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Perceived power and smile intensity in service encounters

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Perceived Power and Smile Intensity in Service Encounters

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Perceived Power and Smile Intensity in Service Encounters

Abstract

Purpose: Smiles displayed at varying intensities by service providers may result in different social judgments by customers, affecting decision-making. This study investigates the joint effect of customers' sense of power (low vs. high) and service providers' smile intensity (slight vs. broad) on their warmth and competence perceptions in service encounters.

Design/methodology/approach: We conducted four experiments based on the stereotype content model of social judgments and the agentic-communal model of power, and assessed the impact of perceived power and smile intensity in different service encounter contexts.

Findings: The interaction effect of customers' sense of power (low vs. high) and service providers' smile intensity (slight vs. broad) influences customers' social judgments (warmth perceptions vs. competence perceptions). A service provider who displays a broad smile is more likely to be perceived as warmer by customers with a low sense of power, but less competent by those with a high sense of power. Furthermore, mediation analysis revealed that the combined effect of customers' sense of power and service providers' smile intensity on customers' subjective well-being and purchase intentions might be attributed to their social judgments.

Originality: This study reveals the intrinsic mechanism behind the interaction effect between smile intensity and sense of power affecting customers' purchase intentions

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4 and subjective well-being, namely, warmth/competence perceptions.
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9 **Keywords:** Smile intensity, Sense of power, Warmth perception, Competence
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11 perception, Subjective well-being, Purchase intention
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17 **Article classification:** Research paper
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Introduction

Smile, an essential non-verbal human behavior (Hall, 2009), positively affects people's interpersonal judgments and emotional well-being (Schnall and Laird, 2003). Positive display rules lead to higher ratings of service quality (Trougakos *et al.*, 2011), and 'service with a smile' can predict encounter satisfaction (Barger and Grandey, 2006). Higher customer satisfaction is a crucial predictor of positive marketing outcomes and an essential component of customers' subjective well-being (Otterbring, 2017; Johns, 2020). The result of customers' contentment concerning specific service experiences may translate into positive marketing performance due to customer satisfaction and positive word-of-mouth (Tsai and Huang, 2002). More importantly, customers' subjective well-being may increase their overall quality of life through improved health and wellness, longevity, creativity, altruistic tendencies, and quality social interactions (Otterbring, 2017).

In service industries requiring substantial interaction between service providers and customers, the employee's ability to be cheerful and uplifting has a direct impact on customers' perceptions of service quality (Winsted, 2000). Therefore, 'service with a smile' is often considered an emotional labor practice (Hochschild, 1983) and an obligation for service providers (Tang and Gu, 2016). Although abundant literature supports the stance that smiles convey positive information (Barger and Grandey, 2006), research has found that smiles may also exert negative effects (e.g., Labroo *et al.*, 2014). For instance, marketers who express broad smiles may be perceived as warmer but less competent (Wang *et al.*, 2017). To

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4 foster positive experiences for customers, marketers often deliberately exaggerate
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6 their positive expressions, yielding counterproductive results (Barger and Grandey,
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8 2006). Hence, the boundary conditions of the positive impact of smiles on customers'
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10 social judgments must be taken up for research.
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14 Service enterprises often provide tailored services to customers based on their
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16 positions in the customer pyramid structure (Zeithaml *et al.*, 1996). Customers'
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18 differentiation activates their sense of power, a form of psychological awareness that
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20 can be referred to as one's perception of the presence and extent or absence of inner
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22 power (Magee and Galinsky, 2008). The degree of such a perception intrinsically
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24 differs among individuals (Anderson and Berdahl, 2002) and may be dictated by
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26 situational factors (Rucker and Galinsky, 2008). Research indicates that one's sense
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28 of power may alter their perception of information that conveys warmth or
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30 competence (Dubois *et al.*, 2016). However, the impact of the interaction effect
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32 between power and smile intensity on customers' purchase intention and subjective
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34 well-being has not yet been systematically studied. Social marketing principles
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36 encourage businesses to focus on increasing sales and enhance customer well-being
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38 simultaneously to achieve long-term win-win outcomes (Johns, 2020). Hence, this
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40 study explores a potential boundary condition (i.e., customers' sense of power) that
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42 can impact the relationship between marketers' smile intensity and customer decision-
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44 making and subjective well-being.
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58 **Theoretical Background and Hypotheses**

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The Stereotype Content Model

The stereotype content model (SCM) was originally proposed by Fiske *et al.* (2002) to explain the differences in individual perceptions of social groups. Wang *et al.* (2017) indicate that SCM has also been employed for the evaluation of individuals (Judd *et al.*, 2005), brands (Aaker *et al.*, 2012), and organizations (Aaker *et al.*, 2010). The core idea of the SCM is that the ‘warmth’ and ‘competence’ judgments derived from the social structure constitute an individual’s perception of others, resulting in corresponding emotional and behavioral responses. Warmth judgments can be referred to as one’s perception of others’ good intentions, including characteristics such as a caring attitude, trustworthiness, sincerity, courtesy, and friendliness (Aaker *et al.*, 2010). Competence judgments reflect others’ ability to achieve their goals, including traits such as effectiveness, expertise, capability, self-confidence, intelligence, and power (Hoegg *et al.*, 2011). People’s perceptions of others usually fall into one of these two kinds of judgments, and the more salient one trait is perceived to be, the weaker the other trait is recognized (Cuddy, 2008).

Power and Social Judgments

Sense of power is defined as one’s perceived ability to control others, often reflected in the degree of their willingness to offer valuable resources (Anderson *et al.*, 2012). An individual’s chronic perception of the extent to which they possess power may persistently differ among individuals (Anderson and Berdahl, 2002). Such a perception may also be situationally activated, for instance, when an individual feels less confident about their power state under certain circumstances (Rucker and

Galinsky, 2008). Different power perceptions influence people's cognitive, emotional, and behavioral patterns (Rucher *et al.*, 2012).

Rucker *et al* (2012) reviewed the concept of power, proposing a new framework that allows a deeper understanding of how power shapes people's behaviors, especially consumption behaviors. They argue that those in power tend to be agentic-oriented, while those lacking power are often communal-oriented. According to Bakan (1966), the agentic-communal model dictates people's ways of thinking, decision-making processes, and behaviors. Agentic individuals demonstrate self-protection, self-assertion, and self-improvement tendencies. In addition, agentic orientation prompts people to make decisions that are more in line with their interests and benefits, often leading to selfish behavior (Hill *et al.*, 2012). In contrast, communality refers to one's sensitivity toward and the degree of participation in social groups. Communal orientation sparks people to consider others' interests when making decisions (Abele and Bogdan, 2007). Rucker *et al* (2012) combined perception with agentic/communal orientations, proposing an agent-communal model of power. They argue that individuals with a strong sense of power feel less dependent on others and less restrained from achieving personal goals and interests; thus, they should be considered agentic-oriented. However, those lacking a sense of power often rely on others to obtain valuable resources. They are more likely to cooperate with others to achieve their goals and meet their needs; hence, they should be considered communal-oriented. Communal orientation also prompts individuals to pay more attention to personal relationships and others' feelings when making

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4 decisions. The agentic-communal model can explain consumers' perceptions of price
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6 unfairness (Jin *et al.*, 2014) and the value of self and others (Rucher *et al.*, 2012). It
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8 also affects people's evaluations of warmth and competence information. Specifically,
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10 individuals in the high-power state are often agentic-oriented and more likely to
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12 generate messages conveying competence-related information (e.g., efficiency, self-
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14 confidence, and wisdom). In contrast, those in the low-power state tend to be
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16 communal-oriented and are more likely to generate messages conveying warmth-
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18 related information (e.g., amicability, friendliness, and trustworthiness). In addition,
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20 people are more likely convinced by the type of information that matches their power
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22 state (Dubois *et al.*, 2016).
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29 *Smile Intensity, Power, and Social Judgments*

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32 From the perspective of evolutionary theory, through adaptation and
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34 evolution, people develop skills and instincts that allow them to make quick and
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36 spontaneous inferences from others' facial expressions (Van Kleef *et al.*, 2004).
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38 Facial expressions convey the valence of the individual's emotions and intentions and
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40 the intensity of their affection. The more exaggerated a facial expression, the stronger
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42 the emotions and expectations in that expression (Ekman *et al.*, 1980). A broad smile
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44 is associated with high sociability and signals availability to establish social
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46 relationships (Scarr and Sandra, 1992). Presenters of broad smiles are more likely
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48 perceived as friendly and easy going, and the demeanor conveys warmth (Wang *et al.*,
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50 2017). However, it may also signal a lack of competence. For example, Kraus and
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52 Chen (2013) found that professional mixed martial arts fighters with full smiles are
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4 more likely to lose their match than those who smile less intensely, presumably
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6 because intense smiles represent an unintentional nonverbal sign of diminished
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8 physical dominance. This finding is further supported by Wang *et al.* (2017), who
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10 have shown that those who express a broad smile are perceived as warmer but less
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12 competent. Overall, a positive (negative) relationship is observed between smile
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14 intensity and warmth (competence) judgments. Hence, we hypothesize the following:
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19 H1: A broad (vs. slight) smile is more likely to be perceived as a sign of
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21 warmth (vs. competence) by low (vs. high)-power customers.
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24 *Smile Intensity, Power, Social Judgment, and Purchase Intention*

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27 Research suggests that customers' warmth and competence perceptions of
28
29 service providers are effective predictors of their behavioral responses. According to
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31 Cuddy *et al* (2007), being warm is considered an altruistic trait. Perceivers usually
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33 judge warmth traits quickly (Wills and Todorov, 2006), creating a relatively urgent
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35 need to react, leading to active behavioral tendencies. However, Aaker *et al* (2010)
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37 have shown that customers' perceptions of service providers' low competence
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39 undermine their behavioral tendencies (e.g., willingness to pay). As mentioned above,
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41 high-power customers pay more attention to competence traits. A broad smile is
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43 expected to undermine high-power customers' intentions to purchase the product or
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45 use the service, as they are more likely to perceive the marketer as incompetent. In
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47 contrast, low-power customers are more concerned about the marketer's warmth
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49 traits. In this regard, we hypothesize that:
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58 H2: A broad smile leads to higher purchase intentions by enhancing the
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4 warmth perceptions of the marketer among low-power customers with a low
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6 sense of power, but induces lower purchase intentions by undermining the
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8 competence perceptions of the marketer among high-power customers.
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10 11 *Smile Intensity, Power, Social Judgment, and Customer Well-Being*

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14 A customer's subjective well-being is usually linked to satisfaction and
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16 positive affect derived from a consumption experience or service encounter. It is a
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18 significant outcome variable in psychology and marketing research, given its notable
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20 impact on consumers' quality of life (Otterbring, 2017). When operationalized, the
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22 construct is usually captured through self-reported measures that include affective and
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24 cognitive components aimed at uncovering people's perceptions of their wellness
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26 levels (Diener *et al.*, 2018).
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33 In the context of services marketing, Otterbring (2017) has found that a
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35 smiling (vs. non-smiling) employee positively influences customer gratification and
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37 satisfaction. In addition, perceptions of warmth and competence can predict affect
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39 (Sevillano *et al.*, 2019) and satisfaction (Howe *et al.*, 2019), two primary components
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41 of customer well-being. Moreover, Howe *et al.* (2019) has posited that in the patient-
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43 health provider interaction, patients' perceptions of a doctor's warmth or competence
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45 affect their satisfaction and effectiveness of medical treatments. The current study
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47 investigates how the potential interaction effect between customers' sense of power
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49 and service providers' smile intensity can help marketers and customers achieve win-
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51 win outcomes. Hence, subjective well-being becomes another downstream
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53 consequence to be investigated empirically. Therefore, we propose that:
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4 H3: A broad smile leads to higher satisfaction and a positive affect by
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6 increasing the warmth perceptions of the marketer among customers with a
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8 low sense of power, but leads to lower satisfaction and a positive affect by
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10 decreasing the competence perceptions of the marketer among customers with
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12 a high sense of power.
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17 The proposed research model is shown in Figure 1.
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19 <Figure 1 goes about here >
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22 **Experiment 1: The Interaction Effect Between Sense of Power and Smile**

23 **Intensity on Social Judgments**

24 *Experiment 1A: Manipulated Sense of Power*

25 *Experimental design and procedures*

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27 Experiment 1A examines H1 in a hotel service context. We adopted a 2 (smile
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29 intensity: broad vs. slight) \times 2 (sense of power: low vs. high) between-subject design.
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31 A total of 102 undergraduates ($M_{\text{age}}=21.47$, $SD=2.81$) participated in the study;
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33 female students accounted for 63.7% of the sample. Each subject was given a
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35 notebook as a reward.
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45 First, we manipulated participants' sense of power using the hierarchy
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47 imagining method developed by Dubois *et al.* (2010). Specifically, in high-power
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49 groups, we asked participants to imagine themselves as hotel managers. In contrast, in
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51 low-power groups, we asked them to imagine themselves as hotel waiters/waitresses.
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53 Then, all participants reported their thoughts and feelings. Immediately after, they
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55 answered one question assessing the extent to which they sensed power during the
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4 imagination task on a seven-point scale (1= completely powerless, 7= very powerful)
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7 (Jin and Zhu, 2016). Then, participants were asked to evaluate their first impressions
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9 of a new colleague based on her image. They were provided with a photo of a
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11 Caucasian woman's face displaying either a broad or a slight smile (Wang *et al.*,
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13 2017). The only manipulation was the degree of smile intensity, and the same woman
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15 appeared in both pictures (Sekunova *et al.*, 2008). Participants were told that this
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17 woman was a new member of their department. As managers or waiters/waitresses,
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19 they were required to evaluate her based on the photo. Then, they were asked to report
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21 warmth and competence perceptions of the woman measured using two four-item
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23 scales (1= strongly disagree, 7= strongly agree; warmth: $\alpha=0.91$; competence: $\alpha=0.79$;
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25 see Table I for scale items). Next, we measured potential confounding variables, such
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27 as the perceptions of the woman's attractiveness (Mueser *et al.*, 1984) and smile
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29 authenticity (Gorn and Venkataramani, 2008) on a seven-point scale (1= strongly
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31 disagree, 7= strongly agree). Finally, participants responded to additional questions,
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33 including a manipulation check of smile intensity (1= displaying no smile, 7=
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35 displaying a full smile; Barger and Graney, 2006), and provided their demographic
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37 information.
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48 *Analyses and results*

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50 A two-way analysis of variance (ANOVA) revealed that participants reported
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52 feeling significantly less powerful in the low-power condition ($M=2.73$, $SD=1.59$)
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54 than in the high-power condition ($M=5.10$, $SD=1.17$; $F(1,100)=73.74$, $p=.000$,
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56 *Cohen's d*=1.70). The same ANOVA was performed on the smile intensity
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manipulation checks, which showed a significant effect of smile intensity ($M_{bs}=4.88$, $SD=1.35$; $M_{ss}=3.34$, $SD=1.10$; $F(1,100)=39.87$, $p=.000$, *Cohen's d*=1.25). The confound checks were performed using the same method. Perceived authenticity ($M_{bs}=3.88$, $M_{ss}=3.32$; $p>.05$) and perceived target attractiveness ($M_{bs}=4.29$, $M_{ss}=3.74$; $p>.05$) revealed no significant main effects or interactions.

Next, we tested H1 regarding the differential effects of smile intensity and sense of power on warmth and competence perceptions. With perceived authenticity and perceived target attractiveness as covariates, a general linear model analysis on a 2 (smile intensity) \times 2 (sense of power) \times 2 (social judgments) setting revealed no significant effect regarding social judgments and the two covariates ($p_s>.05$). Moreover, the predicted three-way interaction was significant ($F(1,96)=8.21$, $p=.005$). In line with the findings of Wang *et al.*, 2017, the two-way main effect of smile intensity and social judgments was significant ($F(1,96)=32.75$, $p=.000$), while the interaction effect between the sense of power and social judgments was not significant ($p>.1$). We decomposed this three-way interaction by performing a separate 2 (smile intensity) \times 2 (social judgments) analysis of participants in the high- and low-power groups. The results for participants in the high-power group indicated that the same woman displaying a broad smile was perceived as less competent than when displaying a slight smile ($M_{bs}=4.87$, $M_{ss}=5.59$, $F(1,96)=8.69$, $p=.004$). However, smile intensity did not affect participants' warmth judgments ($M_{bs}=4.33$, $M_{ss}=4.47$, $p>.1$). Participants in the low-power group perceived a broad smile as warmer ($M_{bs}=5.09$, $M_{ss}=3.80$; $F(1,96)=54.65$, $p=.000$), while smile intensity exerted

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4 little influence on participants' competence judgments ($M_{bs}=4.93$, $M_{ss}=5.34$; $p>.05$).
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8 9 *Discussion*

10 Experiment 1A validated H1. However, the manipulated power in Experiment
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12 1A was situational. In reality, a customer's behavior may be affected by the main
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14 effect of their chronic sense of power. Therefore, Experiment 1B replicated the
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16 effect of their chronic sense of power. Therefore, Experiment 1B replicated the
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18 procedures of Experiment 1A by measuring a customer's chronic sense of power.
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22 *Experiment 1B: Chronic Sense of Power*

23 24 *Experimental design and procedures*

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26 A total of 103 undergraduate students ($M_{age}=19.25$; $SD=1.15$; 75 females)
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28 were assigned to a 2 (smile intensity: broad vs. slight) \times 2 (sense of power: high vs.
29
30 low) mixed design, with the chronic sense of power being a within-subjects variable.
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35 First, the participants were provided two versions of the hotel advertisement.
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37 The waitress' smile intensity (broad or slight) in the advertisement was the only
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39 manipulation between the two stimuli versions. Then, participants were asked to
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41 report their perceptions of the hotel's service quality and impressions, perceived
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43 attractiveness, perceived smile authenticity of the waitress. Then, participants were
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45 asked to take a personality test, which included measures of their sense of power, as
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47 developed by Anderson *et al.* (2012). Participants rated their chronic sense of power
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49 using an eight-item scale (see Table I; 1= strongly disagree, 7= strongly agree;
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51 $\alpha=0.84$). Finally, manipulation checks of smile intensity were conducted.
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58 *Analyses and results*

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4 First, we tested the effectiveness of manipulation of smile intensity. The
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6 ANOVA results suggested a significant effect concerning smile intensity ($M_{bs}=4.66$,
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8 $SD=1.09$, $M_{ss}=3.18$, $SD=1.10$; $F(1,101)=46.96$, $p=.000$, *Cohen's d*=1.352),
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11 confirming the effectiveness of the manipulation. The same ANOVA was performed
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13 on the confound checks, and neither the waitress' attractiveness ($M_{bs}=3.85$, $M_{ss}=3.56$,
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15 $F(1,101)=0.97$, $p>.05$) nor smile authenticity ($M_{bs}=3.25$, $M_{ss}=3.30$, $F(1,101)=0.03$,
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17 $p>.05$) revealed significant effects.
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22 To test H1, single moderation analysis was conducted using Model 1
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24 PROCESS macro for SPSS (Hayes, 2018) and bootstrapping analysis was performed
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26 with 5000 samples. The results revealed that smile intensity had a significant effect on
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28 warmth ($b=1.26$, $t(101)=5.59$, $p=.000$) and competence perceptions ($b=-.71$, $t(101)$
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30 $=-3.98$, $p=.000$). Power did not affect warmth ($p>.1$) or competence perceptions
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32 ($p>.1$). The interaction effect between smile intensity and chronic sense of power had
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34 a significant effect on warmth ($b=-.82$, $t(101)=-3.12$, $p=.002$) and competence
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36 perceptions ($b=-.62$, $t(101)=-2.95$, $p=.004$). To test for treatment-covariate
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38 interactions, floodlight analysis was employed (Spiller *et al.*, 2013). This method
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40 provides additional information regarding the region of insignificance with different
41
42 treatment effects via the Johnson-Neyman technique. The floodlight analysis revealed
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44 a positive effect of the broad smile among participants whose power indices were
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46 lower than 5.23 ($POWER_{JN}=5.23$, $SE=.31$, $p=.05$) on warmth perceptions. The results
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48 indicated that the weaker one's sense of power, the greater the effect of smile
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50 intensity on warmth perceptions. Further, respondents in the low-power condition (-
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4 *SD*) reported more warmth perception when faced with a broad smile ($M_{bs}=5.24$,
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6 $M_{ss}=3.28$, $p=.000$), while respondents in the high-power condition (+*SD*) reported no
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8 significant differences in warmth perceptions ($M_{bs}=4.60$, $M_{ss}=4.06$, $p>.05$).

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11 Additionally, when a participant's power index was greater than 3.94, a significant
12
13 main effect was observed on competence perceptions ($POWER_{JN}=3.94$, $SE=.21$,
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15 $p=.05$), demonstrating that the stronger the sense of power, the greater the effect of
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17 smile intensity on competence perceptions. Specifically, in the high-power condition
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19 (+*SD*), participants perceived more competence when facing a slight smile compared
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21 to a broad smile ($M_{bs}=3.59$, $M_{ss}=4.84$, $p=.000$). There were no significant differences
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23 in this regard in the low-power condition (-*SD*, $M_{bs}=4.05$, $M_{ss}=4.23$, $p>.1$; see Figure
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<Figure 2 goes about here>

Discussion

Overall, Experiments 1A and 1B validated the interaction effect between a marketer's smile intensity and a customer's sense of power on the customer's social judgments of that marketer. These findings support H1.

Experiment 2: Downstream Effect of Smile Intensity and Sense of Power:

Purchase Intention

Experimental Design and Procedures

In this experiment, we changed the experimental scenario and used a situationally recalled sense of power to test the downstream effect of this interaction

(i.e., purchase intentions). A total of 146 participants ($M_{age}=20.6$, $SD=1.56$; 63.2% females) were randomly assigned to a 2 (smile intensity: broad vs. slight) \times 2 (sense of power: high vs. low) between-subjects design.

A smiling Chinese waiter appeared in the stimuli of this experiment. He was instructed to first pose a neutral expression and then exhibit a broad smile. We controlled his smile intensity (broad vs. slight) using Morph Age Pro software (Wang *et al.*, 2017), by digitally blending 40% of the broad smile with the image of the neutral expression to create a slight smile photo. In addition, we positioned him in a hotel background by altering the images using Adobe Photoshop CS5. To prime participants' sense of power, we adopted recall task to manipulate participants' sense of power (Galinsky *et al.*, 2003). Then, we measured participants' power perceptions (1 = extremely powerless, 7 = extremely powerful) and their mood (1 = extremely negative, 7 = extremely positive) (Jin *et al.*, 2014) at the time. Next, the participants were shown images of a waiter from a hotel with the display of different smile intensities and were asked to evaluate the waiter through a scale measuring warmth and competence perceptions (the same as in Experiment 1A). Finally, participants reported their willingness to stay at this hotel for accommodation (1=strong unwillingness, 7=strong willingness). Other confounding variables were reported using the same measurements as in the first two experiments.

Analyses and results

We performed ANOVA analysis to check the manipulations of the sense of power and smile intensity. The results revealed that participants in the high-power

group perceived themselves as more powerful ($M_{h-p}=4.39$, $SD=1.06$) than those in the low-power group ($M_{l-p}=3.68$, $SD=.98$), indicating that participants' sense of power was successfully manipulated ($F(1,142)=17.31$, $p=.000$, *Cohen's d*=.70). The perceptions of the waiter's smile intensity also indicated significant differences ($M_{bs}=5.19$, $SD=1.17$, $M_{ss}=4.13$, $SD=1.07$, $F(1,142)=32.36$, $p=.000$, *Cohen's d*=.94). The results of the confound checks revealed that participants' mood ($M_{l-p}=4.42$, $M_{h-p}=4.70$, $F(1,142)=1.85$, $p>.1$), perceived attractiveness of the waiter ($M_{bs}=4.10$, $M_{ss}=3.70$, $F(1,142)=2.50$, $p>.1$), and waiter's perceived smile authenticity ($M_{bs}=4.11$, $M_{ss}=3.61$, $F(1,142)=3.67$, $p>.05$) had no significant effects.

Purchase intention and mediation analysis

The ANOVA revealed a significant interaction between the waiter's smile intensity and participants' social judgments ($F(1,142)=18.44$, $p=.000$). We conducted a bootstrapping procedure (model 8; 5000 samples) to test moderated mediation analysis in line with Hayes (2018). We encoded the focal variables in a categorical manner (smile intensity: 0=slight, 1=broad; sense of power: 0=low, 1=high). The results indicated that the interaction effect between smile intensity and sense of power had a significant effect on purchase intentions ($b=-1.60$, $t(142)=-3.97$, $p=.000$), warmth perceptions ($b=-.81$, $t(142)=-2.18$, $p=.03$), and competence perceptions ($b=-.82$, $t(142)=-3.16$, $p=.002$). Moreover, the main interaction effect remained significant after including warmth and competence perceptions in the model ($b=-.92$, $t(142)=-2.57$, $p=.01$). Regarding the moderated mediation, the results suggested that the mediating effect of warmth and competence perceptions were

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4 significant (warmth: index= -.38, se=.22, 95% confidence interval (CI): -.87 ~ -.02;
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6 competence: index= -.31, se=.13, 95% CI: -.59 ~ -.08). In the low-power group, the
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8 indirect effect of the two-way interaction on self-reported purchase intentions through
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10 warmth perceptions was significant (95% CI: .24 ~ .89). However, the indirect effect
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12 through competence perceptions was not significant (95% CI: -.03 ~ .28). In the high-
13
14 power group, the indirect effect of the interaction on self-reported purchase intentions
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16 through competence perceptions was significant (95% CI: -.39 ~ -.05), but the indirect
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18 effect through warmth perceptions was not significant (95% CI: -.12 ~ .38). Please
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20 refer to Figure 3 for mediation paths.
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27 <Figure 3 goes about here>
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30 *Discussion*

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32 Overall, these results support H2. The effect of smile intensity on customers'
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34 purchase intentions is mediated by warmth perceptions in low-power conditions and
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36 by competence perceptions in high-power conditions.
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39 40 **Experiment 3: Another Downstream Consequence: Customers' Subjective Well-** 41 42 **Being**

43 44 *Experimental Design and Procedures*

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46 To test H3, we created a new set of stimuli using the image of a female doctor
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48 wearing a slight or broad smile. We examined the effects of interest using a different
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50 service setting—healthcare—a service setting producing a profound impact on service
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52 processes and patient-relevant outcomes (Berry *et al.*, 2015). In the healthcare
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54 context, patients often feel powerless and lack control over their bodies, psyche, and
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4 the service process itself (McColl-Kennedy *et al.*, 2017). Thus, how patients perceive
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6 healthcare providers can have a substantial impact on their well-being.
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9 Referring to Wang et al (2017, study 1B), we created a slight smile photo and
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11 a broad smile photo of a Chinese female doctor as experimental stimuli.
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14 A total of 325 respondents were recruited via the “Marketing Research Group”
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16 (营销研究室), a well-established WeChat public account used for marketing-related
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18 scholarly research data collection in China, to participate in the experiment in
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20 exchange for monetary compensation. A total of 287 samples were valid ($M_{age}=23.37$,
21
22 $SD=3.97$; 69.7% female), as 38 participants failed the attention checks and were
23
24 excluded from the analyses. Participants were randomly assigned to one of the
25
26 conditions in a 2 (smile intensity: slight vs. broad) \times 2 (power: low vs. high) between-
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28 subjects design.
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35 First, we manipulated power by asking respondents to imagine their positions
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37 using the narratives developed by Anderson and Berdahl (2002). Then, we asked
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39 participants to deal with healthcare conditions. They read the following content:
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43 *After dinner, you are lying in bed and watching TV. Suddenly, you feel*
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45 *discomfort, and then a series of symptoms appear, such as vomiting and*
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47 *diarrhea. You feel drowsy and are now weak. When you anxiously arrive at*
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49 *the hospital, the doctor below greets you and records your condition.*
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53 Immediately after, the participants were presented with a photo of the doctor who
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55 displayed a slight smile or a broad smile. They then reported the doctor’s perceived
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57 warmth and competence on the same scale as in Experiment 2 (warmth: $\alpha=.88$;
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4 competence: $\alpha=.82$). They also reported satisfaction on a four-item scale (see Table I;
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7 1=strongly disagree, 7=strongly agree; $\alpha=.87$) and their affective status on a seven-
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9 point six-item scale (see Table I, $\alpha=.91$). Next, we measured other confounds as in
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11 experiment 2.

12 13 14 *Analysis and results*

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17 We performed ANOVA to check the manipulations of power and smile
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19 intensity. The results indicated that participants in the high-power condition perceived
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21 themselves as more powerful ($M=5.81$, $SD=1.18$) than those in the low-power
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23 condition ($M=3.74$, $SD=1.85$), indicating that participants' sense of power was
24
25 successfully manipulated ($F(1,285)=128.75$, $p=.000$, *Cohen's d*= 1.34). The
26
27 perceptions of the doctor's smile intensity also indicated significant differences
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29 ($M_{bs}=6.00$, $SD=.90$, $M_{ss}=5.31$, $SD=1.25$, $F(1,285)=27.80$, $p=.000$, *Cohen's d*=.64).
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31 The results of confound checks revealed that participants' perceived attractiveness of
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33 the doctor ($M_{bs}=5.48$, $M_{ss}=5.33$, $p>.05$) and perceived smile authenticity ($M_{bs}=5.59$,
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35 $M_{ss}=5.51$, $p>.05$) had no significant main effects.

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38 A 2 (smile intensity) \times 2 (power) \times 2 (social judgments) mixed ANOVA
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40 revealed a significant two-way interaction between smile intensity and social
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42 judgments ($F(1,285)=4.96$, $p=.027$). A three-way interaction was observed between
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44 smile intensity, power, and social judgments ($F(1,285)=9.67$, $p=.002$). To interpret
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46 the three-way interaction, we examined the effect of smile intensity on perceptions of
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48 warmth and competence separately across low- and high-power conditions. Low-
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50 power participants' perceptions of warmth were greater in the broad smile condition
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4 than in the slight smile condition ($M_{bs}=5.95$, $SD=.62$, $M_{ss}=5.25$, $SD=.82$; $F(1,283)$
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6 $=31.50$, $p=.000$). However, smile intensity did not affect perceptions of competence
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8 ($M_{bs}=5.60$, $M_{ss}=5.43$; $F(1,283)=1.71$, $p>.1$). For high-power participants, smile
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10 intensity did not affect warmth perceptions ($M_{bs}=5.94$, $M_{ss}=5.82$; $F(1,283)=.91$,
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12 $p>.1$), but judgments of competence were lower in the broad smile condition than in
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14 the slight smile condition ($M_{bs}=5.33$, $SD=.67$, $M_{ss}=5.59$, $SD=.84$; $F(1,283)=4.11$,
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16 $p=.043$).

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22 We also performed a 2 (smile intensity) \times 2 (power) between-subjects
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24 ANOVA on participants' self-reported satisfaction and affect. The two-way
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26 interaction between smile intensity and power was significant for satisfaction (F
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28 $(1,283)=4.31$, $p=.039$), but there was no significant impact on their effect ($p>.1$).
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30 Specifically, in the low-power condition, participants' satisfaction was greater when
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32 the doctor displayed a broad smile than a slight smile ($M_{bs}=5.56$, $M_{ss}=5.35$). In the
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34 high-power condition, a broad smile led to lower satisfaction ($M_{bs}=5.44$, $M_{ss}=5.61$).
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36 Further, the results of the t-test revealed that there was a significant difference
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38 between the mean of customer affect ($M_{affect}=5.29$) and the median ($t(1,286)=25.42$,
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40 $p=.000$), which meant that the interaction effect between smile intensity and sense of
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42 power might evoke participants' positive affect.
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51 We then examined whether warmth and competence perceptions mediated the
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53 interaction effect between smile intensity and power on customers' subjective well-
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55 being, especially their satisfaction. We examined CIs using 5,000 bootstrap iterations
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57 and Model 8 (Hayes, 2018), coding smile intensity as 0 for a slight smile and 1 for a
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4 broad smile, and power as 0 for low-power and 1 for high-power. The findings
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6 indicated that in the low-power condition, the indirect effect of the two-way
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8 interaction on satisfaction through warmth perceptions was significant (95% CI: .07
9
10 ~ .27), but the indirect effect through competence perceptions was not significant
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12 (95% CI: -.04 ~ .28). In the high-power condition, the indirect effect of the interaction
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14 on satisfaction through competence perceptions was significant (95% CI: -.34 ~ -.02),
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16 but the indirect effect through warmth perceptions was not significant (95% CI: -.03
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18 ~ .10).
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25 *Discussion*

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27 The results of Experiment 3 partially supported H3, suggesting that the
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29 interaction effect between service providers' smile intensity and customers' sense of
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31 power only affects one dimension of subjective customer well-being (i.e., customer
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33 satisfaction). A smiling service provider may generate a significant positive impact on
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35 customer affect (Tobbias, 2017). Therefore, we suggest that the presence of a smile,
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37 regardless of its intensity, may evoke customers' general positive affect, resulting in
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39 non-significant results concerning the relationship between smile intensity and affect.
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45 **General Discussion**

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48 Based on previous research (e.g., Wang *et al.*, 2017), this study uncovered a
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50 moderating factor in the relationship between service providers' smile intensity and
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52 customers' social judgments, namely, customers' sense of power. We verified our
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54 hypotheses through four experiments. The results of experiments 1A and 1B
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56 supported H1, which explored the interaction effect of customers' sense of power
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4 (situational/ chronic) and service providers' smile intensity on customers' social
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6 judgments of the service providers. In Experiment 2, we revealed that the interaction
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8 effect between smile intensity and sense of power has a significant indirect effect on
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10 customers' purchase intentions through warmth and competence perceptions. Finally,
11
12 the results of Experiment 3 indicated that customers' subjective well-being is another
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14 downstream outcome of the interaction effect between service providers' smile
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16 intensity and customers' sense of power via warmth and competence perceptions.
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22 *Theoretical Implications*

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24 First, this study expands the literature on the boundary conditions of the
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26 impact of smile intensity on social judgments. Sense of power plays a moderating role
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28 in the relationship between smile intensity and warmth perceptions and competence
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30 perceptions, further affecting customers' purchase intentions and subjective well-
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32 being.
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38 Second, this study expands the scope of the literature on facial expressions
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40 presented in still images by testing the perception valences (positive/negative) of
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42 smiles of different intensities (Hertenstein *et al.*, 2009). We present new findings that
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44 depart from the consensus, which suggests that smiles mainly have positive social
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46 effects. This study also complements extant research on emotions and decision-
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48 making. Recent literature has examined how emotional facial expressions and their
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50 intensities affect people's judgments (Fedorikhin *et al.*, 2012). The current study
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52 shows how an individual's facial expression intensity may affect other people's
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54 perceptions and judgments of the individual.
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4 Third, this study reveals the intrinsic mechanism behind the interaction effect
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6 between smile intensity and sense of power affecting customers' purchase intentions
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8 and subjective well-being, namely, warmth/competence perceptions. In line with the
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10 agentic-communal orientation model of power, this study confirms that when people
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12 with a high (vs. low) sense of power are exposed to smiles of different intensities
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14 (slight smile vs. broad smile), different paths affect their behavioral intentions and
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16 satisfaction.
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21 22 23 *Managerial Implications*

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25 Marketers may display various levels of smile intensity to match customers'
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27 sense of power to achieve greater customer satisfaction. In service contexts, marketers
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29 often emphasize that smiles positively affect customers and improve performance
30
31 (Kulczynski *et al.*, 2016). Our study indicates that customers' sense of power plays a
32
33 key role in long-term success. It enhances marketing performance and improves
34
35 customer well-being. Specific strategies may be utilized by marketing practitioners in
36
37 various consumption contexts to increase customers' warmth or competence
38
39 perceptions. For example, economy-class passengers, who are more likely to have a
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41 lower sense of power than first-class passengers, will likely perceive more warmth
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43 when receiving broad smiles from flight attendants. When attending bank's VIP
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45 customers, who likely have a relatively higher sense of power, service providers
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47 should display slight smiles to enhance their competence perceptions.
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56 Moreover, in a luxury brand store context, sales staff should be trained to wear
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58 a slight smile to highlight the perception of exceptional quality. In addition to
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4 adapting to chronic power states, companies may also match smile intensity by
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6 initiating or changing customers' sense of power. In addition, companies can also
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8 prime customers' sense of power using different environmental cues, such as
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10 background music (Hsu *et al.*, 2015) and scent (Madzharov *et al.*, 2015), to win
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12 customers' favor.
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16 17 *Limitations and Future Research*

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20 Although most hypotheses have been supported, this study is subject to
21
22 limitations. For instance, only static smile images were used in this study and the
23
24 service process was imaginary due to the limitations of the stimuli used. We
25
26 acknowledge that customers' psychological processes may be more sophisticated in
27
28 the real world.
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33 Future studies in this area may optimize the research design by utilizing
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35 interactive scenarios via live simulations or videos. Such techniques may allow
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37 participants to perceive greater authenticity, increasing their engagement.
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41 *Experimental stimuli available upon request.
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FIGURES

FIGURE 1

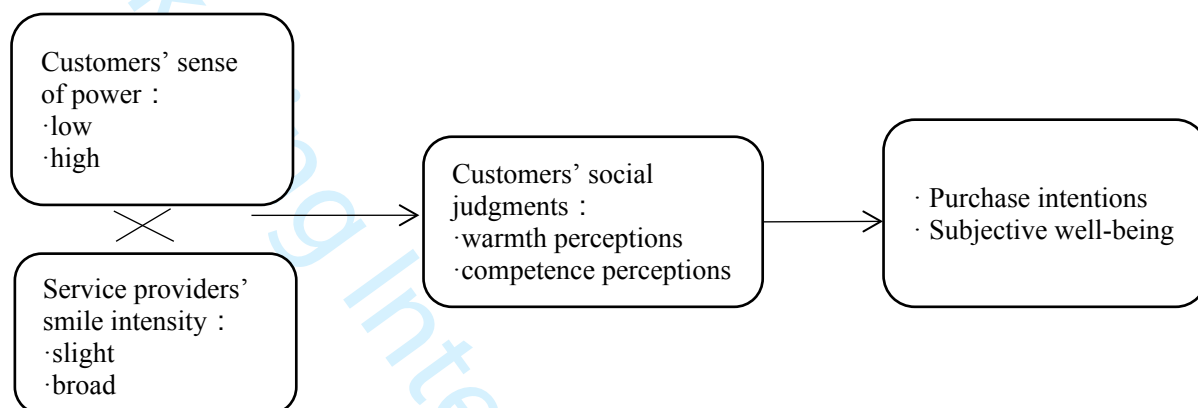
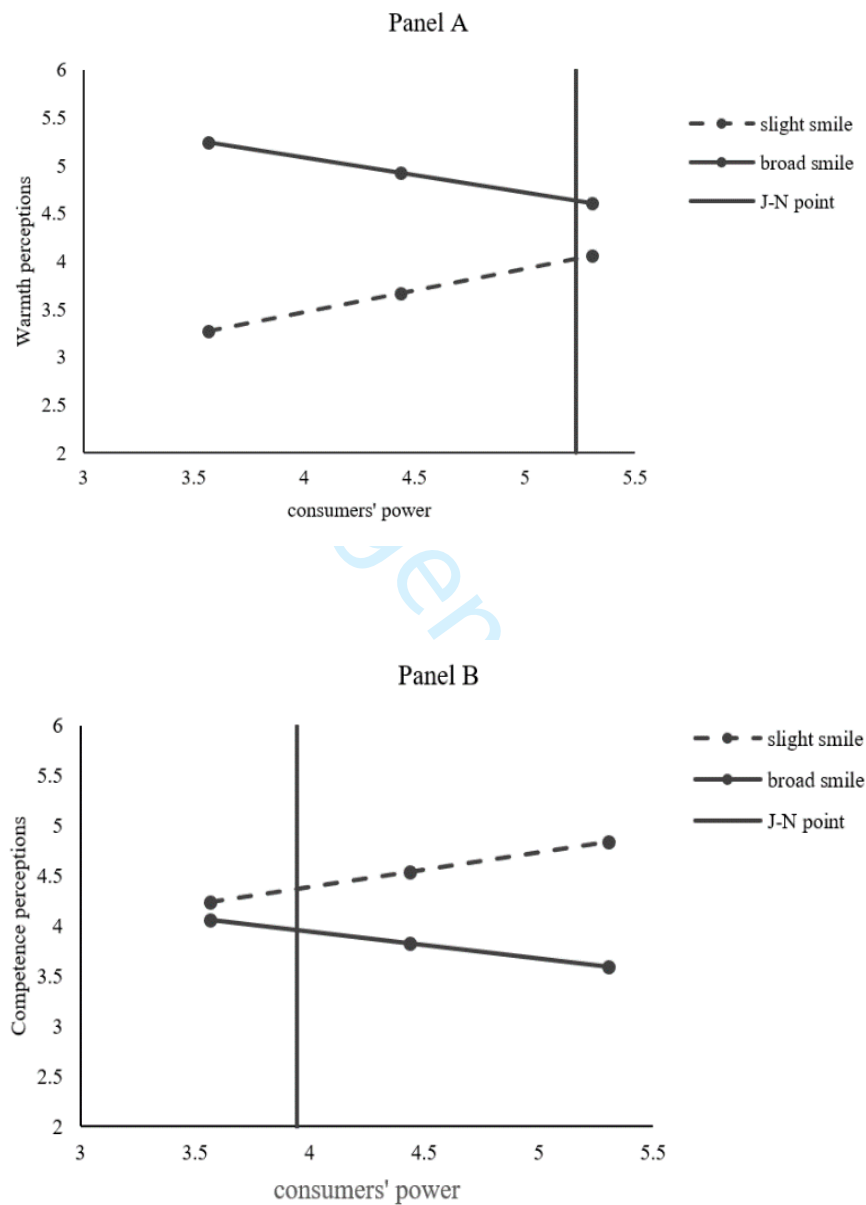
Conceptual Model

FIGURE 2

Floodlight Analysis (Experiment 1B)

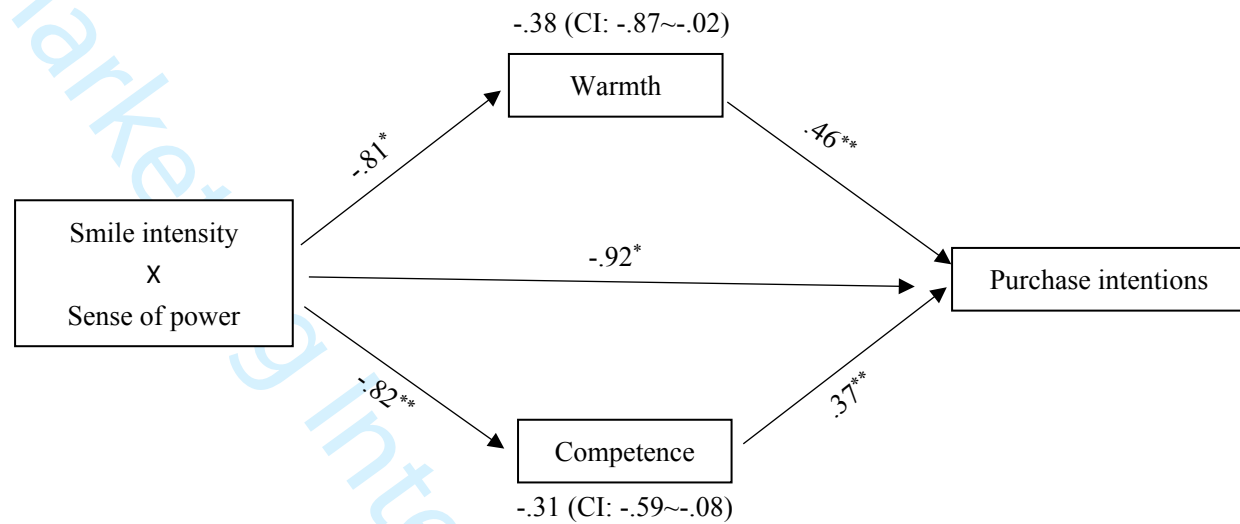
Note: The line parallel to the Y-axis is the Johnson-Neyman (J-N) point (warmth perception: $POWER_{J-N}=5.23$, competence perceptions: $POWER_{J-N}=3.94$). The three points in panels A and B correspond to the participants' social judgments at -SD, M,

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4 and +SD of sense of power. In panel A, the left region of the J-N point indicates that
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6 different smile intensities exert a significant main effect on participants' warmth
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8 perceptions whose sense of power is within this range. In contrast, the right region
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10 indicates an insignificant impact. In panel B, the right region of the J-N point
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12 indicates that different smile intensities exert a significant main effect on participants'
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14 competence perceptions whose sense of power is within this range. In contrast, the
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16 right region indicates an insignificant impact.
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FIGURE 3

Moderated Mediation Analysis (Experiment 2)



Notes: *: $p < .05$ **: $p < .01$