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RESEARCH ARTICLE

Association with and Dissociation from Groups in Response to Personal and Social Identity Threats: The Role of Self-Construal and Anxiety

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Abstract:

Background:

In response to an identity threat, some individuals may dissociate themselves from social groups, whereas others may associate with these groups.

Objective:

This study examined how threats to social and personal identity influence the processes of association/dissociation with in-groups and out-groups in individuals with different self-construal types. Further, it explored whether the associative/dissociative processes are linked with physiological anxiety aroused by the identity threat.

Methods:

A total of 204 women were randomly assigned to one of six conditions: identity threat (social vs. personal vs. no threat) and primed self-construal (independent vs. interdependent).

Results and Discussion:

Under identity threat, independent women may dissociate from their out-group, which is manifested in lower ratings for masculine consumer brands. In contrast, interdependent women may associate with their in-group as well as the out-group, which is manifested as higher ratings for feminine and masculine brands, respectively. These findings provide evidence that the response to an identity threat depends not on the type of identity threat but rather on the type of self-construal. The results showed an unexpected possibility of association with the out-group when faced with an identity threat. However, physiological arousal did not mediate these effects, suggesting that associative/dissociative processes are a product of the maintenance of a positive self-concept rather than psycho-physiological efforts to regulate arousal.

Conclusion:

This work contributes to the existing literature on the impact of personal and social identity threats on in-group and out-group association/dissociation, evaluated using brand ratings representing these groups. The results also have several practical implications for marketers.

Keywords: Social and personal identity threat, Self-construal, Anxiety, Association, Dissociation, Consumer brands.

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1. INTRODUCTION

In everyday life, people often encounter information that places them or the groups they belong to in a negative light, threatening their personal and social identity. When faced with an identity threat, people engage in various defensive adaptations to ameliorate it. Under conditions of social identity threat, some individuals may dissociate themselves from the threatened group, for example, by avoiding public consumption

of goods symbolizing group membership. In contrast, other individuals may exhibit association with the threatened group, for instance, by wearing clothes that symbolize group membership. Personal identity threats may also lead to defensive reactions to social groups, such as association or dissociation [1]. However, responses to social and personal identity threats have not yet been compared in terms of association/dissociation with in-groups and out-groups. Based on the social identity theory [2] and self-construal theory [3], this study aimed to determine if social and personal identity threats influence association/dissociation with in-groups and

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out-groups among individuals with different types of self-construal. Furthermore, this study investigated the effects of physiological anxiety to explore its role in associative/dissociative responses to identity threats. As the association/dissociation processes expressed in this study were with regard to consumer reactions toward brands that symbolize an in-group and an out-group, this study has practical implications that can help understand consumer behavior.

In the theoretical part of the paper, a literature review is presented on social and personal identity threats and association/dissociation with a group in response to both types of identity threats. Moreover, self-construal's potential to moderate reactions to identity threats is described and the role of anxiety in response to them is explained. In the next section of the paper, the study participants; research tools applied, and study procedure are described. Then statistical analyses are presented, the results of which are discussed in a theoretical and practical context in the discussion section.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Association or Dissociation with a Group in Response to Identity Threat

The social identity perspective [2, 4] holds that individuals can respond to a given situation in ways that are consistent with either their personal identity or one of the many possible social identities, *e.g.* national identity [5]. The motivational core of this theory emphasizes that individuals strive to achieve or maintain a positive social identity, which depends on favorable comparisons between their in-group and some relevant out-group. A social identity threat arises when the in-group is not perceived as positively differentiated or distinct from the relevant out-group. According to Tajfel and Turner [2], the dominant strategy for achieving positive social identity is social mobility, in which members of a threatened group can actually leave or psychologically dissociate themselves from their in-group. Psychological escape from one's in-group dissociation can take many forms, including decreased similarity to the in-group [6, 7]. Researchers have also demonstrated that individuals who are strongly committed to a group tend to cope with social identity threats by adopting association with the group, that is, by increasing homogeneity with their in-group [8 - 10]. Individuals who strongly identify with an in-group might display out-group derogation under a social identity threat, which can be considered an extreme form of dissociation from the out-group [11, 12].

Group identity maintenance processes are closely related to personal identity processes [13, 14], and therefore, association/dissociation with social groups may be used strategically as a buffer against the threat to personal identity [1]. Mussweiler *et al.* [15] stated that personal and social identity are interrelated aspects of a single self-concept that comprises the general sense of self-worth. Based on this claim, it can be argued that social identity threat leads to similar reactions as personal identity threat, as both threaten the general sense of self-worth. Thus, the social identity theory may serve as a unified theoretical perspective in explaining

group identity maintenance processes (association/dissociation) caused by a social identity threat and a personal identity threat. This assumption is supported by Cialdini *et al.* [16, 17], who demonstrated that, under a personal identity threat, individuals enhanced the asserted quality of their home university (*i.e.*, associated with an in-group) and devalued the asserted quality of a rival university (*i.e.*, dissociated from an out-group). Cialdini *et al.*'s research and analysis of literature suggest that associative or dissociative responses to social and personal identity threats can be similar and that dissociation can be applied not only to in-groups but also to out-groups.

Furthermore, White *et al.* [18] found that the type of self-construal determined whether individuals coped with social identity threats by adopting associative or dissociative responses. In light of this, the self-construal theory was applied to investigate the factors determining the response to an identity threat.

2.2. Self-construal

Self-construal is the degree to which people see themselves as separate from or connected with others [3]. Initially, two types of self-construal were distinguished: independent and interdependent. Individuals with a more independent self-construal (independents) see themselves as autonomous, unique, and distinct from the group [19]. In contrast, those with a more interdependent self-construal (interdependents) view themselves as connected to others, such that the self is defined by important roles, relationships, and group memberships. Further, three separate lines of research [20 - 22] have identified two types of interdependent self-construal, that is, relational-interdependent self-construal (close relationships are included in the self) and collective-interdependent self-construal (group memberships are included in the self).

The self-construal theory is distinct from the construal level theory that describes the relationship between psychological distance and the extent to which people's thinking (representing objects mentally) is concrete or abstract [23]. The general idea of the construal level theory is that individuals tend to think about close objects in more concrete ways and remote items in more abstract ways [24]. In contrast, the self-construal theory focuses on describing the extent to which social objects (other people and groups) are incorporated into the structure of the self [3,20].

Self-construal moderates the responses to personal identity threats [25, 26] and social identity threats [18]. White, Argo, and Sengupta [18] found that independents demonstrate a dissociative response when their social identity is threatened, whereas interdependents exhibit an associative response. Their studies demonstrate that different types of motivations are embedded in different responses to social identity threats for independents and interdependents. While interdependents access a repertoire of social identities in response to social identity threats to fulfill their needs for belongingness, independents are motivated to restore positive self-worth. These findings suggest that, under a social identity threat, independents engage in dissociation to protect their personal identity, manifested in self-worth concerns. Similar reactions to social identity threats are observed when personal identity is

threatened. Vohs and Heatherton [26] found that under personal identity threats, interdependents behaved in a way that they were perceived as more likable, which can be interpreted as associative reactions toward other people and social groups. Meanwhile, under a personal identity threat, independents exhibit increased dissociative tendencies, as they behave in a less friendly way toward other people.

Thus, it seems that the type of self-construal determines the type of response to an identity threat rather than the type of threat. The self-construal, which determines an individual's relationship with social groups, may influence how an individual will respond to an identity threat. Individuals for whom belonging to a social group is vital (e.g., interdependents) may cope with an identity threat through greater association with their in-groups, which will give them a sense of belonging and security [18]. Such a sense of belonging and security will not be provided by out-groups, from which the interdependents will distance themselves as they associate with their in-group. Individuals who do not value membership of a social group (i.e., independents) should cope with identity threats by dissociating from social groups and seeking a sense of self-worth and security outside them (e.g., by strengthening personal identity).

Based on the abovementioned findings on responses to social and personal identity threats and the role of self-construal in these processes, the following hypotheses were proposed:

H1: For independents, a social and personal identity threats lead to dissociation from in-groups (**H1a**) and out-groups (**H1b**).

H2: For interdependents, social and personal identity threats lead to association with in-groups (**H2a**) and dissociation with out-groups (**H2b**).

In a study by White *et al.* [18], the processes of association or dissociation were expressed as changes in product preferences, symbolizing group membership. Hence, consumer psychology seems to be the perfect platform to capture the subtle processes of association or dissociation with social groups. This approach is justified as individuals use commercial brands to strengthen their sense of belonging to social groups [27], and incorporate brands into their self-concept, which is referred to as self-brand connection [28]. Individuals reported higher self-brand connections to brands symbolizing their in-group whereas lower connections to brands symbolizing out-groups.

Many studies have addressed the impact of social and personal identity threats on consumer preferences, thus showing the compensatory function of consumption. Consumers dissociate from unfavorable social groups to avoid social identity threats [27 - 29]. For instance, Spangenberg and Angle [30] described that consumers avoid previously held preferences when these become threats by dissociative group use. Further, consumers have been shown to respond to social identity threats by dissociation via avoiding identity-linked brands or by association via approaching them [18,31,32]. White and Argo [31] demonstrated this effect in their study. The authors found that when females who had low in-group

identification received negative information about their gender identity (social identity threats), they avoided products that are symbolically associated with their gender (dissociated from in-group). In turn, females with high in-group identification were more likely to prefer the products associated with their gender (associated with in-group). In another study, White, Stackhouse, and Argo [32] found that, under social identity threats, consumers with low in-group identification avoided products reflecting their in-group identity more when public self-awareness was high as opposed to low, particularly in the presence of an in-group audience. Overall, when social identity is threatened, consumers with high rather than low public self-awareness are more likely to associate with their in-group through consumers' choices.

Similarly, studies indicate the activation of consumer association and dissociation in response to the personal identity threat. For instance, when consumers encountered a threat to the self-brand association, they reacted by association with the brand [33]. In comparison, consumers experiencing personal identity threats avoid low-status goods to prevent further damage to their self-worth [34]. However, only a few studies have examined the impact of personal identity threats on consumer association and dissociation processes with group identity. Examples of these studies are those of the Cialdini team that is described above [16,17].

2.3. Anxiety

Social and personal identity threats have been linked to increased anxiety along with intense physiological arousal [35 - 38]. Some studies have suggested that anxiety could operate as a mediator between threats to particular aspects of identity and behavioral changes [39, 40]. When identity is threatened, individuals experience anxiety and are motivated to reduce this unpleasant emotional state [41]. Recently Ma and Hmielowski [42] demonstrated that identity threat increased anxiety, leading to avoidance behavior. Another recent study showed that anxiety affects association and dissociation expressed in consumers' preferences and that self-construal moderates the associative reactions to anxiety [43]. However, the role of anxiety resulting from social and personal identity threats in the process of associative/dissociative responses has not yet been studied. It has been proposed that one of the primary motivations for coping with identity threats may be the reduction of unpleasant anxiety arousal. Thus, Hypothesis 3 was proposed:

H3. Social and personal identity threats affect the strength of association/dissociation processes through anxiety arousal.

3. MATERIALS AND METHODS

3.1. Participants and Design

We planned the sample size based on previous studies using similar study designs [18], where between 25 and 30 participants were assigned to each condition. We planned to examine between 30 and 35 participants per condition. Participants were 204 undergraduate women, aged between 18 and 25 years ($M = 21.20$, $SD = 1.96$). Undergraduate women participating in the study were recruited with advertisements

about the study placed in many buildings of different departments of the three universities in Poznan, Poland. The invitation to participate in the study included information that, in compensation for taking part in the study, the participants would receive a cinema voucher. Volunteers were admitted into the study on the condition that they did not meet any exclusion criteria: significant health problems, use of medications, prior diagnosis of cardiovascular disease, or hypertension. Participants were instructed to avoid eating for at least one hour before the experiment and refrain from physical exercise. The participants were also instructed to avoid caffeine, nicotine, alcohol, or non-prescription drugs for at least two hours before the experiment. Five of them disbelieved the cover story for the identity threat procedure during debriefing and were excluded from further analyses. The study had a 3 (identity threat: social vs. personal vs. no threat) \times 2 (self-construal: independent vs. interdependent) between-subjects experimental design. The Institutional Ethics Committee approved the study, and informed consent was obtained from all participants involved in the study.

3.2. Measures

3.2.1. Priming

Two types of self-construal were chosen for this study: independent and collective-interdependent (hereafter referred to as “interdependent”). A Scrambled Sentences Test (SST) [44] was constructed to activate independent and interdependent self-construal. In the SST, the participant’s task is to create a grammatically correct and meaningful sentence with four out of five words presented in a randomized order. For each series of five words, it is possible to create only one correct sentence. After creating the sentence in their minds, participants are asked to isolate and write down the remaining word. Both sentences are created in mind, and the remaining words prime a particular self-construal. The results of a pilot study indicated that the SST activated the independent and interdependent self-construal (see Supplementary materials).

3.2.2. Personal and Social Identity Threats

The procedure of manipulating personal and social identity threats was prepared based on Gaertner, Sedikides, and Graetz [45, study 2], in which they threatened identity by providing participants with negative feedback. Based on previous work [46], negative feedback about professional competence was used as the source of female personal and social identity threats. The results of the pilot study indicated that manipulations of personal and social identity threats were effective (see Supplementary materials and the description of the main study).

3.2.3. Dependent Variables: Association/dissociation with In-group and Out-group

Gender identity is a salient and important component of self-concept, and was chosen as the focal identity in this study. Only women participated in the study; thus, feminine (masculine) brands symbolized the in-group (out-group). Two different aspects of the dependent variable were used: brand preferences measured by three bipolar items

(*unfavorable/favorable, dislike/like, bad/good*) assessed on a 9-point scale (α average = 0.88), and self-brand connection measured by three items from the Self-Brand Connection Scale [28] assessed on a 9-point Likert scale (1 = “strongly disagree” to 9 = “strongly agree”; α average = 0.84). Association with an in-group (out-group) was manifested in a higher preference for in-group (out-group) brands, and a higher connection between self and in-group (out-group) brands in the personal and social identity threat conditions compared with the no-threat condition. Dissociation from an in-group (out-group) was manifested in a lower preference for in-group (out-group) brands and a lower connection between self and in-group (out-group) brands in the personal and social identity threat conditions compared with the no-threat condition. In pilot studies, feminine (representing the in-group) and masculine brands (representing the out-group) were selected, as well as identity-neutral brands, that is, unisex brands (see Appendix).

3.2.4. Cardiovascular Data

Systolic and diastolic blood pressure, heart rate, cardiac output, and total peripheral resistance of participants were recorded continuously using a Finometer (Finapres Medical Systems, Holland). Finger cuffs recorded finger arterial pressure waveform with the use of photoplethysmography. The obtained values were then followed by a visual inspection of all signals and necessary corrections of artifacts. For the analyses, only recordings with less than 10% of artifacts in 1-minute periods were used.

3.2.5. Respiration Rate

Thoracic and abdominal circumference changes during respiration were recorded using the piezo-electric belt Pneumotrace II. The number of respiration cycles per minute provided the respiration rate.

3.2.6. Skin Conductance

Skin conductance level was recorded via a pair of electrodes taped on digits 2 and 3 of the non-dominant hand using GSR Amp (ADInstruments) and Ag/AgCl electrodes with a contact area of 8 mm diameter filled with skin conductance paste.

3.2.7. Body Temperature

Body temperature at the fifth digit tip related to cardiovascular processes was measured using a skin temperature probe (ADInstruments), and presented in degrees Celsius.

3.2.8. Subjective Threat

At the end of the main study, to confirm the effectiveness of the identity threat procedure, I asked participants to retrospectively indicate the extent to which they had felt “*threatened*,” “*concerned*,” “*calm*” (reversed item), “*nervous*,” “*upset*,” “*frightened*,” “*jittery*,” and “*uncertain*” using 5-point scales (1 = “*not at all*,” 5 = “*extremely*”; α = 0.91).

3.2.9. Brand Familiarity

To control the risk of lack of familiarity with the brands

used in the main study, a question inquired about brand awareness. Participants were asked to determine whether the brand was known to them using a 7-point scale (1 = “definitely not,” 7 = “definitely yes”).

3.3. Procedure

Upon arrival in the laboratory, participants provided written informed consent, and were told that they would participate in two unrelated studies. Participants were randomly assigned to one of the six study conditions. Experimenters did not know the research hypotheses and did not know to which study condition participants were assigned. The biosensors were attached, and the experiment began with a 5-minute baseline, where the last 90 seconds were taken as a physiological pretest. The “first” study began with answers to the Oxford Test of Professional Competence (OTPC). Then, the manipulation of self-construal using the SST was conducted. Next, participants in experimental conditions received negative feedback regarding their individual (personal identity threats) or group performance (social identity threats) in the OTCP (see Appendix). In the no threat condition, participants received a neutral description of the OTPC. Afterwards participants waited 90 seconds (physiological post-test) for the beginning of the “second” study, in which they were asked to indicate their evaluations of four different pairs of brands. The logos of two brands (brands A and B) in each pair were presented simultaneously, and the answers on the preferences scale and the Self-Brand Connection Scale were given alternately; participants alternately evaluated brands A and B. Next, participants completed a scale-measured retrospective evaluation of threat and evaluated their familiarity with all eight brands used in the study. Finally, participants completed a suspicion probe and were debriefed. The experiment was conducted with the e-Prime 2.0 Professional Edition environment.

3.4. Data Analysis

Ratings of specific brands were not included if the

participants did not know the brand; that is if they rated “1” on the brand familiarity scale. To calculate preference for feminine, masculine, and unisex brands and connection between self and those brands, only familiar brands were used (familiarity greater than 1). There were no missing data for determining brand preferences and self-brand connections. Five participants did not know either of the masculine brands and thus I did not calculate association/dissociation with/from the out-group index for them. Data were analyzed in an association/dissociation process in three steps. First, 3 (identity threat: social vs. personal vs. no threat) × 2 (self-construal: independent vs. interdependent) two-way ANOVAs were run separately for four dependent variables (preference for feminine and masculine brands, self-brand connections with feminine and masculine brands). Next, a simple effects analysis was run to test the effect of identity threat separately for two types of self-construal for significant interactions. In the end, comparisons to test differences between the no-threat condition and the personal and social identity threat conditions separately for independents and interdependents were held. Compared with the no-threat condition, significantly higher or lower levels of dependent variables for the personal or social identity threat conditions were indicators of association/dissociation processes. Repeated measures ANOVAs were run for eight physiological indicators of anxiety arousal with one between-subject factor (separately: social identity threat vs. no threat; personal identity threat vs. no threat), and one within-subject factor (baseline and reactivity).

4. RESULTS

The results confirmed the effectiveness of the procedure for social and personal identity threats in raising a threat, $F(2, 196) = 40.76, p < .001, \eta^2 = .29$. Participants in the personal ($M = 2.75, SD = .94, t(196) = 8.60, p < .001$), and social identity threat ($M = 2.47, SD = .85, t(196) = 6.61, p < .001$), conditions reported higher levels of subjective threat than those in the control condition ($M = 1.57, SD = .53$). Descriptive statistics and results of ANOVA tests for brand evaluations are presented in Table 1.

Table 1. Descriptive statistics and ANOVA results for brand evaluation.

Variables	Personal Identity Threat		Social Identity Threat		No Threat		ANOVA		
	M (SD)	n	M (SD)	n	M (SD)	n	F	(df)	p
Feminine brands Preference							6.42	2, 193	< .005
Independents	5.16 (1.34)	33	5.51 (1.66)	34	5.97 (1.33)	34	2.77	2, 194	> .05
Interdependents	6.61 (1.25)	32	6.48 (1.29)	32	5.80 (1.11)	34	3.08	2, 194	> .05
Self-brand connection							4.96	2, 193	< .01
Independents	3.27 (1.56)	33	3.57 (1.74)	34	3.75 (1.68)	34	.61	2, 194	> .05
Interdependents	4.72 (1.81)	32	4.77 (1.88)	32	3.51 (1.37)	34	5.55	2, 194	< .01
Masculine brands Preferences							7.83	2, 188	< .001
Independents	2.59 (0.91)	33	2.58 (1.50)	34	3.28 (1.36)	32	3.23	2, 189	< .05
Interdependents	3.95 (1.38)	31	3.27 (1.13)	30	2.90 (1.17)	34	5.26	2, 189	< .01
Self-brand connection							11.32	2, 188	< .001
Independents	1.24 (0.30)	33	1.34 (0.68)	34	1.93 (1.05)	32	6.74	2, 189	< .001
Interdependents	2.01 (1.12)	31	1.86 (0.99)	30	1.41 (0.49)	34	4.38	2, 189	< .05

(Table 1) contd....

Variables	Personal Identity Threat		Social Identity Threat		No Threat		ANOVA		
	M (SD)	n	M (SD)	n	M (SD)	n	F	(df)	p
Unisex brands Preferences							.01	2, 193	> .05
Independents	5.26 (1.20)	33	5.20 (1.69)	34	4.90 (1.38)	34			
Interdependents	5.62 (1.05)	32	5.54 (1.27)	32	5.24 (1.25)	34			
Self-brand connection							.64	2, 193	> .05
Independents	2.94 (1.25)	33	3.02 (1.35)	34	2.95 (1.65)	34			
Interdependents	3.69 (1.49)	32	3.47 (1.55)	32	3.14 (1.29)	34			

Note: In the rows, results of the variable name of two-way ANOVAs 3 (identity threat: social vs. personal vs. no threat) × 2 (self-construal: independent vs. interdependent) are presented; for significant interactions in the rows named “independents” and “interdependents” a simple effects analysis are presented for the specific type of self-construal.

Independents showed a lower connection between self and feminine brands ($M = 3.53, SD = 1.66$) than interdependents ($M = 4.32, SD = 1.78$), $F(1, 193) = 11.41, p < .001, \eta^2 = .06$. Further, planned contrast showed that interdependents manifested an association with the in-group and reported a greater preference for feminine brands and greater connections between self and feminine brands when their personal, $t_{pref.} = 2.38, p < .05; t_{connect.} = 2.89, p < .005$, and social identity, $t_{pref.} = 2.00, p < .05; t_{connect.} = 3.00, p < .005$, were threatened versus not threatened.

The main effect for self-construal was significant for masculine brand preferences, $F(1, 188) = 9.44, p < .001, \eta^2 = .08$, and connections between self and masculine brands, $F(1, 188) = 4.7, p < .05, \eta^2 = .02$. Independents reported lower masculine brand preferences ($M = 2.81, SD = 1.31$ vs. $M = 3.36, SD = 1.29$), $t = -2.93, p < .005$, and lower connections between self and masculine brands ($M = 1.50, SD = .79$ vs. $M = 1.75, SD = .92$), $t = -2.02, p < .05$, than interdependents. Independents manifested a dissociation from the out-group, showing a lower preference for the masculine brands and lower

connections between self and masculine brands when their personal, $t_{pref.} = -2.23, p < .05; t_{connect.} = -3.41, p < .001$ and social identities, $t_{pref.} = -2.29, p < .05; t_{connect.} = -2.98, p < .005$, were threatened versus not threatened. Interdependents manifested an association with the out-group, showing a greater preference for masculine brands, $t = 3.27, p \leq .001$, and self-brand connections with masculine brands, $t = 2.86, p < .005$, when their personal identity was threatened versus not threatened. Under social identity threat, they demonstrated greater self-brand connections with masculine brands, $t = 2.11, p < .05$, (but the same level of preference for masculine brands, $t = 1.05, p > .05$) compared with the no-threat condition.

Finally, the interaction between type of identity threat and self-construal was non-significant for preference for unisex brands and self-brand connection with these brands. Thus, associative/dissociative effects were restricted to gender identity-related brands.

Descriptive statistics for physiological indicators of anxiety arousal and results for rm ANOVA are presented in Table 2.

Table 2. Descriptive statistics for physiological indicators of anxiety arousal and results of Repeated Measures Analysis of Variance (rm ANOVA).

Physiological Variables	Baseline (T1)		Reactivity (T2)		MANOVA		
	M (SD)	n	M (SD)	n	F	(df)	p
DBP [mmHg]							
No threat	69.33 (8.29)	68	70.67 (8.83)	68			
Personal identity threat	69.29 (10.55)	65	70.40 (10.78)	65	1.52	1, 131	> .05
Social identity threat	70.99 (12.92)	66	71.54 (12.54)	66	2.23	1, 132	> .05
SBP [mmHg]							
No threat	114.67 (13.35)	68	119.03 (15.16)	68			
Personal identity threat	114.12 (15.49)	65	118.99 (17.00)	65	.18	1, 131	> .05
Social identity threat	116.95 (20.36)	66	120.68 (20.58)	66	.40	1, 132	> .05
Heart rate [beats/min]							
No threat	80.62 (10.87)	68	79.31 (10.64)	68			
Personal identity threat	83.13 (11.68)	65	81.79 (9.85)	65	.001	1, 131	> .05
Social identity threat	83.30 (11.87)	66	80.63 (10.87)	66	3.00	1, 132	> .05
Cardiac output [l/min]							
No threat	5.66 (1.43)	68	5.71 (1.39)	68			
Personal identity threat	5.49 (1.40)	65	5.56 (1.33)	65	.19	1, 131	> .05
Social identity threat	5.67 (1.23)	66	5.75 (1.09)	66	.22	1, 132	> .05
TPR [mmHg.min/l]							
No threat	1314.12 (291.94)	68	1330.20 (281.46)	68			

(Table 2) contd....

Physiological Variables	Baseline (T1)		Reactivity (T2)		MANOVA		
	M (SD)	n	M (SD)	n	F	(df)	p
Personal identity threat	1375.03 (442.99)	65	1402.92 (472.70)	65	.25	1, 131	> .05
Social identity threat	1335.38 (362.89)	66	1329.31 (346.67)	66	2.21	1, 132	> .05
RR [number of breaths/min]							
No threat	16.68 (2.92)	68	16.02 (3.07)	68			
Personal identity threat	16.49 (3.50)	65	16.18 (3.41)	65	.73	1, 131	> .05
Social identity threat	15.60 (3.27)	63	14.74 (2.57)	63	.27	1, 129	> .05
SCL [μS]							
No threat	2.89 (3.97)	68	5.20 (4.54)	68			
Personal identity threat	2.57 (3.40)	65	5.06 (3.98)	65	.36	1, 131	> .05
Social identity threat	1.83 (2.82)	65	3.94 (3.38)	65	.48	1, 131	> .05
Body temperature [°C]							
No threat	31.39 (4.09)	68	30.94 (3.87)	68			
Personal identity threat	31.26 (4.06)	65	30.91 (3.90)	65	.12	1, 131	> .05
Social identity threat	31.51 (4.02)	66	31.49 (3.72)	66	1.97	1, 132	> .05

Note: DBP = diastolic blood pressure, SBP = systolic blood pressure, TPR = total peripheral resistance, RR = respiration rate, SCL = skin conductance level; rm ANOVA results described comparisons of arousal changes (between baseline and reactivity measures) between experimental conditions (social identity or personal identity threats) and the control condition.

Results of the MANOVA showed no significant differences in the change of anxiety arousal in both experimental conditions compared with the control condition. Results revealed a lack of physiological reactivity in terms of diastolic and systolic blood pressure, heart rate, cardiac output, total peripheral resistance, respiration rate, skin conductance, and body temperature.

5. DISCUSSION

This study showed that associative/dissociative responses to social and personal identity threats are similar. Results demonstrate that self-construal moderates consumers' reactions to identity threats. Independent women under personal and social identity threat are dissociated from the out-group, whereas interdependent women under identity threat are associated with the in-group and out-group. The results suggest that consumers are motivated to employ association/dissociation processes in response to identity threats, not to reduce unpleasant anxiety arousal, but to restore positive self-concept.

This study's key contribution is that reactions were simultaneously compared with social and personal identity threats for individuals with different self-construal, which enabled the testing of causal inferences. The results suggest that the choice of association or dissociation as a coping strategy depends not on the type of identity threat, but on the type of self-construal. Thus, this study integrates perspectives from social identity and self-construal theories to predict when associative versus dissociative responses to identity threats will emerge.

Concerning social identity theory, this study demonstrated that association/dissociation processes can be used as a coping strategy for personal identity threats. While individual and collective self-esteem are distinctive [46], this study indicated that reactions to threats to these types of self-esteem might be similar. It suggests that personal and social identity threats may harm the aspect of the self that links these identities, that is, one's general sense of self-worth [15]. Thus,

association/dissociation processes can be a response to a threat to an overall positive self-concept, which may be a consequence of either a social or personal identity threat. This reasoning is supported by theorists claiming that group identity maintenance processes are closely related to personal identity processes [13, 14], and therefore, membership in groups can help to cope with personal identity threats [47].

This study adds to the self-construal theory by being the first empirical investigation showing that self-construal can simultaneously moderate responses to both personal and social identity threats. Previous studies have shown that self-construal determines responses to personal identity threats [26] and social identity threats [18]. As self-construal moderates responses to identity threats, it seems that self-regulatory strategies depend on structural aspects of self-concept. For interdependents, association with social groups under identity threat could manifest the greater need for assimilation with others that characterize interdependents [48]. However, for independents, dissociation from a group under identity threat could manifest the greater need for differentiation from others that characterizes independents. A study by Vohs and Heatherton [26] supports these interpretation by demonstrating that under personal identity threat, independents increase differentiation tendencies whereas interdependents increase assimilation tendencies. Therefore, the study contributes to self-construal theory by suggesting that the threat to identity, whether personal or social, intensifies assimilation processes for interdependents and differentiation processes for independents.

While previous studies have concentrated on association/dissociation with respect to a brand consistent with an in-group [18, 27 - 32], this study demonstrated the unexplored possibility of activating these processes with respect to a brand consistent with an out-group. Hence, the findings are novel in highlighting the role of out-groups in associative/dissociative responses to identity threats. The finding that interdependents can simultaneously associate with an in-group and out-group represents an unexpected but unique

piece of information. Since social identity is located in the collective-interdependent self-construal [20], interdependents experiencing identity threats seek security and meet the need to belong on cognitively accessible bases (*i.e.*, social identities), which can act as a buffer against threats [1, 49]. Interdependents satisfy belongingness needs by activating multiple social identities when under a social identity threat [18], which they can do owing to their great self-structure flexibility [3].

Contrary to previous findings [18], independents did not dissociate under an in-group's social identity threat, rather they dissociated from an out-group. This suggests that independents can more effectively resolve self-worth concerns and emphasize their autonomy in response to identity threats by dissociating from an out-group. Independents experiencing identity threats may seek security and protection of self-worth in a cognitively accessible base, that is, personal identity [50].

As the first to measure anxiety arousal in the mechanism of associative/dissociative responses to identity threats, the study represents an important contribution to the literature. The findings demonstrated that social and personal identity threats did not produce physiological anxiety arousal. The present results contrast with some previous findings [35 - 38], which have suggested that the underlying mechanism governing reactions to identity threats is a need for reduction of unpleasant anxiety arousal. The lack of anxiety arousal under identity threat along with the simultaneous observation that individuals engage in association/dissociation processes suggests that individuals react to threats not to reduce unpleasant anxiety arousal, but to restore positive self-concept. This kind of motivation for self-regulation is one of the roots of social identity theory [2]. Notably, when interpreting the lack of anxiety arousal under an identity threat, this effect can be limited to a specific type of identity threat. I induced identity threat by providing negative feedback about competence at an individual or collective level. In such a situation, an emotional response to an identity threat may also include anger [51] or sadness [36], which can influence the observed patterns in physiological processes.

Using changes in consumer behavior as indicators of responses to identity threats, the current results have several practical implications for marketers. Advertisers should be careful in using identity threat strategies combined with strategies that intensify uniqueness and autonomy (activating independent self-construal) if they strongly link brands with specific social identities. Results suggest that such a combination of marketing strategies may lead to avoidance of identity-linked brands. However, some studies also suggest that identity threat strategies may be effective when combined with identity-linking strategies, and with the intensification of the group and collective values (activating interdependent self-construal), for example, by showing team cooperation in a commercial. It can be used to spur consumers to engage in positive behaviors (*e.g.*, health behaviors), as has been demonstrated in previous studies [52].

CONCLUSION

In summary, this study documented that self-construal

moderates reactions to social and personal identity threats, as expressed in the changes in evaluations of identity-linked brands. In particular, women with primed independent self-construal dissociate from out-group which manifested as decreased preferences for masculine brands, and a decreased connection between self and those brands. In turn, women with primed interdependent self-construal associated with in-group as well as with out-group which is manifested as increased preferences both for feminine and masculine brands, and an increased connection between self and those brands. I adopted a multilayer approach toward the measurement of emotions and found that anxiety arousal is not involved in the mechanisms of responding to social and personal identity threats through association/dissociation with/from social groups. This study advanced the understanding of how consumers on differing levels of self-construal react to social and personal identity threats.

LIMITATIONS OF THE STUDY AND DIRECTIONS FOR FUTURE RESEARCH

There are some limitations to this study. First, a student sample was used; therefore, the findings may not be generalizable to less-educated peers or other age cohorts. Second, the participants were only women; thus, it is necessary to examine whether similar pathways and processes of association/dissociation can be observed among men. Third, future studies can consider social categories other than sex (*e.g.*, nationality). Fourth, this study is also limited because it was used to test a self-construal priming technique, and future studies could replicate the present results by including individual differences in self-construal in the research design. Moreover, future research may investigate whether the collective-relational self-construal, which was not manipulated in this study, can moderate association/dissociation processes. Fifth, the study results are limited to one type of social identity threat, that is, a threat to the positive self-group image. Future research could consider other forms of social identity threat, such as the threat to the distinctiveness of one's own group [53 - 56]. Overall, additional studies using different manipulations should be done to support the findings.

LIST OF ABBREVIATIONS

OTPC = Oxford Test of Professional Competence

AUTHOR CONTRIBUTIONS

DD: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Validation; Writing - original draft; Writing - review & editing.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by Institutional Ethics Committee.

HUMAN AND ANIMAL RIGHTS

No animals were used for studies that are the basis of this research. All the humans used were in accordance with the Helsinki Declaration of 1975.

CONSENT FOR PUBLICATION

Informed consent has been obtained from the participants involved.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The anonymized data that support the findings of this study are available from the corresponding author, [D.D.] on special request.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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SUPPLEMENTARY MATERIAL

The supplementary material (development of the self-construal manipulation, development of the social and personal identity threat manipulation, and product selection procedure) is available in the OSF at <https://osf.io/4arg3/>, referencenumber DOI 10.17605/OSF.IO/4ARG3.

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