype threat in the context of CSPs. The use of a feminine design (e.g., pink color) is likely to further accentuate this threat for this segment. Accordingly, women identifying less with

femininity are more likely to question the need for CSPs specifically for women if it is designed in pink (versus neutral colors). Thus:

H5a: Women rating high on femininity would have higher purchase intentions for a CSP using a feminine design (e.g., pink color) as compared to that with a neutral design.

H5b: Women rating low on femininity would have lower purchase intentions for a CSP using a feminine design (e.g., pink color) as compared to that with a neutral design.

The Effect of Color on the Adoption of CSPs Targeting Men

Previous research on self-perceived threat to masculinity versus femininity has posited a “precarious manhood” hypothesis (Vandello et al. 2008). Specifically, the latter research has found that the concept of manhood is more tenuous than that of womanhood, and that men experience more anxiety about losing their male social-identity as compared to women. For instance, when their masculinity (femininity) was challenged, men responded with more anxiety and thoughts of aggression (than women) (Vandello et al. 2008). Following this, it is predicted that men are more likely to experience anxiety about their masculinity (than women about their femininity) when they evaluate CSPs. This is consistent with the findings in Study 1 that men showed higher barriers (than women) to the adoption of CSPs as these products evoke strong stereotypes of femininity, which are a significant threat to the masculine identity of men. One way to reduce this threat is to use stereotypically male colors (e.g., blue), which could reduce the perceived counter-stereotypicality of CSPs targeting men (as hypothesized in H4). This would reduce the threat to masculine identity, as it would attenuate some of the undesirable (feminine) stereotypes, and thus potentially increase the adoption of such CSPs. Thus:

H6a: A CSP targeting men would entail higher purchase intentions if it is designed in colors typically associated with men (e.g., blue) as compared to in neutral colors.

Furthermore, it is expected that men scoring high on masculinity (and low on femininity) would perceive an even higher threat to their self-concept from such products, as compared to men that identify less with masculinity (i.e., score equally or lower on masculine versus feminine traits). Thus,

the above strategy of using colors typically associated with men would be especially effective for men scoring high on masculinity as they experience a high threat to their identity to begin with. Thus, it is proposed that:

H6b: Men rating high on masculinity would have higher purchase intentions for a CSP using a masculine design (e.g., blue color) as compared to that with a neutral design.

In comparison, the use of stereotypically male colors for CSPs, will be less effective for men scoring low on masculinity (relative to femininity).

Study 2: Product Design Color and the Adoption Intentions for CSPs

Method

Two products were used – automobile repair kit for women and baking kit for men – as the CSPs targeting men and women, respectively. These two products are stereotypically associated with one gender and counter-stereotypical to the opposing gender (a pre-test revealed that the auto repair kit was more typical of men as compared to women: 6.12 vs. 2.28; $t(93) = 23.84, p < .001$; while the baking kit was more typical of women as compared to men: 5.38 vs. 2.16; $t(95) = 18.08, p < .001$). In addition, these two CSPs were chosen such that they both evoke a social-identity threat that is based on stereotypical skills associated with the two genders (as both auto-repair and baking require certain skills that are typically associated with men vs. women, respectively). Also, both CSPs are equally likely to be used alone or in the presence of others, thus controlling for the potential influence of private versus public consumption context (as found in Study 1). The study was a 2 (CSP target: men vs. women) X 2 (design color: stereotypical vs. neutral) between-subjects design, and 313 undergraduate students (51.1% male; mean age of 20 years; $SD = .71$) participated in the study for extra course credit. The participants were only exposed to CSPs corresponding to their self-reported gender, and were randomly assigned to one of the two product design conditions (i.e., women were assigned to pink vs. neutral color for auto repair kit, and men to blue vs. neutral color for the baking kit). The participants saw a detailed description and picture of the CSP (see Appendix 2 for a sample

of the stimulus), and then answered questions pertaining to the product. Participants first listed all the thoughts that came to their mind when reading about the CSP. The valence of these thoughts was coded as the presence or absence¹⁰ of positive, negative (derogating) or other; and within the negative thoughts the stereotype threat response was also coded (as in the Study 1) for post-hoc analyses. The coding was done by two trained research assistants (graduate students), and all discrepancies were resolved by discussion (inter-rater reliability = 84%). Participants then evaluated the product (on the same 4 items as before) and indicated their purchase intention for the CSP (interest in buying, likelihood of buying; 1-not at all to 7-very much; $r = .95$). Subsequently, as in Study 1, participants were asked to classify the CSP as being appropriate for one of the three categories that measured stereotyping, subtyping / subgrouping and non-stereotyping. Following this, participants indicated the extent to which the CSPs were stereotypically associated with men versus women (using the same items as in study 1, $r = .81$ for the two items used for men, and $r = .76$ for the two items for women). The difference between the latter two measures indicated the extent of counter-stereotypicality of the CSPs. Next, female (male) participants rated the extent to which different colors - including blue, pink, and white- were feminine (masculine) (from 1-not at all to 7-extremely). Finally, participants rated themselves on their own masculinity and femininity (1-almost never true to 7-almost always true). Based on these two items, for women (men) the extent of femininity (masculinity) was measured as the difference between their own femininity versus their own masculinity (and vice versa for men).

Analysis and Results

Manipulation checks. For the product design manipulations, women perceived the color pink to be more feminine than white (6.41 vs. 4.85; $t(152) = 11.50$; $p < .001$) and men perceived the color blue to be more masculine than white (5.31 vs. 4.23; $t(159) = 9.39$; $p < .001$).

¹⁰ The number and proportion of each of these thoughts was also coded, and the results were similar to those obtained with the coding based on presence (vs. absence) of these thoughts.

Effect of product design color on the counter-stereotypicality of CSPs. As predicted, for both the CSPs, the perceived counter-stereotypicality was affected by the use of color. Specifically, the auto repair kit was perceived by women as less counter-stereotypic when it was designed in pink as compared to the neutral (white) color ($-.65$ vs. -1.68 ; $t(152) = 2.55$; $p = .006$), and the baking kit was perceived by men as less counter-stereotypic when it was designed in blue as compared the neutral (white) color (-2.35 vs. -3.02 ; $t(159) = 1.88$; $p = .031$). These results support our H4 that using design colors typically associated with men versus women (blue vs. pink, respectively) reduces the counter-stereotypicality of the CSPs targeting the two genders.

Effect of product design color on the purchase intention for CSPs. An overall ANOVA revealed a significant three-way interaction between CSP target gender, product design color, and the extent of masculinity / femininity ($F(1, 305) = 8.52$; $p = .004$). The data for the CSPs targeting women versus men were then analyzed separately. Separate ANOVAs were conducted on the purchase intentions¹¹ for the two CSPs with the two factors being the product design color and the extent of femininity (masculinity). For both the CSPs – targeting women versus men - the data were split into two groups using a median split of participants' scores on their extent of masculinity versus femininity, respectively. The mean purchase intentions for the two CSPs are reported in Table 3 for the different participant groups in the different color conditions.

(Insert Table 3 about here)

For the CSP targeting women (auto repair kit), an ANOVA on the purchase intentions revealed a significant effect for the extent of femininity ($F(2, 149) = 7.72$; $p = .006$), but no effect for product color ($F(1, 149) = .00$; $p > .90$). More importantly, the interaction between product color and extent of femininity was significant ($F(2, 149) = 8.32$; $p = .005$). The mean purchase intentions for the two groups of women scoring low versus high on femininity for the two product design colors (pink vs. neutral) are shown in Table 3, and displayed in Figure 2. Further analysis within these two groups

¹¹ Purchase intention was used as the key dependent variable (rather than evaluations) as it is a more direct measure of adoption intentions for CSPs. That said, the pattern of results was similar for evaluations.

revealed that for women scoring high on femininity the purchase intentions were higher when the product color was pink as compared to neutral (5.71 vs. 4.69; $t(75) = 2.12$; $p = .019$). In contrast, for women scoring low on femininity, the purchase intentions were lower when the product color was pink as compared to neutral (3.72 vs. 4.73; $t(76) = -1.97$; $p = .026$)¹². These two results (as shown in figure 2) support our hypotheses that using a feminine color (e.g., pink) has a positive effect on the adoption intentions for a CSP for women high on femininity (H5a) but it has a negative effect for women low on femininity (H5b).

(Insert Figure 2 about here)

A mediation analysis was conducted to verify the process underlying the above opposing effects for women scoring low versus high on femininity. The bootstrapping method was used to test the underlying process model shown in figure 3 (Model 8; Hayes, 2013). As per this model, it was found that there was a significant moderated mediation for the effect of color on purchase intention via the perceived counter-stereotypicality of the CSP (95% CI = [.0269, .9671]). Specifically, the effect of color on purchase intentions was significantly mediated by counter-stereotypicality for women scoring high on femininity (95% CI = [.1038, .8696]), but this mediating effect was not significant for women scoring low on femininity (95% CI = [-.2069, .2907]). As shown in figure 3 these results suggest that for women scoring high on femininity, the use of a feminine color (e.g., pink) reduces the counter-stereotypicality of the product (i.e., reduces the masculine associations and increases the feminine ones), which in turn increases the purchase intentions for the CSP. In contrast, for women scoring low on femininity color had a direct effect on purchase intentions, such that using

¹² To validate these results a spotlight analysis was performed (using regressions) at one standard deviation above and below the mean of femininity (Fitzsimons, 2008). As predicted, there was a significant interaction between design color and femininity ($\beta = .43$; $t(149) = 3.20$, $p = .002$). Further analysis revealed that women scoring high on femininity (1 SD above the mean) had higher purchase intention when the product color was pink as compared to the neutral (white) color ($\beta = 1.05$; $t(149) = 2.11$, $p = .036$; predicted means: $M_{\text{Pink}} = 5.78$ vs. $M_{\text{Neutral}} = 4.73$). In contrast, women scoring low on femininity (1 SD below the mean) had a lower purchase intention when the product color was pink as compared to the white ($\beta = -1.19$; $t(149) = -2.42$, $p = .017$; predicted means: $M_{\text{Pink}} = 3.50$ vs. $M_{\text{Neutral}} = 4.70$). These results are consistent with the ones obtained from the ANOVA using a median split.

pink (vs. neutral) reduced purchase intentions ($\beta = -1.05$, $t(153) = -2.19$, $p = .030$; 95% CI = [-1.9907, -.1014]). But this direct effect of color on purchase intentions was not significant for women scoring high on femininity ($\beta = .62$, $t(153) = 1.24$, $p > .20$; 95% CI = [-.3709, 1.6156]). These results suggest that for women scoring low on femininity, the use of a feminine color (e.g., pink) directly reduces purchase intentions (even though pink does reduce counter-stereotypicality, this reduction does not positively affect purchase intentions). This supports our assertion that using a feminine color (pink) may further accentuate the stereotype threat perceived by such women (pink tools may further highlight the stereotype that women are not able to use the conventional tools designed for men), which may in-turn reduce purchase intentions for such CSPs.

(Insert Figure 3 about here)

For the CSP targeting men (baking kit), an ANOVA on the purchase intentions revealed a significant main effect of color ($F(1, 160) = 7.18$; $p = .008$), but there was no effect of the extent of masculinity or the interaction between the two (both p -values $> .40$). Mean comparisons revealed that the purchase intentions for the baking kit designed in blue was significantly higher than that designed in a neutral (white) color (2.11 vs. 1.57; $t(159) = 2.68$; $p = .004$). This supports our H6a that using a typically male color (e.g., blue) can increase the purchase intention for CSPs targeting men. The mean purchase intentions for men scoring low versus high on masculinity for the two product design colors (blue vs. neutral) are shown in table 3, and displayed in figure 3. Further analysis within conditions revealed that the effect of blue (vs. neutral) on purchase intentions was significant for men scoring low on masculinity (2.24 vs. 1.55; $t(69) = 2.36$; $p = .001$) but only marginally so for men scoring high on masculinity (1.98 vs. 1.60; $t(89) = 1.42$; $p = .08$). These results do not support our H6b that the effect of color on the purchase intentions for a CSP would be stronger for men scoring high (vs. low) on masculinity.

A mediation analysis using the bootstrapping method (Model 4; Hayes, 2013) revealed that the effect of color on purchase intention was significantly mediated by the extent of counter-stereotypicality of the CSP (95% CI = [.0087, .3282]). As shown in figure 3, these results suggest that

for CSPs targeting men, the use of a masculine color (e.g., blue) reduces the counter-stereotypicality of the product (i.e., reduces the feminine associations and increases the masculine ones), which in turn increases the purchase intentions for the CSP.

Effect of product design color on the barriers to adoption of CSPs. Next the data pertaining to the thought listings (i.e., positive, derogating, stereotype threat) and the classification of CSPs (i.e., stereotyping, subtyping/subgrouping, non-stereotyping) was analyzed (see table 3 for the means). For women scoring high on femininity, the CSP in pink (as compared to a neutral color) had a higher proportion of participants with positive thoughts (.93 vs. .78; $t(75) = 1.94$; $p = .028$) and directionally lower proportion with derogating responses (.11 vs. .22; $t(75) = -1.24$; $p = .11$), but the stereotype threat proportions did not differ ($p > .40$). In contrast, for women scoring low on femininity, the CSP in the color pink (as compared to the neutral color) had a higher proportion of participants with a derogating response (.40 vs. .20; $t(76) = 1.99$; $p = .025$), and with the stereotype threat response (.35 vs. .05; $t(76) = 3.56$; $p < .001$), while the positive response proportions did not differ ($p > .10$). In the classification data, the proportion of participants engaging in stereotyping, subtyping / subgrouping or non-stereotyping did not differ across conditions (all p -values $> .10$). In addition to these, and as evident from table 3, the color pink (vs. neutral) significantly reduced the perceived counter-stereotypicality of the CSP for women scoring high on femininity (-.01 vs. -1.80; $t(76) = 2.91$; $p = .002$). But there was no such effect for women scoring low on femininity. Taken together, these results suggest that for women scoring high on femininity, the color pink (vs. neutral) made the CSP appear less counter-stereotypical and resulted in more positive responses. In contrast, for women scoring low on femininity the color pink (vs. neutral) evoked a higher stereotype threat and thus more derogating responses. As such, these results corroborate our proposed theoretical mechanism that using a feminine color design operates differently among women scoring low versus high on femininity (as tested in our earlier mediation analysis shown in figure 3).

A similar analysis for the CSP targeting men revealed an overall positive effect of using blue (vs. neutral) color for both groups of men scoring low versus high on masculinity. Specifically, for

both the groups the thought listings revealed a higher proportion with positive thoughts for blue versus neutral color (.61 vs. .32; $t(69) = 2.43$; $p = .009$ for the low masculinity group, and .37 vs. .15; $t(85) = 2.41$; $p = .009$ for the high masculinity group). Conversely, there were a lower proportion with negative (derogating) thoughts for blue versus neutral color (.48 vs. .65; $t(69) = 1.38$; $p = .086$ for the low masculinity group, and .47 vs. .72; $t(85) = 2.34$; $p = .011$ for the high masculinity group). For the classification data, the color blue (vs. neutral) reduced stereotyping for the low masculinity group (.06 vs. .22; $t(69) = 1.88$; $p = .032$) but not so for the high masculinity group. But there was no effect of color on subtyping or non-stereotyping. Overall, this is consistent with our earlier results that using blue (vs. neutral) has a positive effect on the purchase intent for CSP targeting men for both the high and low masculinity groups.

Discussion

Study 2 examined the effect of product design color on the purchase intention for CSPs targeting women and men. It was proposed and found that the product design color had a significant effect on the counter-stereotypicality of the CSP. For both women and men, CSPs designed in stereotypically feminine (pink) and masculine (blue) colors, respectively, reduced the counter-stereotypicality of the respective CSPs. However, the latter strategy worked differently for the purchase intention for CSPs targeting women versus men. For the CSP targeting women, using a feminine color (pink vs. neutral) had an opposing effect for women scoring high versus low on femininity. Women scoring high on femininity had a more favorable response to the CSP designed in pink as compared to neutral color. For this group, the effect of product color on purchase intention was significantly mediated by the extent of counter-stereotypicality of the CSP (i.e., pink vs. neutral significantly lowered the perceived counter-stereotypicality of the product, and evoked more positive responses). In contrast, women scoring low on femininity were less favorable to the CSP designed in the color pink (as compared to a neutral color). The pink color further highlights the feminine aspect of the CSP, and as such evoked more stereotype threat and derogating responses among women scoring low on femininity. For this group, product design color had a direct effect on purchase intentions and there was no mediation through counter-stereotypicality.

Overall, these results imply that for CSPs targeting women, using a feminine design (e.g., pink color) may only work for women scoring high on femininity, but would backfire for those low on femininity.

For the CSP targeting men (i.e., baking kit), using a masculine product design color (using blue vs. neutral) increased the purchase intention towards the CSP, and this effect was fully mediated by the reduction in counter-stereotypicality. In other words, using blue (vs. neutral) reduced the stereotyping barrier and the derogating evoked by the social-identity threat (to masculinity), which in turn increased the acceptability of the CSP. This strategy worked equally well for both groups of men, and did not support our hypothesis that using blue would be more effective for men scoring high (vs. low) on masculinity as they may perceive a higher threat to their social identity. This could be due to a floor effect, as high masculinity men had a very low purchase intention ($M (SD) = 1.88 (1.26)$ on a 7-point scale) for the CSP. As such, the use of blue (vs. neutral) may not be potent enough to overcome this resistance.

General Discussion

CSPs are targeted towards a group that is opposite to the stereotypes associated with these products (e.g., face-care products for men, construction tool-kits for women, etc.). Such products have recently emerged both as a means for market growth and as a facilitator for changing social norms. Despite their economic and social significance, CSPs are often viewed with skepticism as they violate established stereotypes and evoke a high psychological risk among the target group. The current research identified these psychological barriers and examined their influence on the evaluation of CSPs. Also, the efficacy of one particular product design strategy (i.e., using colors associated with the target group) was investigated in reducing these adoption barriers to CSPs.

Theoretical Implications

The current research is the first to examine CSPs and the barriers that inhibit their adoption. While there is significant work on factors that affect innovation adoption (e.g., Gatignon & Robertson, 1985; Rogers, 1983), there is no research specifically on the adoption of new products that

violate existing stereotypes. Within the marketing literature, some studies have examined the effect of group associations on the evaluation of brands. For instance, Escales and Bettman (2005) showed that consumers have stronger connections to brands consistent with an in-group as compared to those associated with the out-group. White and colleagues (White & Dahl, 2006; 2007; White, Simpson & Argo, 2014) extended this further by distinguishing between out-groups in general and out-groups that belong to a dissociative reference group. Jung and Lee (2006) examined the effect of cross gender brand extensions (e.g., Chanel vs. Hugo Boss, a female vs. male brand, respectively, launching a shirt or pant clothing line for men). But the products examined in all these studies were not new and counter-stereotypical to the target group (e.g., purse for men). In the context of services, Matta and Folkes (2005) examined the effect of counter-stereotypical service providers on the perceptions of the firm brand. More recently, Lee, Kim and Vohs (2011) investigated the role of stereotype threat, as experienced by customers, on the evaluation of service providers (e.g., women interacting with financial service providers). In both these studies, the psychological barriers to counter-stereotypical service providers were implied but not specifically identified.

The current research adds to the above literature by examining the adoption barriers for a unique set of new products (i.e., CSPs), which violate existing stereotypes (about their users). Three distinct stereotype-based barriers to CSPs were identified – two cognitive and one affective - and the theoretical mechanism underlying the effect of these barriers on the evaluation / adoption of such products was explicated (as shown in figure 1). It was proposed and found that the nature of barriers has a direct effect on the adoption and evaluation of CSPs. The affective response of derogating had the most detrimental effect whereas the cognitive responses of subtyping and stereotyping were relatively less damaging. In addition, given the identity-linked aspect of CSPs, publicly consumed CSPs faced larger barriers and lower evaluations than privately consumed ones. The current research also contributes to the literature on the effectiveness of using design elements (e.g., color) to influence product adoption. It was found that for CSPs targeting men, the use of masculine colors (e.g., blue) was effective in overcoming some of the adoption barriers by reducing the perceived counter-

stereotypicality of such products. For CSPs targeting women, using a feminine design color (e.g., pink) enhanced evaluations for women scoring high on femininity. But this strategy backfired for women scoring low on femininity (as it reinforced certain negative stereotypes about women). These results corroborate findings in other contexts wherein women reacted adversely to the use of pink (e.g., campaigns seeking breast cancer donations; Puntoni, Sweldens & Tavassoli, 2011). Specifically, Puntoni et al., (2011) found that pink color evokes a defense mechanism that discounts perceived physical risks of cancer, thereby reducing donation tendency. However, unlike the latter study, which was based on perceived physical risk, the current study showed that pink color can also evoke psychological risks such as stereotype threat among women (i.e., suggest low self-efficacy in using the product), and reduce CSP adoption. Furthermore, the latter stereotype threat is only prevalent for women that do not strongly identify with femininity.

Managerial Implications

The current findings have implications for managers that seek new market segments for products that are stereotyped with a particular demographic group (e.g., purse, cosmetics, construction tools). The different layers of obstacles to the adoption of such products in the counter-stereotypical segment are identified. The obstacles are not only due to the stereotyped categories associated with these products, but also from negative affective reactions (derogating) arising from social identity threat and stereotype threat to the target segment. It was also shown that, overall, CSPs targeting men face larger barriers (of derogation, stereotyping and subtyping / subgrouping) and are evaluated less favorably than those targeting women (that primarily encounter stereotype threat as a potential barrier). In addition, publicly consumed CSPs faced larger barriers than privately consumed ones. This implies that managers introducing CSPs targeting men (especially those consumed publicly) have to be more concerned about attenuating the threat to the masculine self-concept, while those targeting women have to make sure that the CSP does not promote prevailing negative stereotypes.

Compared to the stereotyping and derogating responses, subtyping / subgrouping is a cognitive mechanism that does not outright reject the CSP but only consider it appropriate for certain

exceptional individuals or sub-groups in the target market. Even though this response may be relatively less detrimental to the adoption of CSPs as compared to stereotyping and derogating, subtyping / subgrouping was the most common adoption barrier (as shown in table 2). This implies that managers should be concerned about this response, and be especially cognizant of the specific subtypes or subgroups associated with a CSP. Specifically, managers need to be aware that the subtypes / subgroups that are members of a dissociative group may garner negative reactions to the CSP (White and Dahl, 2007). For instance, grooming products such as moisturizer, and hair-remover were considered appropriate for either the metrosexual or homosexual male segments. Of these two subgroups, homosexuals may be a dissociative group for some (while metrosexuals may not be so) and entail negative evaluations. Managers should be aware of these distinct subgroups and accordingly plan the marketing of such CSPs.

Finally, there is a caveat associated with one common strategy – altering the product design to match the target market - used by managers to address the psychological risks entailed in CSPs. The latter strategy, especially when targeting women (colloquially referred to as “pink it and shrink it”), is assumed to attenuate the existing stereotypes evoked by CSPs. However, altering the product design color could be counter-productive for women, as it may highlight the very stereotypes it hopes to attenuate. For instance, introducing construction tools in pink may reinforce existing negative stereotypes that women are less skilled in using such tools as compared to men. Accordingly, women (especially those scoring low on femininity) may question the intent of this design change and doubt the efficacy of these products.

In conclusion, the current findings can be used as a basis for future research in this area. For instance, further research could examine the effectiveness of using different types of (celebrity) endorsers and different kinds of positioning strategies for CSPs (e.g., using a masculine / athletic versus less masculine / metrosexual image for face grooming products targeting men). Using the theoretical framework developed, the efficacy of the above strategies in reducing the adoption barriers to CSPs could be examined. As such, given the increasing prevalence of CSPs in the marketplace, it is

important to identify appropriate marketing strategies to reduce the stereotype-related barriers to the adoption of such products.

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Running head: ADOPTION BARRIERS TO COUNTER-STEREOTYPICAL PRODUCTS

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Appendix 1**Counter-Stereotypical Products (CSPs) and Informants in the Qualitative Interviews**

Target group	Counter-stereotypical product (CSP)	Informant (age, gender)	Interview duration (minutes)
Men	Facial skin-care products (hydrating facial mask, age defense eye gel, and self-tanning lotion)	48, male	38
		19, male	49
		19, male	44
	Professions (daycare providers, nurses, and professional house-keepers)	48, male	42
		20, male	52
		54, male	37
Women	Car magazine (sections on car racing, how cars work and various cars' performance)	21, female	30
		Late-20s, female (did not specify exact age)	60
		53, female	38
	Professions (auto mechanics, electronic repair technicians, and plumbers)	50, female	34
		48, female	28
		49, female	31

Appendix 2

Description of one of the CSP used in Study 2

For you

Auto Repair Kit for women

Our Auto Kit features jumper cables that indicate a PINK cabled handle for POSITIVE and black handle for negative so you can easily identify the positive and negative when clamping to your vehicle's battery. It also includes a handy step-by-step instructional card to help you jump start your vehicle.

Auto Kit Includes:

- Custom-Made Multi-Pocket Canvas Bag
- Pink for Positive Jumper Cables (10ft. long/10 gauge, 150amp)
- Extendable Screwdriver
- LED Aluminum Flashlight
- Digital Tire Gauge
- Rubber-Grip Gloves

Whether at home or while travelling, Appolo auto repair kit is right for you.

Table 1
Stereotype-Related Barriers to the Adoption of CSPs

Stereotype-related barrier	Definition	Example*
<i>Stereotyping</i>	CSP is only appropriate for the stereotypical user group	“Historically it has always been portrayed as something a woman would do”
	CSP is inappropriate for the targeted group	“You don’t want to look like you have put so much time yourself, guys don’t want to look like they have just spent an hour in the bathroom”
	CSP is useful for certain individual (exceptional) users	“He’s (the user) high profile, a good-looking man. The women love him, he’s well-known, ... a respected actor (mentioned Brad Pitt)”
<i>Subtyping/ Subgrouping</i>	CSP is useful for certain (labeled) subgroups within the target group	“I think the gay male population is a completely different target market (for these products) than your mainstream male”
<i>Derogating</i>	Denouncing the product	“I would not put some fake tanning crap on my face or body, because I am not that vain or womanly.”
	Disparaging the users	“Very cocky and confident wanting to be like someone else... they worry about their appearance, want to show people they care about themselves”
	Promotes existing negative stereotypes of the target group (stereotype threat)	“Like maybe because people are sexist. Or because some people are afraid to hire women because they don’t think she could do it”

*NOTE: For ease of exposition, all examples in this table are taken from interviews pertaining to the CSP of facial skin-care products for men. The only exception is the derogating (stereotype threat) response that is taken from the interview about professional services (auto-mechanic, plumber) for women, as there were no such responses in the CSPs targeting men.

Table 2

Stereotype-Related Adoption Barriers and the Evaluation of CSPs (Study 1)

	CSPs targeting Women			CSPs targeting Men		
	Private (<i>After-shave lotion</i>)	Public (<i>Ice-hockey video game</i>)	t ^a	Private (<i>Hair-remover wax</i>)	Public (<i>Purse for men</i>)	t ^a
Stereotypical of men	5.10	5.24		2.79	1.78	
Stereotypical of women	3.63	3.01		5.66	6.10	
Counter-stereotypicality ^b	-1.47	-2.23	-1.45*	-2.87	-4.32	-5.41***
Evaluation	4.22	3.04	-4.42***	3.31	2.46	-5.05***
<i>Affective response^c</i>						
Positive	.63	.37	-2.91***	.34	.26	-1.50*
Negative (Derogating)	.01	.06	1.26*	.07	.16	2.25**
Stereotype Threat	.01	.21	3.65***	.00	.00	.00
<i>Cognitive response^d</i>						
Stereotyping	.06	.09	.71	.16	.43	4.93***
Subtyping / subgrouping	.19	.49	3.60***	.52	.52	.00
Non-stereotyping	.75	.42	-3.87***	.32	.05	-5.63***
N	67	53		145	116	

NOTE: ^a* $p < .10$; ** $p < .05$; *** $p < .01$; all p-values are based on a one-tailed test of significance. ^bThe counter-stereotypicality for CSPs targeting men (women) is the difference between stereotypical for men (women) and stereotypical for women (men). ^cProportion of respondents that had positive or negative (derogating) or stereotype threat responses. ^dProportion that classified each CSP as appropriate (a) only for the opposing gender (stereotyping), (b) for certain individuals or groups of the targeted gender (subtyping / subgrouping), or (c) for all members of the targeted gender (non-stereotyping)

Table 3
The Effect of Product Design (Color) on the Purchase Intention for CSPs (Study 2)

	CSP targeting Women ^a (Auto repair kit for women)				CSP targeting Men ^b (Baking kit for men)			
	Low Femininity		High Femininity		Low Masculinity		High Masculinity	
	Neutral	Pink	Neutral	Pink	Neutral	Blue	Neutral	Blue
Stereotypical of men	5.29	4.82	5.67	4.48***	2.08	2.27	1.96	2.55**
Stereotypical of women	3.70	3.40	3.87	4.47**	4.96	4.76	5.10	4.80
Counter-stereotypicality	-1.59	-1.42	-1.80	-.01***	-2.89	-2.48	-3.14	-2.25*
Purchase Intention	4.72	3.72**	4.69	5.70**	1.55	2.24**	1.60	1.98*
<i>Affective response^c</i>								
Positive	.55	.65	.78	.93**	.32	.61***	.15	.37***
Negative (Derogating)	.20	.40**	.22	.11	.65	.48*	.72	.47***
Stereotype threat	.05	.35***	.09	.09	.22	.27	.21	.16
<i>Cognitive response^d</i>								
Stereotyping	.07	.05	.03	.00	.22	.06**	.13	.12
Subgrouping / Subtyping	.15	.16	.09	.11	.65	.70	.64	.70
Non-stereotyping	.77	.78	.87	.89	.13	.24	.23	.19
N	40	37	32	44	37	33	47	43

NOTE: * $p < .10$; ** $p < .05$; *** $p < .01$; all p-values are based on a one-tailed test of significance.

^aFor the CSP targeting women, the comparisons are between the means for the color pink versus neutral, separately within women scoring low versus high on femininity. ^bFor the CSP targeting men, the comparisons are between the means for the color blue versus neutral, separately within men scoring low versus high on masculinity. ^cSame as described in the note for Table 2. ^dSame as described in the note for Table 2.

Figure 1

Theoretical Framework for the Barriers to the Adoption of CSPs

Figure 2

The Effect of Product Design (Color) and Participants' Masculinity / Femininity on the Purchase**Intention for CSPs (Study 2)**

Figure 3

The Effect of Product Design (Color) on the Adoption Intentions for CSPs

a) CSP Targeting Women

Bias-corrected and accelerated (BCa) estimates of 95% CI for:

(a) Conditional direct effect of X on Y at values of the moderator(s):

Femininity	Effect	SE	t	p	LLCI	ULCI
Low	-1.0461	.4780	-2.1882	.0302	-1.9907	-.1014
High	.6223	.5026	1.2382	.2176	-.3709	1.6156

(b) Conditional indirect effect of X on Y at values of the moderator(s):

Mediator	Femininity	Effect	Boot SE	BootLLCI	BootULCI
CounterSter	Low	.0373	.1219	-.2069	.2907
CounterSter	High	.3947	.1932	.1038	.8696

(c) Index of Moderated Mediation

Mediator	Index	SE(Boot)	BootLLCI	BootULCI
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b) CSP Targeting Men

Bias-corrected and accelerated (BCa) estimates of 95% CI for:

(a) Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.4044	.1910	2.1175	.0358	.0272	.7815

(b) Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
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