When is Sensory Consumption Immoral?

Shreyans Goenka[1] and Manoj Thomas[2]

[1] Virginia Tech
[2]Cornell University

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Author Note

Shreyans Goenka, Assistant Professor of Marketing, Pamplin College of Business, Virginia Tech; Manoj Thomas, Nakashimato Professor of Marketing, S.C. Johnson Graduate School of Management, S.C. Johnson College of Business, Cornell University. The authors thank the team at yourmorals.org for sharing their data and the team at Cornell Statistical Consulting Unit for assistance with data analysis. They also express gratitude to Paul Rozin, Thomas Gilovich, Stijn M.J. van Osselaer, and Soo Kim for helpful feedback. This research was supported by the ACR-Sheth Foundation dissertation grant. All laboratory studies were preregistered. Experimental stimuli, procedural details, and supplementary data analysis are available in the supplemental online materials. De-identified data, analysis code, and output are available online (https://osf.io/x3ugy/?view_only=324cb33b16d04fe5ae26b1ef0055ef2f). Note our data use agreements do not allow us to share the secondary data for Study 1. Both authors developed the research concept and contributed to the study designs. S. Goenka performed the data collection and data analysis under the guidance of M. Thomas. Both authors together drafted and edited the manuscript. Correspondence concerning this article should be addressed to Shreyans Goenka, 2040 Pamplin Hall, Virginia Tech, Blacksburg, VA 24060. Email: shreyans.goenka@vt.edu.

Abstract

Although humans are hard-wired to pursue sensory pleasure, they show considerable heterogeneity in their moral evaluations of sensory pleasure. In some societies, sensory pleasure is pursued without any moral inhibition, but in other societies, it is considered to be immoral and actively suppressed. This research investigates the moral motives behind the suppression of sensory consumption. Is the suppression of sensory consumption caused by the moral motive to promote social justice or the moral motive to promote social order? We test these two competing accounts through country-level archival data and seven preregistered controlled experiments. We find robust evidence that the social-order emphasizing binding moral foundations (authority, loyalty, and purity; Haidt, 2007) suppress sensory consumption. Consequently, individuals and societies that adhere to the binding values are less likely to consume sensory products such as alcohol, tobacco, soda, fragrances, and sex toys. These effects are mediated by prescriptive moral beliefs and feelings of shame. We also identify several moderators of the moral suppression of sensory consumption. Binding values do not suppress sensory consumption after moral licensing. The effects of binding values on sensory consumption attenuate when the products are framed as status-affirming. Finally, while binding values suppress sensory consumption that is personal, they do not suppress sensory consumption that is shared. Altogether, our findings show that social-order emphasizing moral beliefs in society can inhibit the pursuit of pleasure and change consumption patterns in the economy.

Keywords: moral foundations theory, sensory pleasure, consumption preferences, moral judgment, social justice

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"All sensations are true; pleasure is our natural goal."
- Epicurus (341 – 270 BC)

"Pleasure from the senses seems like nectar at first, but it is bitter poison in the end."
- Bhagavad Gita (Chapter 13, Verse 37)

Humans are hard-wired to instinctively pursue pleasure for biological and psychological needs (Berridge & Kringelbach, 2015; Cabanac, 1979). However, there is considerable heterogeneity in the moral evaluations of sensory pleasure (Rozin, 1999a). In some societies, sensory pleasure is pursued without any moral inhibition, but in other societies, sensory pleasure is considered immoral and actively suppressed. For example, alcohol consumption is an integral part of the history and culture of European societies (Gately, 2008). However, alcohol consumption is morally suppressed and prohibited in many Asian societies like India, Indonesia, Bhutan, and Saudi Arabia (Carbery, 2013; Cochrane, 2016). Even within a country, we see heterogeneity in how segments of society approach sensory pursuits. For instance, the conservative regions of the United States have much stricter laws for alcohol and marijuana consumption than the liberal regions (Peltz, 2019). This raises the question: Why do some societies find sensory pursuits to be immoral, but others do not? Moreover, what are the moral motives behind the suppression of sensory pleasure?

One possibility is that sensory pleasures are suppressed through the moral motive of social justice (Haidt & Graham, 2007; Janoff-Bulman et al., 2008). That is, people give up sensory pleasure because of their concerns for others. Many religious people and enlightened philosophers eschew sensory pleasures because they feel that the resources spent on such pleasures could be better used to help the poor. For example, Pope Francis urged his followers to forgo their own pleasure for the sake of those in need (Brockhaus, 2018). Similarly, The Dalai

Lama (2012) teaches that compassion for others must take precedence over one's own pleasure. Several secular philosophers have also advocated such an approach toward sensory pleasures. For instance, Mill (1863) classified sensory pleasures as 'lower pleasures' and urged humanity to rise above them for the sake of societal welfare. Relatedly, Peter Singer (2017) advocates that people should give up the pleasure of eating meat to avoid pain to animals. Therefore, it could be that when individuals place a value on protecting other individuals from harm and promoting societal welfare, they suppress the pursuit of sensory pleasures. And consequently, societies that place a strong emphasis on these social justice values, such as caring for others and minimizing inequity, should be more likely to forgo sensory consumption.

In contrast, a second possibility is that sensory pleasures are suppressed through the moral motives of social order (Graham & Haidt, 2010; Janoff-Bulman et al., 2008). That is, people give up sensory pleasure because they believe that it can be detrimental to the success and strength of social groups. For example, Gandhi (1948) believed that sensory pleasures were an obstacle to his society-building goals and required followers to be celibate and eschew intoxicants. Similarly, Marx (1844) stressed the need to regulate and control sensory pleasures to build a strong functioning society. Therefore, it could be that when people value conforming to social norms, building social order, maintaining social harmony, and strengthening the group, they regulate sensory pleasures. And consequently, societies that place a strong emphasis on these social-order values should be more likely to forgo sensory consumption.

We test these two competing predictions using the moral foundations theory (Graham et al., 2009; Haidt, 2007). In that, if the moral motives of social justice drive the suppression of sensory pleasure, then the *individualizing* moral foundations (i.e., care and fairness) should reduce the sensory suppression. However, if the moral motives of social order drive the

suppression of sensory pleasure, then the *binding* moral foundations (i.e., loyalty, authority, and purity) should collectively reduce sensory pursuits.

We test these predictions through a mixed-methods approach utilizing country-level archival data and controlled preregistered experiments. To preface our results, we find robust evidence that the social-order focussed binding values inhibit sensory pursuits. In contrast, we see that the social-justice focussed individualizing values do not suppress sensory consumption and, in some cases, might encourage the pursuit of sensory consumption. Thus, we argue that sensory pleasures are morally inhibited by social-order morality. Consequently, individuals and societies that adhere to the binding values are less likely to consume sensory products such as alcohol, tobacco, carbonated drinks, and sex toys.

To the best of our knowledge, this is the first research to demonstrate how and when the moral beliefs prevalent in society can inhibit sensory pursuits and materially influence consumption patterns in the economy. We empirically delineate a hitherto unknown effect of socio-cultural moral beliefs on consumption patterns, producing theoretical implications for the fields of morality (Aquino & Reed, 2002; Barasch et al., 2014; Bloom, 2012; Feinberg et al., 2019; Goodwin, 2018; Inbar, 2018; Mooijman et al., 2018; Skitka, 2010), cross-cultural research (Markus & Kitayama, 1991; Schwartz et al., 2012; Tsai et al., 2006), and pleasure pursuit (Alba & Williams, 2013; Berridge & Kringelbach, 2015; Frijda, 2009; Rozin, 1999a). Furthermore, our findings produce practical guidelines for institutions that want to regulate sensory consumption. We also show how the aversion to sensory consumption can be mitigated through framing, generating practical implications for organizations that wish to encourage sensory consumption.

Sensory Pleasure

Pleasure is broadly defined as a positive experienced state that people seek and that they try to maintain (Rozin, 1999a). Notably, pleasure can be derived from many different sources. For example, pleasure can be derived from eating, sexual activities, prosocial activities, social bonding, reading a book, and meditation (Alba & Williams, 2013; Frijda, 2009; Jordan, 2000; Rozin, 1999a). Of these different sources of pleasure, sensory pleasures are unique. These pleasures emanate from the physical senses, such as taste, smell, and touch. The desire to pursue pleasure from the senses is innate for all humans and motivates ingestion and procreation (Kringelbach & Berridge, 2010). That is, all babies are born with the physiological and neurological mechanisms that make the sensory experiences derived from touch, taste, and smell feel pleasurable.

While sensory pleasures can be derived from a range of activities, in this research, we focus on examining sensory pleasures derived through the consumption of products. In that, the pursuit of sensory pleasures drives the consumption of many product categories, such as fast foods, sugary drinks, alcohol, tobacco, caffeinated beverages, and sex toys (Alba & Williams, 2013; Jordan, 2000). The sensory pleasures from such consumption are derived from the physio-sensory properties of the products. In fact, in many such cases, the primary motivation for consumption is the sensory pleasure rather than the utilitarian benefit of the product.

However, we note that not all consumption pleasures are sensory. Sometimes consumption can yield different types of pleasures depending on the consumption occasion. For instance, an expensive wine from the Burgundy region of France can provide sensory pleasure when consumed for its taste, but it can also provide pleasure through its social signaling function. Hence, many products do not uniquely provide pleasures from sensory consumption.

That being said, we contend that it is possible to identify products—alcohol, tobacco, hedonic food, sex toys—that are typically consumed for sensory pleasures. Thus, we believe they are a good medium to examine the pursuit of sensory pleasures.

Is Sensory Consumption Immoral?

As outlined previously, there is considerable heterogeneity in the moral evaluations of sensory pleasures (Rozin, 1999a). In some societies, the pursuit of sensory pleasures is encouraged and celebrated. For example, Epicurean philosophy argued that pursuing pleasure was the chief goal in life (O'Keefe, 2009). The philosophy advocates living to enjoy the pleasures of the senses, albeit in moderation, to avoid over-indulgence. Closely related to Epicureanism, the philosophy of Hedonism is popular in many societies today (Pallies, 2021). Many societies believe that sensory pleasure is an integral aspect of the human experience and that the ability to experience these pleasures should be a fundamental right (Coleman et al., 2021). For instance, the spiritual guru Osho professed that society did not allow people to experience sensory pleasures to their fullest and consequently guided his devotees in techniques to experience this ultimate pleasure (Urban, 2016).

As such, many societies have incorporated sensory consumption as an integral aspect of their cultures. For example, wine is intertwined with the socio-economic fabric of European culture and vodka with that of Russia (Gately, 2008). Further, the enjoyment of coffee and soda is commonplace in American culture (Schlosser, 2002). Moreover, many contemporary body positivity movements in liberal societies encourage the pursuit of sexual pleasures through sex toys (Allyn, 2018). Thus, sensory consumption is celebrated and pursued without moral inhibition in many societies.

In contrast, many other societies actively suppress and discourage the pursuit of sensory consumption. For example, alcohol consumption is discouraged and sometimes prohibited in many Asian countries like India, Indonesia, Bhutan, and Saudi Arabia (Carbery, 2013; Cochrane, 2016; Pandit, 2020). Relatedly, sex toys are banned in countries like the Maldives, United Arab Emirates, and Malaysia (Hennen, 2020). And the conservative regions of the United States have much stricter laws for marijuana use than the liberal regions (Peltz, 2019). Thus, we see many instances wherein sensory consumption is actively suppressed and shunned.

While these real-world examples provide evidence for the notion that some societies inhibit sensory pursuits, no previous research has examined the psychological mechanism underlying this heterogeneity in moral attitudes towards sensory consumption. Therefore, in this research, we seek to understand why some societies suppress sensory consumption while others do not.

Moral Motives and Sensory Consumption

To understand when and why sensory consumption could be inhibited, we turn to the theories on moral pluralism. Recent evidence suggests that morality is pluralistic, comprising different values, motives, and beliefs that motivate unique attitudes and behaviors. Researchers have taken different approaches to moral pluralism, with each theory presenting its own framework for categorizing the different moral values (see Haidt, 2007; Janoff-Bulman et al., 2008; Schwartz et al., 2012; Shweder et al., 1990). Nevertheless, these theories would all agree that human morality is a rich tapestry, encompassing a variety of beliefs. We apply these theories to examine the different moral motives that might drive the suppression of sensory consumption.

Social Justice Morality

The first possibility is that the desire for sensory consumption is inhibited through the moral motive of social justice. Janoff-Bulman et al. (2008) categorized this as the moral motives that underly the desire to provide for others, promote egalitarianism, and distributional justice. Similarly, the moral foundations theory (Graham et al., 2009; Haidt & Graham, 2007) argues that two moral foundations – care and fairness – together form the *individualizing* moral foundations. They argued that the individualizing foundations emphasize equality and welfare to protect individuals and provide for individual rights in society. Notably, research has shown that these social-justice-oriented moral beliefs tend to be more prevalent in Western countries than Eastern countries, and are more prevalent amongst communities with liberal political ideology than conservative ideology (Graham et al., 2009; Haidt & Graham, 2007; Janoff-Bulman & Carnes, 2013).

Are these moral values the driver of sensory suppression? We do not believe so. This is because the individualizing values engender competing predictions for sensory consumption. On the one hand, these values motivate care and protection from harm (Graham et al., 2009). And sensory products like alcohol, tobacco, and food, can lead to mental and physical harm for the self and others. In these situations, the individualizing values are not compatible with sensory consumption, and they might discourage sensory products.

On the other hand, individualizing values also promote individuality and self-expression (Haidt & Graham, 2007; Shweder & Haidt, 1993). And sensory products like alcohol, sex toys, and food can promote self-expression and bodily autonomy. People can use these products to discover themselves, form self-identities, and connect with their bodies. In such instances, the

individualizing values are compatible with sensory consumption and should encourage the pursuit of sensory products.

Thus, the individualizing values might suppress sensory consumption due to associations with harm, but individualizing values could also encourage sensory consumption due to associations with self-expression. As such, the effects of individualizing values are likely to be context-dependent, and we do not believe these values are the critical driver of sensory suppression.

Social Order Morality

A second possibility is that sensory consumption is suppressed through the moral motive of social order. Janoff-Bulman et al. (2008) categorized this as the moral motive that underlies the desire to maximize group order and group cohesion. Similarly, the moral foundations theory (Graham et al., 2009; Haidt, 2007) argues that three moral foundations – loyalty, authority, and purity – together form the *binding* moral foundations. These moral values emphasize the group's welfare. These foundations "limit individual autonomy and self-expression to bind people into emergent social entities such as families, clans, and nations" (Graham & Haidt, 2010, p. 144). They strengthen societies by encouraging individuals to sacrifice for their group, uphold traditions, and overcome their base urges by exercising self-control (Haidt, 2001). Notably, these social order-oriented moral beliefs tend to be more prevalent among Asian cultures than in Western cultures, and within a country, they are more prevalent among conservative communities than among liberal communities (Graham & Haidt, 2010; Haidt, 2012).

Extant research has examined the social-order functioning of the binding values in several contexts. For instance, the binding values in the quest to promote social order motivate group members to moralize self-control (Mooijman et al., 2018) and engage in more conspicuous

status signaling (Goenka & Thomas, 2020). Relatedly, the binding values motivate increased punishment for people who engage in behaviors that would harm social order, like 'deviant' sexual behaviors and insubordination (Graham & Haidt, 2010; Inbar & Pizarro, 2014; Koleva et al., 2012). Following this stream of work, we propose that binding moral values also suppress sensory consumption. In the next section, we elaborate on the connections between sensory consumption and social order morality to derive the central hypotheses of this research.

Hypotheses Development

In this research, we propose that the inhibition of sensory consumption is caused by social order morality and the concomitant binding values (and not by social justice morality). The binding values predict the propensity to suppress sensory consumption because the key function of these values is to promote and protect social order. These values evolved to help humans form strong, organized, and cooperative groups. That is, they help humans coalesce into large coordinated groups like a beehive (Haidt, 2012, p. 256). Binding values help groups emphasize strong community bonds and rigid hierarchical social structures, which are essential for long-term group success (Graham & Haidt, 2010). Consequently, many social institutions (e.g., military, church), Asian cultures, and conservative communities actively use the binding values to form efficient, ordered, and cooperative hive-like groups.

Moreover, individual desires and self-centered behaviors can hamper the formation of an ordered and disciplined society (Haidt, 2012; Mooijman et al., 2018). And, sensory pleasures, by nature, can be self-centered. Crucially, sensory products evoke desire. Desire is an "affectively charged cognitive event in which an object that is associated with pleasure is in focal attention" (Kavanagh et al., 2005, p. 447). Sensory products can be desirable in that they evoke intrusive thoughts that overtake a person's attentional capacity. When people desire a sensory object, they

will have strong motivations to acquire the target of their desire and difficulty maintaining behavioral restraint (May et al., 2015). Crucially, the pursuit of sensory desires can supersede all other goals (Berridge & Kringelbach, 2015), leading individuals to disregard group welfare.

For instance, people with a strong desire for alcohol tend to disregard social rules and social order to acquire a drink. And intoxicated people might not make good community members; they can engage in selfish behaviors that can be destructive to relationships, community property, and social institutions. Similarly, people driven by sexual needs are likely to be promiscuous and pose issues for relationship structures. More broadly, people who desire self-gratification can be less engaged community members as they might deprioritize the group's needs. Hence, we argue that binding values suppress sensory pleasures because they can be detrimental to the success and strength of social groups. Formally, we propose:

H1: Cultures and individuals with higher binding values will demonstrate a lower preference for sensory products such as alcohol, tobacco, and soda.

Convergent evidence for our hypothesis can be found in the literature examining the link between morality and self-control (Gai & Bhattacharjee, 2022; Hofmann et al., 2018; Mooijman et al., 2018). Specifically, Mooijman and colleagues demonstrated that binding moral values lead to the moralization of self-control. While these findings are consistent with our propositions, our focus on sensory products (as opposed to self-control) extends this literature in several important ways.

First, we examine how binding values change the innate desirability of sensory products. It is theoretically conceivable that people find self-control failures such as smoking to be a moral issue, yet they continue to desire cigarettes. That is, people might still have affective, visceral

reactions to the sensory stimuli evoking a desire to consume the product. We argue that binding values actually suppress the desire for sensory products. Thus, we bring together the literature on consumption moralization (Feinberg et al., 2019; Rozin, 1999b) and desire (Kavanagh et al., 2005; Kringelbach & Berridge, 2010) to provide a deeper understanding of the relationship.

Second, we extend the literature on the moralization of self-control by delineating the mechanisms, specifically examining the beliefs and emotions that inhibit sensory suppression (see the following section). Thus, we delve deeper into the process to offer a richer and more comprehensive explanation for when and how moral foundations suppress the desire for sensory pleasures.

Finally, this is the first paper to demonstrate that moral suppression of sensory pleasures has important economic consequences. Again, it is theoretically possible that people see self-control failures such as smoking to be a moral issue, yet they continue to purchase and consume cigarettes. Using actual country-level consumption data, we demonstrate that there are differences in consumption patterns of sensory products across countries, and these differences can be explained by heterogeneous moral foundations.

Hence, while our propositions are consistent with the previous literature on self-control, the questions examined here have not been examined in the previous works. As such, the current research expands on the previous literature to provide a novel theoretical understanding of the relationship between moral values and sensory consumption.

Mechanisms of Moral Suppression

Previous research has argued that the operation of moral behaviors can take several stages and involve an interplay of beliefs, cognitions, and moral emotions (Feinberg et al., 2019; Greene & Haidt, 2002; Rozin, 1999b). Thus, the effect of binding values on sensory

consumption should also be driven by such concurrent processes. Specifically, we propose that binding values not only change people's beliefs about the detrimental effects of sensory consumption but also change their emotional responses to such consumption.

First, we argue that the effect of binding values on consumption preferences is driven by moral prescriptive beliefs of sensory pleasure. Moral prescriptive beliefs are individuals' beliefs about what is right and wrong and the extent to which other people should or should not perform a particular behavior (Goodwin, 2018; Janoff-Bulman et al., 2009; Tworek & Cimpian, 2016). We posit that the binding values lend people to hold prescriptive moral beliefs that pursuing sensory pleasure is wrong, and these beliefs, in turn, reduce preferences for sensory products. In other words, in societies where binding values are prevalent, there exists a belief that people should not pursue sensory pleasure. Formally, we propose:

H2: The effect of binding values on preferences for sensory products is mediated by prescriptive beliefs of sensory pleasure.

Second, we suggest that emotion should play an immediate role in suppressing the desire for sensory products. Notably, a large volume of research has shown that moral emotions like shame, guilt, anger, and disgust play a crucial role in driving moral attitudes and behaviors (Horberg et al., 2011; Hutcherson & Gross, 2011). Drawing from this research, we posit that the effects of binding values on sensory consumption should be driven by feelings of shame.

Shame is defined as an "affective reaction that follows public exposure (and disapproval) of some impropriety or shortcoming" (Tangney et al., 1996, p. 1256). When people feel shame, they tend to focus on the "bad self" (*I* did something bad), how others in society judge them, and consequently, they engage in attempts to deny, hide, and escape the shame-inducing situation

(Smith et al., 2002; Tracy & Robins, 2004). Most importantly, shame is tied to violations of the ethics of social order (Tangney et al., 2007). That is, when people engage in behaviors that violate social norms and community guidelines, they feel shame. Moreover, shame has also been shown to be a motivating factor in spreading and reinforcing societal norms (Schaumberg & Skowronek, 2022). Thus, we propose that because the binding values engender the association that sensory products are detrimental to social order, the binding values should lead people to feel shame in association with consuming sensory products. Shame should act as a proximal mechanism by which the binding values inhibit sensory consumption. Notably, we also see that shame tends to be more prevalent in Asian countries (Sznycer et al., 2012), and these regions are also associated with higher binding values (Haidt, 2012). Formally, we propose:

H3: The effect of binding values on preferences for sensory products is mediated by shame.

Moral Licensing of Sensory Consumption

Now, if the effects of binding values on sensory consumption are indeed driven by prescriptive moral beliefs and feelings of shame, then the effects should attenuate after moral licensing. Moral licensing is the phenomenon wherein people who initially behave in a moral manner later feel permitted to engage in immoral behaviors (Merritt et al., 2010). A large volume of research has documented this moral licensing effect, such that people's past moral behaviors can license them to subsequently engage in behaviors that do not uphold their moral principles (Blanken et al., 2015; Mullen & Monin, 2016). Thus, if a moral inhibitory mechanism drives the effect of binding values on sensory consumption, this effect should attenuate after people engage in some other moral behavior. People should feel that they are licensed to indulge in the sensory products and consequently feel less shame associated with these products. Formally, we propose:

H4: The effect of binding values on preferences for sensory products will attenuate after moral licensing.

Status Signaling Through Sensory Consumption

We propose that binding values inhibit sensory consumption because they are incompatible with social order motives. If this is the case, the binding values should only suppress sensory consumption when the products are detrimental to social order. If a sensory product aids in promoting social order, then people would not feel shame in using those products, and the binding values would not suppress their consumption.

Following this argument, binding values should not suppress the consumption of a sensory product when it is viewed as a status product. Previous research has shown that binding values can increase the desire for status products as they are seen as promoting social order (Goenka & Thomas, 2020). Specifically, people who adhere to the binding values tend to use status products, status symbols, and status-affirming rituals to demonstrate their social hierarchy to others and strengthen group structures. These products are encouraged in these communities and seen to be compatible with social order. In other words, status-affirming products do not violate social norms and do not engender shame.

Further, there is an overlap between sensory and status product categories, such that the same product may be used for sensory or status consumption depending upon the context. For example, in some communities, French wines are not consumed for their taste; instead, they are used as status symbols (Chow & Burkitt, 2015). Thus, sensory products that are framed to be status products should be compatible with social order and, consequently, should not be inhibited by binding values. Formally, we propose:

H5: Framing a product as a sensory product will make it less desirable for individuals with higher binding values, whereas framing the same product as a status product will make it more desirable for such individuals.

Personal vs. Shared Sensory Consumption

Additionally, our conceptualization predicts that the consumption of sensory products should not be suppressed if they are designed to be shared with other people in the community. Many sensory products are consumed with family and friends, such as restaurant meals, party packs of beer, and chocolate gift boxes. And shared consumption has been shown to strengthen community bonds and build social order (Belk, 2010). Moreover, because shared consumption tends to be in the service of strengthening social bonds, it should not evoke shame (Tangney et al., 2007). Thus, sensory products that are designed to be shared should not be inhibited by the binding values. Formally, we propose:

H6: Binding values will predict lower preferences for personal sensory products but not for shared sensory products.

Alternative Accounts

We argue that the binding values reduce sensory consumption through a moral inhibition process; however, it could also be the case that binding values inhibit sensory consumption because of perceived wastefulness concerns. Specifically, binding values might make people more concerned about the perceived wastefulness of sensory products. Examining the moderating effect of status framing and shared consumption will help test this account. If the effects are driven by wastefulness concerns, then the inhibitory effects of binding values should be stronger in social settings. In this case, people with binding values should be less likely to

consume sensory products in shared settings, and they should also be less likely to use sensory products for status signaling.

Moreover, we propose that the effects on sensory consumption are driven by the binding values; however, one might posit that other social norms are at play. First, Asian societies and conservative communities also tend to have a higher prevalence of collectivism, which could drive the proposed consumption patterns (Triandis et al., 1988). Notably, there are theoretical distinctions between collectivism and moral values. Collectivism refers to how one views the self in relation to the community (Singelis et al., 1995). However, moral values are strong absolute beliefs that something is right or wrong (Skitka, 2010). Because we are specifically examining the *moral* suppression of pleasure and its motivational impact on consumption behaviors, we argue that the effects cannot be explained by collectivism. Our studies are designed to rule out this account.

Relatedly, the binding values tend to be associated with conservative political identity and religiosity (Graham et al., 2009; Graham & Haidt, 2010); thus, one might also posit that the effects are driven by either of these constructs. However, researchers have outlined several theoretical differences between an individual's political identity, religiosity, and moral beliefs (see Graham et al., 2009; Graham & Haidt, 2010; Skitka, 2010, for detailed discussions). Thus, we also control for the effects of political identity and religiosity in our analysis.

Overview of Studies

We conducted eight studies to examine how moral values influence the consumption of sensory products. First, studies 1, 2, and 3 test the main effect. Study 1 analyzes country-level archival data to examine how the prevalence of individualizing and binding values across countries can predict the consumption of sensory products in those countries. Study 2 examines

how a person's trait endorsement of the individualizing and binding values can predict their desire for sensory products. Study 3 examines how priming the salience of individualizing and binding values can change an individual's desire for sensory products. Together these three studies utilize different methods to show robust evidence that binding values reduce the consumption and desirability of sensory products. Notably, we do not find any consistent effect of individualizing values on sensory consumption.

Then, studies 4A and 4B show the role of shame in suppressing the desire for sensory products. The subsequent studies examine theory-driven moderators and boundary conditions. Study 5 demonstrates that moral licensing attenuates the effect of binding values on sensory consumption. Study 6 shows that when sensory products are framed as status products, binding values increase the desire for these products. Finally, study 7 shows that binding values reduce the desire for personal sensory products but increase the desire for shared sensory products.

Transparency, Openness, and Ethics

All data were collected after receiving an exemption from the Virginia Tech university research ethics committee (Title: Morality and Pleasure; IRB No: 20-899). All laboratory studies were preregistered. For all studies, we determined the sample size in advance and analyzed the data only after data collection was complete. We report all experimental conditions in each study, all data exclusions (if any), and all measures collected. Data were analyzed using SPSS version 27. Materials, procedural details, and supplementary analyses are available in the supplemental online materials. De-identified data, analysis code, and output are available online (https://osf.io/x3ugy/?view_only=324cb33b16d04fe5ae26b1ef0055ef2f). Note our data use agreements do not allow us to share the secondary data for Study 1.

Study 1: Country-Level Analysis

Do countries with strong binding values consume fewer sensory products? This study was designed to examine our central proposition that binding values can reduce the consumption of sensory products in a real-world context. We acquired a dataset detailing the purchase of sensory products in 61 countries and another dataset documenting moral values across those countries. We combined the two datasets to examine whether the binding values can predict the pattern of sensory consumption across the countries. Specifically, we hypothesized that a greater prevalence of binding values in a country would predict lower per-capita spending on sensory products (H1). This study was not preregistered.

Data

Consumption Data. We acquired the country-level consumption data from the Passport Database (© Euromonitor International). This private database provides category-level consumption data for countries across various industries. The data is compiled through a convergence of different sources, including national government reports, trade association reports, corporate consulting papers, and market data. This database has been utilized extensively by experts to analyze and forecast market trends.

We were able to acquire the consumption data for five sensory product categories - carbonated drinks, caffeinated drinks, tobacco, alcohol, and fragrances. For each product category, we extracted the annual per-capita spending reported in U.S. dollars recorded at fixed 2017 exchange rates. The data were available for 61 countries. Further, because category spending can be influenced by overall income levels, we also acquired the countries' annual per-capita GDP from this database.

Binding Values. We acquired the country-level moral values data through the website YourMorals.org. Individuals from across the world voluntarily complete surveys on this website to assess their morality and other personality traits. Several academic papers examining moral values have used the data from this platform (e.g., Graham et al. 2009; Inbar, Pizarro, and Bloom 2012; Mooijman et al. 2018). However, the previous research has not examined how moral values influence preferences for sensory products examined in the present research.

We extracted the moral values data for those participants who reported that their country of residence was one of the 61 countries in the consumption dataset. From these countries, we had responses from 165,357 participants who had visited the website between the years 2008-2012. For each participant, we received the responses to the Moral Foundations Questionnaire (MFQ; Graham et al. 2011). This scale assesses a person's adherence to the five moral foundations through 30 morality statements (e.g., "Respect for authority is something all children need to learn," "I would call some acts wrong on the grounds that they are unnatural.") measured on a 6-point scale. Therefore, for each participant, we were able to observe one individualizing values score and one binding values score.

Because we are interested in examining country-level differences, we averaged the moral values scores of all the participants in a country by the year of survey completion. Hence, for each country, we observed an average score for individualizing values and an average score for binding values for each of the five years. Then, we standardized the scores.

Results

We sought to examine the relationship between the binding values and the spending on the five sensory product categories. First, we combined the two independent datasets, using country-year as the common merging variable. The combined database consisted of 1,525 data

points (305 country-year data points x 5 product categories). See online supplemental materials for all means and correlations. Figure 1 graphs the relationship between the binding values and the sensory consumption across the countries.

[Insert Figure 1 Here]

Per Capita Spending on Sensory Products. We performed a linear mixed-model regression analysis using the natural logarithmic transformed values of the per-capita spending on the five product categories as the dependent variable. This variable was regressed on standardized binding values and standardized individualizing values. Year was included as a covariate to control for temporal variations in consumption patterns. Standardized scores of the per-capita GDP values were included as a control to account for heterogeneity in income levels across the countries. Further, dummies for each product category were included to control for any plausible idiosyncratic effects of the product category. Finally, Country was treated as a random effect to control for unobserved heterogeneity across the countries.

As hypothesized, we find that people in countries with higher binding values spend less money on sensory products (B = -.45, SE = .08, t = -5.53, p < .001, 95% CI [-.61, -.29]). The individualizing values did not predict sensory product consumption (B = -.02, SE = .08, t = -.23, p = .822, 95% CI [-.17, .13]). Table 1 provides the regression table.

Note that the pattern of results holds for the five products individually. Further, analysis using the authority, loyalty, and purity scales separately reveals a similar pattern of results. See online supplemental materials for detailed results.

[Insert Table 1 Here]

Neutral Products. To confirm that the observed results are particular to sensory products, we also examined the relationship between the binding values and spending on some

neutral product categories. That is, we examined four product categories – toiletries, shoes, electronics, and stationery – which are generally not consumed for sensory pleasures. The binding values did not predict the consumption pattern of these products (p = .634), indicating that the effect is particular to sensory products (see online supplemental materials).

Discussion

These results provide support for our central proposition in a consequential real-world context. Results reveal that countries with a greater prevalence of binding values are less likely to consume sensory products. That is, the prevalence of binding values in society can suppress sensory pursuits and meaningfully shift consumption patterns in the economy. Notably, we did not find any effect of individualizing values on sensory product consumption.

Study 2: Trait Moral Foundations

This study aimed to replicate the findings of the previous study in a more controlled setting. While the country-level data provides support for external validity, the results might be driven by other unobserved country differences. Therefore, in this study, we examined how an individual's trait endorsement of the binding values can predict their preferences for sensory products.

We hypothesized that people with stronger trait binding values would have less desire for sensory products (H1). Further, we predicted that people with stronger trait binding values would be less likely to prescriptively endorse sensory pleasures, and this would mediate the effect of the binding values on product desirability (H2). The study design and hypothesis were preregistered (https://osf.io/vbtx9).

Method

Participants. We used G*Power (Faul et al., 2007) to estimate the sample size (α = .05, 80% power, predicted f^2 = 0.02, predictors = 10). The analysis suggested a minimum sample size of 387 participants. We chose to recruit a larger sample size to account for participant exclusions and ensure adequate power. Specifically, we preregistered a sample size of 500 participants. Eventually, we recruited 502 U.S. residents (M_{age} = 38.33 yrs.; 51.7% female; 79% White) online through MTurk in exchange for a small compensation.

Moral Values Measure. Participants were first administered the 30-item Moral Foundations Questionnaire (MFQ; Graham et al. 2011). This is the same scale as study 1.

Sensory Products. Then, participants were introduced to an ostensibly unrelated product evaluation task. They were shown a series of 15 products that are usually consumed for sensory pleasure. We presented three carbonated beverages (Coke, Pepsi, Mountain Dew), three caffeinated beverages (Snapple Iced-Tea, Starbucks coffee, Red Bull), three alcoholic drinks (Bud Light beer, red wine, Grey Goose vodka), one tobacco product (Juul vape pen), three olfactory products (scented candle, aromatherapy diffuser, perfume), and two sex toys (vibrator, flesh light). Participants saw all 15 products individually in a randomized order.

Dependent Variable. Our main dependent variable in this study was a measure of the subjective desirability of these products. For each product, participants responded to the question - "How desirable do you find this product?" (1 = *Not at All*, 9 = *Extremely*) - on a continuous slider scale.

Prescriptive Moral Beliefs. Next, we sought to examine whether the binding values alter the prescriptive moral beliefs of consumption. We administered a measure of prescriptive beliefs adapted from Tworek & Cimpian (2016). First, participants were shown a description of sensory pleasure. Then participants were asked to respond to the statement – "I think people should try to

reduce their desire for sensory pleasure" (1: *Strongly Disagree*; 9: *Strongly Agree*). Hence, this allowed us to measure to what extent binding values shift prescriptive beliefs of whether people should engage in sensory consumption.

Control Variables. Next, we administered an attention check. Then, we deployed a measure of collectivism (Singelis et al., 1995). Then, we measured participants' political orientation (1: *Liberal*; 7: *Conservative*) and religiosity ("I see myself as someone who is very religious" 1: *Disagree*; 7: *Agree*). Finally, basic demographics were collected. See online supplemental materials for detailed stimuli, attention check, demographic questions, means, and correlations.

Results

Participant Exclusion. Sixty-nine participants failed the attention check (13.74% of the sample) and were excluded from the analysis as preregistered, resulting in 433 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, slope of $H_0 = 0$, $\sigma\_x = 1.21$, $\sigma\_y = 2.96$). The analysis showed that the study was sensitive to detecting a minimum slope of $H_1 = -.33$.

Desirability of Sensory Products. We performed a regression analysis using linear mixed models. Participants' desirability ratings of the products (i.e., fifteen repeated measures per participant) were regressed on their standardized responses on the binding values scale and the individualizing values scale. To control for potential idiosyncratic effects of the replicates, we included dummy variables for each product replicate. Additionally, we also controlled for demographic variables – age, gender (female = 1, male =0), income, education level, and race

(white = 1, not white = 0). Finally, individual participants were treated as a random effect to control for unobserved heterogeneity across the individual responses.

As hypothesized, we find that participants with higher binding values had lower desirability for sensory products (B = -.34, SE = .09, t (425) = -3.90, p < .001, 95% CI [-.50, -.17]). Notably, the individualizing values had the opposite effect, predicting higher desirability for sensory products (B = .60, SE = .09, t (425) = 7.03, p < .001, 95% CI [.43, .77]). Table 2 provides the regression table.

[Insert Table 2 Here]

Alternative Accounts. To rule out the alternative accounts, we conducted a second regression analysis where we also controlled for participants' political orientation, religiosity, and collectivist beliefs (Table 2, Model 2). The results again show that the binding values predict lower desirability for sensory products, but the alternative measures do not predict sensory consumption. Furthermore, we see that analysis with the three separate binding scales (authority, loyalty, and purity) shows convergent results, demonstrating that all three sub-scales play a role in driving the effects. See online supplemental materials for detailed results.

Prescriptive Beliefs. A regression analysis revealed that participants with higher binding values showed less prescriptive endorsement of sensory pleasure (B = 1.29, SE = .03, t = 50.89, p < .001, 95% CI [1.24, 1.34]). That is, people who adhere to the binding values believe that people should not pursue sensory pleasure. Then, we performed a mediation analysis using PROCESS Model 4 (Hayes, 2013). Binding values was the independent variable, the product desirability scores were the dependent variable, and the measure of prescriptive beliefs was the mediator variable. Results show that the binding values reduced the prescriptive endorsement of

sensory pleasure, which in turn reduced the desire for sensory products (standardized indirect effect = -.07 [-.09, -.06]). See online supplemental materials for detailed results.

Discussion

Results replicate the findings of the previous study. People with stronger trait endorsement of the binding values showed less desire for sensory products. We find these effects across a range of products representing sensory consumption (e.g., alcoholic drinks, soda, tobacco, sex toys). The effects hold after controlling for demographics, political orientation, religiosity, and collectivism. Further, people with stronger binding values showed less prescriptive endorsement of sensory pleasures. That is, people with binding values hold the belief that people should not engage in consumption that provides sensory pleasures. And this belief measure mediates the effect of binding values on consumption preferences.

Study 3: Priming Moral Values

This study was designed to demonstrate the causal effect of the binding values on reducing the desire for sensory products. Notably, while adherence to the different moral foundations is largely a stable trait, research has shown that it is possible to increase the momentary salience of specific moral beliefs (Goenka & Thomas, 2020; Mooijman et al., 2018). Thus, we utilized this method to manipulate the momentary salience of binding values and assessed the impact of the manipulation on the desirability of sensory products.

The study utilized a 3(Moral Prime: Control vs. Individualizing vs. Binding) between-subjects design. We hypothesized that priming binding values would reduce the desire for sensory products (H1). Further, we predicted that priming binding values would influence the prescriptive beliefs of pleasure, and this would mediate the effect of the binding values on

product desirability (H2). The study design and hypothesis were preregistered (https://osf.io/tbywm).

Method

Participants. We used G*Power (Faul et al., 2007) to estimate the sample size (α = .05, 80% power, predicted $f = 0.1$). The analysis suggested a minimum sample size of 249 participants. We chose to recruit a larger sample size to account for participant exclusions and ensure adequate power. We recruited 297 undergraduate students from a large U.S. public university (M_{age} = 20.21 years; 57% female; 75% White) to complete the study online in exchange for course credit.

Procedure. Participants were randomly assigned to one of the three moral prime conditions. They were introduced to an ostensible memory exercise. The actual purpose of this exercise was to manipulate the momentary salience of moral values using a procedure adapted from Mooijman et al. (2018). Participants were told to read a short paragraph about an ancient Sumerian warrior, Sostoras, and answer the questions that followed. The manipulation was embedded in the paragraph. In the individualizing condition, participants read a paragraph about how Sostoras was known for his "*compassion, fairness, and equality…*" However, in the binding condition, participants read a paragraph about how Sostoras was known for "*purity, respect for tradition, and loyalty*…" In the control condition, participants read that Sostoras was a "*pottery maker*…," with no mention of moral values (see online supplemental materials for complete stimuli).

Because the manipulation utilized a subtle reading prime, we subsequently deployed an attention check to screen out the participants who failed to read the assigned paragraph (see

supplemental materials). This attention check is consistent with the method of Mooijman et al. (2018), and the participant exclusion criteria were preregistered.

Then, participants saw the same 15 sensory products as in the previous study and indicated their desirability for each product. Next, the same measure of prescriptive beliefs was deployed. Finally, we collected basic demographics. See online supplemental materials for all stimuli and means.

Results

Participant Exclusion. Thirty-seven participants failed the attention check (12.45% of the sample) and were excluded from the analysis as preregistered, resulting in 260 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, three groups, 15 measurements with intercorrelation of .3). The analysis showed that the study was sensitive to detecting a minimum effect size of $f = .11$ ($\eta^2_p = .013$).

[Insert Figure 2 here]

Desirability of Sensory Products. We performed a 3 x 15 mixed ANOVA with the product desire measures as the repeated dependent measures (i.e., fifteen repeated measures per participant). Moral prime condition was the between-subjects factor. As predicted, we found a significant main effect of moral prime condition ($F(2, 257) = 11.71$, $p < .001$, $\eta^2_p = .08$, Observed Power = .99). Note, the interaction between moral prime and product replicates was not significant ($F(28, 3598) = .92$, $p = .588$); therefore, we report results by aggregating across the replicates in each product category (see online supplemental materials for means of each replicate).

We performed a series of planned contrasts (see Figure 2). Confirming H1, we see that the binding condition (M = 3.77, SD = 1.48) reduces the desire for sensory products compared to the control condition (M = 4.77, SD = 1.48; M_{diff} = -.99, SE = .23, p < .001, η^2_p = .10, 95% CI [-1.44, -.55]) and the individualizing condition (M = 4.72, SD = 1.53; M_{diff} = -.95, SE = .23, p < .001, η^2_p = .09, 95% CI [-1.41, -.49]). However, there was no difference between the control condition and the individualizing condition (M_{diff} = .05, SE = .22, p = .825, η^2_p = .00, 95% CI [-.39, .49]).

Prescriptive Beliefs. We performed a univariate ANOVA with the prescriptive beliefs measure as the dependent variable and the moral prime condition as the independent factor. We found a significant main effect of the moral condition on the prescriptive beliefs measure (F(2, 257) = 5.76, p = .004, η^2_p = .04, Observed Power = .87). Participants in the binding condition (M = 4.21, SD = 2.35) showed greater prescriptive aversion to sensory pleasure, compared to participants in the control condition (M = 3.17, SD = 1.89; M_{diff} = 1.05, SE = .32, p = .001, η^2_p = .06, 95% CI [.42, 1.67]) and the individualizing condition (M = 3.43, SD = 2.04; M_{diff} = .79, SE = .33, p = .017, η^2_p = .03, 95% CI [.14, 1.43]). Participants in the control and individualizing condition showed no difference in the prescriptive belief scores (M_{diff} = -.26, SE = .31, p = .403, η^2_p = .00, 95% CI [-.88, .35]). Hence, participants in the binding condition were more likely to believe that people should not engage in consumption activities that provide sensory pleasures.

We then performed a mediation analysis using PROCESS Model 4 (Hayes 2013), similar to the previous study. The results show that the binding values reduced the prescriptive endorsement of sensory pleasure, which in turn reduced the desirability of sensory products (standardized indirect effect = -.17[-.29, -.06]). See online supplemental materials for detailed results.

Discussion

This study provides support for causality. Priming binding values reduced the desire for a range of sensory products. Further, we see that the binding values shifted the prescriptive beliefs of sensory pleasure. That is, priming binding values makes people believe that one should not pursue sensory pleasures, and this prescriptive belief drives the sensory product desirability.

Taken together, studies 1, 2, and 3 use country-level archival analysis, individual-level trait scale analysis, and experimental manipulations to show that the binding values reduce the consumption of a range of sensory products. These studies demonstrate the causal effect of the binding values on sensory consumption and provide support for external validity. Moreover, the results also show that the effects are explained by all three binding values - loyalty, authority, and purity - collectively. Finally, these studies also weaken support for the alternate accounts of collectivism, political identity, and religiosity.

Notably, across the three studies, we found inconsistent effects of the individualizing values on sensory consumption. Individualizing values had no effect (studies 1 and 3) or increased sensory consumption (study 2), but there is no evidence that it reduces sensory consumption. See the general discussion for a more detailed consideration of the individualizing values.

Study 4A & 4B: The Role of Shame

The next two studies were designed to examine how feelings of shame act as a proximal mediator driving the effects of the binding values on sensory consumption. To examine this underlying mechanism, we utilized a ‘double randomization’ design (Pirlott & MacKinnon, 2016; Spencer et al., 2005). This approach uses two separate experimental studies to provide evidence for the proposed mechanism. In the first study, the independent variable (moral values)

is manipulated while the dependent variable (sensory desire) and the mediator (shame) are measured. This design allows one to test the mediation model. In the second study, the mediator (shame) is manipulated, and the dependent variable (sensory desire) is measured. This design allows one to examine the causal effect of the mediator on the dependent variable. Hence, together, these two studies allow one to provide robust support for the underlying mechanism.

In the first study (study 4A), we manipulated moral values (Individualizing vs. Binding) and measured the impact of this manipulation on the desire for sensory products. We also measured feelings of shame and predicted that this would mediate the effect of binding values on sensory desire (H3). The study design and hypotheses were preregistered (https://osf.io/9rdbx).

In the second study (study 4B), we manipulated shame (Control vs. Shame) and measured the impact of this manipulation on sensory desire. We predicted that manipulating shame should reduce the desire for sensory products. The study design and hypothesis were preregistered (https://osf.io/9rdbx).

Study 4A Method

Participants. Similar to the sample size for study 3, in this study, we again recruited 300 participants from MTurk (M_{age} = 40.17 years; 49% female; 82% White) to complete the study online in exchange for a small compensation.

Procedure. Participants were randomly assigned to one of the two moral prime conditions (Individualizing vs. Binding), and moral values was manipulated using the same method as study 3. Then, the same attention check was deployed. Next, participants saw the same 15 sensory products as the previous studies and indicated their desirability for each product.

Then, we deployed a three-item scale to measure feelings of shame taken from Mosher & White (1981). This scale has been widely used in previous research to assess shame (see Tangney, 1996 for a discussion). Specifically, participants were asked, "When evaluating the products, to what extent do you feel the following emotions – the products make me feel shameful/humiliated/disgraced" (1: *Not At All*; 7: *Extremely*). We averaged these three items to form a composite shame measure ($\alpha = .96$, $M = 1.91$, $SD = 1.36$). Finally, we collected basic demographics. See online supplemental materials for all stimuli and means.

Study 4A Results

Participant Exclusion. Eleven participants failed the attention check (3.67% of the sample) and were excluded from the analysis as preregistered, resulting in 289 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, two groups, 15 measurements with intercorrelation of .3). The analysis showed that the study was sensitive to detecting a minimum effect size of $f = .09$ ($\eta^2_p = .01$).

Desirability of Sensory Products. We performed a 2 x 15 mixed ANOVA with the product desire measures as the repeated dependent measures (i.e., fifteen repeated measures per participant). Moral prime condition was the between-subjects factor. As predicted, we found a significant main effect of moral prime condition ($F(1, 287) = 8.69$, $p = .003$, $\eta^2_p = .03$, Observed Power = .84). Note, the interaction between moral prime and product replicates was not significant ($F(14, 4018) = 1.09$, $p = .362$); therefore, we report results by aggregating across the replicates in each product category. Planned contrasts revealed that the binding condition ($M = 3.93$, $SD = 1.63$) reduces the desire for sensory products compared to the individualizing

condition (M = 4.51, SD = 1.70; M_{diff} = -.58, SE = .19, p = .003, η^2_p = .03, 95% CI [-.97, -.19]). Hence, this replicated the findings from the previous studies.

Feelings of Shame. We performed a univariate ANOVA with the shame measure as the dependent variable and the moral prime condition as the independent factor. We found a significant main effect of the moral condition on the shame measure (F(1, 287) = 6.92, p = .009, η^2_p = .02, Observed Power = .75). Participants in the binding condition (M = 2.13, SD = 1.49) showed greater feelings of shame, compared to participants in the individualizing condition (M = 1.71, SD = 1.19; M_{diff} = .42, SE = .16, p = .009, η^2_p = .02, 95% CI [.11, .73]).

We then performed a mediation analysis using PROCESS Model 4 (Hayes 2013). The moral condition was the independent variable (Binding = 1, Individualizing = 0), the product desirability scores were the dependent variable, and the measure of shame was the mediator variable (see figure 3). The results show that the binding values increased feelings of shame, which in turn reduced the desirability of sensory products (standardized indirect effect = -.06[-.13, -.01]). See online supplemental materials for detailed results.

[Insert Figure 3 here]

Study 4B Method

Participants. Similar to previous studies, we recruited 301 participants from MTurk (M_{age} = 41.46 years; 45.6% female; 86% White) to complete the study online in exchange for a small compensation.

Procedure. Participants were randomly assigned to one of the two manipulation conditions (Control vs. Shame). In the control condition, participants were told that the purpose of the study was to examine preferences for sensory products, and they were provided with a short explanation of sensory products. In the shame condition, participants were provided with

additional information that would invoke feelings of shame associated with sensory products. Specifically, participants were told that "*Many people find these products to be shameful. That is, many people are ashamed to purchase these products or use these products. They feel that using sex toys, smoking, and drinking alcohol is disgraceful and should be avoided. Some even say that using these products can feel humiliating*."

Next, participants saw the same 15 sensory products as the previous studies and indicated their desirability for each product. Then we administered the same three-item measure of shame as in the previous study. This measure served as a manipulation check. Next, an attention check was deployed (same as study 2). Finally, we collected basic demographics. See online supplemental materials for all stimuli and means.

Study 4B Results

Participant Exclusion. Twenty-five participants failed the attention check (8.30% of the sample) and were excluded from the analysis as preregistered, resulting in 276 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, two groups, 15 measurements with intercorrelation of .3). The analysis showed that the study was sensitive to detecting a minimum effect size of $f = .09$ ($\eta^2_p = .01$).

Manipulation Check. The three items of the shame measure were averaged to form a composite scale ($\alpha = .97$, $M = 1.84$, $SD = 1.37$). We performed a univariate ANOVA with this shame measure as the dependent variable and the manipulation condition as the independent factor. We found a significant main effect of the manipulation on the shame measure ($F(1, 274) = 13.34$, $p < .001$, $\eta^2_p = .05$, Observed Power = .95). Participants in the shame condition ($M =$

2.14, *SD* = 1.59) reported greater feelings of shame, compared to participants in the control condition (*M* = 1.55, *SD* = 1.03; M_{diff} = .59, *SE* = .16, *p* < .001, 95% CI [.27, .91]). Hence, these results confirm that the shame manipulation induced greater feelings of shame.

Desirability of Sensory Products. We performed a 2 x 15 mixed ANOVA with the product desire measures as the repeated dependent measures (i.e., fifteen repeated measures per participant). Manipulation condition was the between-subjects factor. As predicted, we found a significant main effect of condition ($F(1, 274) = 7.41$, $p = .007$, $\eta^2_p = .03$, Observed Power = .77). Note, the interaction between moral prime and product replicates was not significant ($F(14, 3836) = .99$, $p = .454$); therefore, we report results by aggregating across the replicates in each product category. Planned contrasts revealed that the shame condition (*M* = 4.09, *SD* = 1.58) reduces the desire for sensory products compared to the control condition (*M* = 4.65, *SD* = 1.79; M_{diff} = -.55, *SE* = .20, *p* = .007, η^2_p = .03, 95% CI [-.95, -.15]). Hence, these findings show the causal effect of shame on reducing the desire for sensory products.

Discussion

Studies 4A and 4B together demonstrate the proximal mechanism – shame – that drives the effects of binding values on sensory desire. First, we see that priming binding values increased the feelings of shame associated with sensory products. And these feelings of shame, in turn, mediated the effect of binding values on the desire for sensory products. Then, we see that directly manipulating feelings of shame reduces the desire for sensory products. Thus, together these results demonstrate that feelings of shame play a role in suppressing sensory consumption.

Study 5: Moderation by Licensing

Our theorization suggests that the binding values morally suppress the desire for sensory products. In this study, we sought to provide further support for the moral suppression mechanism by examining how the effects of binding values are moderated by moral licensing. If a moral inhibitory mechanism drives the effect of binding values on sensory consumption, this effect should attenuate after people engage in some other moral behavior. In other words, people should feel licensed to desire sensory products after performing some other moral behavior.

The study utilized a 2 (Condition: Control vs. Moral Licensing) x 15 (Replicates) mixed design with condition as a between-subjects factor and replicates as a within-subjects factor. Binding values was a continuous trait measure. We hypothesized that binding values would predict less desire for sensory products in the control condition; however, this effect would be attenuated in the moral licensing condition (H4). The study design and hypothesis were preregistered (https://osf.io/ct4vw).

Method

Participants. We used G*Power (Faul et al., 2007) to estimate the sample size ($\alpha = .05$, 80% power, predicted $|\Delta \text{ slope}| = 0.25$). The analysis suggested a minimum sample size of 550 participants. We chose to recruit a larger sample size to account for participant exclusions and ensure adequate power. Specifically, we recruited 599 U.S. residents (M_{age} = 40.73 yrs.; 50% female; 78.8% White) online through MTurk in exchange for a small compensation.

Procedure. Participants were first administered the Moral Foundations Questionnaire (Graham et al., 2011). Then, participants were introduced to a writing task about life events. Half the participants were assigned to the moral licensing condition where they were asked to "*Write about a time in your life when you acted in such a way that made you feel righteous or*

honorable." This manipulation was adapted from extant research (Conway & Peetz, 2012). The other half of the participants were assigned to the control condition, where they were asked to write about events in a typical day of their life. Then participants were introduced to a product evaluation task, showing the same 15 products from Study 2, and asked to rate the desirability of each product. Finally, basic demographics were collected. See online supplemental materials for all stimuli, means, and correlations.

Results

Participant Exclusion. Seven participants did not respond to the writing prompt and were excluded from the analysis as preregistered, resulting in 592 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, $\sigma\_residual = 1.20$, $\sigma\_x1 = 1.00$, $\sigma\_x2 = 1.08$). The analysis showed that the study was sensitive to detect a minimum difference of slopes of .26.

Desirability of Sensory Products. We performed a regression analysis using linear mixed models. The desirability ratings of the products (i.e., fifteen repeated measures per participant) were regressed on the standardized binding scale, a dummy variable identifying the two conditions (0 = Control, 1 = Moral Licensing) and their interaction term. Further, we also included standardized individualizing values and demographics as covariates – age, gender (female = 1, male = 0), income, education level, race (white = 1, not white = 0). Dummy variables for product replicates were included, and individual participants were treated as random effects to control for unobserved heterogeneity across the responses.

We see that the interaction between the binding values scale and the condition dummy is significant ($B = .50$, $SE = .13$, $t = 3.75$, $p < .001$, 95% CI [.24, .76]). Analyses of simple slopes

revealed that people who have stronger binding values show less desirability for the sensory products in the control condition (Simple Slope: B = -.34, SE = .09, t = -3.51, p < .001, 95% CI [-.53, -.15]). This effect was attenuated in the moral licensing condition. Now, the binding values marginally predicted higher desirability for the sensory products (Simple Slope: B = .16, SE = .09, t = 1.71, p = .088, 95% CI [-.02, .34]). Table 3 provides the regression table, and figure 4 provides a graphical representation of the interaction. See online supplemental materials for detailed results.

[Insert Table 3 here]

[Insert Figure 4 here]

Discussion

The results of this study showed that moral licensing moderates the effect of binding values on sensory consumption[1]. That is, people with stronger binding values showed less desire for sensory products, but this effect was attenuated after moral licensing. Hence, this study provides support for the moral inhibition mechanism at play. In that, the binding values morally suppress sensory consumption, but people feel licensed to engage in sensory consumption after performing some other moral task.

Study 6: Sensory vs. Status Message Framing

This study was designed to provide support for the social order motives underlying the effect of binding values on sensory suppression. Previous research has shown that binding values can increase the desire for status products as they are seen as promoting social order (Goenka & Thomas, 2020). Status products are compatible with the binding values. Thus, binding values

[1] Note that a preregistered replication of this study found convergent pattern of results. See online supplemental materials for details.

should not evoke shame when the sensory products are associated with status. Consequently, binding values should not suppress sensory desire when the products are framed as status products.

The study utilized a 2 (Message Framing: Sensory vs. Status) x 6 (Replicates) mixed design with message framing as a between-subjects factor and replicates as a within-subjects factor. We kept the products constant across the conditions but manipulated the framing of the product through slogan messages. We then examined how the binding values can predict the preferences for the products contingent on this framing. We hypothesized that people with stronger binding values would have less desire for products when they are framed as sensory consumption, but they would have a greater desire for the same products when they are framed as status consumption (H5). The study design and hypothesis were preregistered (https://osf.io/an9rm).

Method

Participants. We used G*Power (Faul et al., 2007) to estimate the sample size ($\alpha = .05$, 80% power, predicted $|\Delta \text{ slope}| = 0.5$). The analysis suggested a minimum sample size of 410 participants. We chose to recruit a larger sample size to account for participant exclusions and ensure adequate power. We recruited 500 U.S. residents (M_{age} = 38.32 years; 48.99% female; 72% White) online through MTurk in exchange for a small compensation.

Procedure. Participants were first administered the Moral Foundations Questionnaire (Graham et al., 2011). Then, participants were introduced to the product evaluation task. They were randomly assigned to one of the two message framing conditions. In both conditions, participants saw six products– Cola, Coffee, Vodka, Sweater, Shampoo, and Perfume. We presented advertising messaging slogans below the products that framed the product as either

sensory or status consumption. For example, participants in the sensory condition saw the Sweater with the slogan "Made with the Softest Cashmere for Cozy Warmth," but participants in the status condition saw the same Sweater with the slogan "Show your Style with Polo." Similarly, in the sensory condition, the Vodka was presented with the slogan "A Complexity of Flavors and Sensations with Every Sip," but in the status condition, the Vodka was presented with the slogan "Drink Luxury." Hence, keeping the product constant, we highlighted whether the product is used for sensory consumption or status consumption.

For each product, participants responded to the question - "How desirable do you find this product?" (1 = *Not at All*, 9 = *Extremely*) - on a continuous slider scale. Next, an attention check was administered (same as study 2), and basic demographics were collected. See online supplemental materials for all stimuli, means, and correlations.

Results

Participant Exclusion. Two participants failed the attention check and were excluded from the analysis as preregistered, resulting in 498 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis ($\alpha = .05$, 80% power, $\sigma\_residual = 1.80$, $\sigma\_x1 = 1.10$, $\sigma\_x2 = 1.10$). The analysis showed that the study was sensitive to detect a minimum difference of slopes of .41.

Desirability of Sensory Products. We performed a regression analysis using linear mixed models. The desirability ratings of the products (i.e., six repeated measures per participant) were regressed on the standardized binding scale, a dummy variable identifying the two message framing conditions (0 = Sensory Framing, 1 = Status Framing), and their interaction term. Dummy variables for product replicates were included. Further, standardized individualizing values and demographic control variables were also included as covariates – age,

gender (female = 1, male = 0), income, education level, race (white = 1, not white = 0). Individual participants were treated as random effects to control for unobserved heterogeneity across the individual responses.

Results show that the interaction between the binding values scale and the message framing dummy is significant (B = 1.16, SE = .14, t = 7.92, p < .001, 95% CI [.87, 1.45]). Analyses of simple slopes revealed that people who have stronger binding values show less desirability for the products when they are framed with sensory slogans (Simple Slope: B = -.34, SE = .10, t = -3.27, p < .001, 95% CI [-.55, -.14]), but they show greater desirability for the same products when they are framed with status slogans (Simple Slope: B = .82, SE = .11, t = 7.77, p < .001, 95% CI [.61, 1.03]). Table 4 provides the regression table, and figure 5 provides a graphical representation of the interaction. See online supplemental materials for details.

[Insert Table 4 Here]

[Insert Figure 5 Here]

Discussion

The results of this study support our hypothesis that social order motives underlie the effect of binding values on sensory suppression. People with stronger binding values showed less desire for products framed as sensory consumption, but they showed a greater desire for the same products when they were framed as status consumption. Hence, these results show that binding values only inhibit sensory consumption when the products provide personal pleasures. They do not inhibit sensory consumption when the products are status-affirming.

Moreover, these results help rule out the alternate account that people with binding values are concerned about the perceived wastefulness of sensory consumption. It could have been the case that people with binding values avoid sensory products as they perceive them to be

wasteful. However, we see that the inhibitory effects of binding values reverse when the products are framed as status products. This suggests that people with binding values do not find sensory products to be wasteful. They are willing to flaunt their sensory consumption in public as long as it is framed as a status product.

Study 7: Personal vs. Shared Consumption

This study was designed to provide further support for the underlying social-order motives driving the effect of binding values on sensory suppression. Our theorization predicts that the binding values should suppress sensory consumption only when the products are indeed detrimental to social order. But sensory products can also be used in shared settings. And shared consumption builds social bonds. Thus, sensory products used in shared settings should not induce shame. Consequently, binding values should not inhibit sensory desire when the products are used for shared consumption.

The study utilized a 2 (Consumption Type: Personal vs. Shared) x 5 (Replicates) mixed design with consumption type as a between-subjects factor and replicates as a within-subjects factor. We manipulated whether the sensory products were used for personal or shared consumption. We then examined how the binding values can predict the preferences for the products contingent on this manipulation. We hypothesized that people with stronger binding values would have less desire for sensory products when they are used for personal consumption. However, this effect would be attenuated when the sensory products are used for shared consumption (H6). The study design and hypothesis were preregistered (https://osf.io/u34gr).

Method

Participants. Using a similar sample size analysis as study 6, in this study, we again recruited 501 U.S. residents (M_{age} = 38.79 years; 47.49% female; 77.75% White) through MTurk in exchange for a small compensation.

Procedure. Participants were first administered the Moral Foundations Questionnaire (Graham et al., 2011). Then, participants were introduced to the product evaluation task. They were randomly assigned to one of the two consumption type conditions. In both conditions, participants saw five products – Chocolate, Coke, Beer, Sex Toy, and Candle. We manipulated whether the products were used for personal consumption or shared consumption. For example, participants in the personal condition saw a single piece of chocolate with the slogan "Indulge yourself with the finest Lindt chocolate." Whereas participants in the shared condition saw a box of chocolates with the slogan "Indulge the Family with the finest Lindt Chocolate." Similarly, in the personal condition, a single Coke bottle was presented with the slogan "The Cold Crisp Taste of Coke," but in the shared condition, two Coke bottles were presented with the slogan "Share the Cold Crisp Taste of Coke with a Friend." And, in the personal condition, a sex toy was presented with the slogan "Adult Toys for Your Pleasure," but in the shared condition, a different sex toy was presented with the slogan "Pleasure For Both: A Toy to Spice Up Your Relationship." Hence, keeping the product category constant, we manipulated whether the products were used for personal consumption or shared consumption.

For each product, participants responded to the question - "How likely are you to purchase this product?" (1 = *Not at All*, 9 = *Extremely*) - on a continuous slider scale. Note, in this study, we measured purchase intentions (as opposed to desirability rating) to test that the effects generalize to purchase intentions.

Next, an attention check was administered (same as study 2), and basic demographics were collected. See online supplemental materials for all stimuli, means, and correlations.

Results

Manipulation and Confound Check. We conducted a pretest to examine whether the consumption type manipulation worked as intended. This pretest showed that the products in the personal and shared conditions were seen as providing similar levels of sensory pleasure (p = .882). However, the products in the shared condition were more likely to be consumed in a shared setting than the products in the personal condition (p <.001). See online supplemental materials for details.

Participant Exclusion. Two participants failed the attention check and were excluded from the analysis as preregistered, resulting in 499 participants in the final data analysis.

Sensitivity Analysis. We used G*Power (Faul et al., 2007) to conduct a sensitivity analysis (α = .05, 80% power, σ_residual = 2.11, σ_x1 = 1.11, σ_x2 = 1.10). The analysis showed that the study was sensitive to detect a minimum difference of slopes of .47.

Purchase Intention. We performed a regression analysis using linear mixed models. The purchase likelihood of the products (i.e., five repeated measures per participant) was regressed on the standardized binding scale, a dummy variable identifying the two consumption types (0 = Personal, 1 = Shared) and their interaction term. Dummy variables for product replicates were included. Further, standardized individualizing values and demographic control variables were also included as covariates – age, gender (female = 1, male = 0), income, education level, race (white = 1, not white = 0). Individual participants were treated as random effects to control for unobserved heterogeneity across the individual responses.

Results show that the interaction between the binding values scale and the consumption type dummy is significant (B = .87, SE = .16, t = 5.50, p < .001, 95% [.56, 1.18]). Analyses of simple slopes revealed that people who have stronger binding values show less desirability for the sensory products when they are used for personal consumption (Simple Slope: B = -.41, SE = .11, t = -3.68, p < .001, 95% CI [-.63, -.19]), but they show greater desirability for the sensory products when they are used for shared consumption (Simple Slope: B = .46, SE = .11, t = 4.07, p < .001, 95% CI [.24, .68]). Table 5 provides the regression table, and figure 6 provides a graphical representation of the interaction. See online supplemental materials for details.

[Insert Table 5 Here]

[Insert Figure 6 Here]

Discussion

The results of this study provide further support for the social order motives underlying the effect of binding values on sensory suppression. People with stronger binding values showed less desire for sensory products when they were used for personal consumption, but they showed a greater desire for the sensory products when they were used for shared consumption. Hence, this study again shows that binding values only inhibit sensory consumption when the products provide personal pleasures. They do not inhibit sensory consumption when the products help build group bonds through shared consumption.

These results again rule out the alternate account that people with binding values shun sensory consumption because they perceive it to be wasteful. We see that the inhibitory effects of binding values reverse when the products are used for shared consumption. This suggests that people with binding values do not find sensory products wasteful per se; they are willing to consume them as long as they are not for self-focussed pleasures.

General Discussion

Summary

This research conceptualizes and empirically tests a framework for understanding when and how individuals and societies suppress sensory consumption. Study 1 showed that countries with a greater prevalence of binding values have less per-capita spending on sensory products. Study 2 showed that people who adhere to the binding values are less likely to desire sensory products. Study 3 showed that priming the salience of binding values can reduce the desire for sensory products. These studies also showed that the binding values alter the prescriptive moral beliefs of sensory pleasure, which in turn drives the consumption preferences. Next, studies 4A and 4B showed that binding values increase feelings of shame which are a proximal driver of sensory suppression. Study 5 provided support for the moral inhibitory mechanism by demonstrating that the effects of binding values attenuate after moral licensing. Then, study 6 showed that binding values reduce preferences for sensory products but increase preferences when the same products are framed as status products. And study 7 showed that binding values reduce preferences for sensory products used for personal consumption but increase preferences for sensory products used for shared consumption.

These studies utilized three different methods (country-level archival data, individual-level trait scales, and priming) and recruited samples from three different sources (YourMorals.org, MTurk, and undergraduate students). Altogether, they show robust evidence that the binding values reduce consumption of a range of sensory products (e.g., alcohol, soda, sex toys, tobacco). Further, we see that the effects are driven by the three binding values – loyalty, authority, and purity - together instead of one of the values alone. These studies also rule out some alternative accounts. The results also rule out the possibility that binding values inhibit

sensory consumption through a perceived wastefulness account. And these studies also rule out the possibility that the effects are driven by political identity, religiosity, and collectivism.

Notably, across our studies, we do not see a consistent pattern in the effects of individualizing values on sensory consumption. In some cases, individualizing values did not predict sensory consumption (study 1, 3, and 6); however, in other cases, individualizing values increased sensory consumption (study 2, 5, and 7). Why are the effects of individualizing values on sensory consumption inconsistent across these studies? As discussed previously, we speculate that the individualizing values might be associated with competing beliefs about sensory consumption. Therefore, their effects might be much more context-dependent than the effects of binding values. Individualizing values might inhibit sensory consumption when such consumption is seen to be associated with harm, but they might encourage sensory consumption when such consumption is associated with self-expression. Thus, the effects of the individualizing values might be dependent on the contextual salience of either of these associations. Further, it is also likely that while individualizing values might prompt people to make moral inferences about the behavior ("smoking is harmful"), the binding values might prompt moral inferences about the person's character ("smokers are immoral"). As such, it might be a fruitful avenue for future research to identify the conditions when individualizing values facilitate and inhibit sensory consumption.

Theoretical Contributions

To the best of our knowledge, this is the first research to demonstrate how the moral beliefs prevalent in society can inhibit the pursuit of sensory pleasure and materially shift consumption patterns in the economy. We empirically examine a widespread phenomenon - the inhibition of sensory consumption - and identify the moral motives that underlie this

phenomenon. Consequently, we demonstrate a novel effect that individuals and societies that adhere to binding moral values are less likely to pursue sensory consumption. These novel findings produce theoretical implications for several streams of literature.

First, our results explain why some sections of society engage in sensory consumption while other sections of society avoid sensory consumption. Moreover, our results explain *why* these societies might shun sensory consumption. Specifically, this research suggests that individuals and social groups who espouse the social-order focused binding values would inhibit sensory consumption. We see examples of this in Asian societies and conservative groups that are more likely to regulate sensory consumption compared to European societies and liberal groups (Carbery, 2013; Hennen, 2020; Peltz, 2019). That is, our research suggests that the prevalence of binding values in these communities can explain why these communities have implemented stringent laws to regulate alcohol, tobacco, and recreational drugs. Hence, this research presents a novel framework to understand why sensory consumption might be incompatible with the moral outlook of such communities. And consequently, we demonstrate a novel form of heterogeneity in preferences across cultures, expanding our understanding of cross-cultural behaviors (Aaker et al., 2001; Markus & Kitayama, 1991; Schwartz et al., 2012; Shweder et al., 1990; Tsai et al., 2006).

Notably, by examining the underlying moral mechanism and motives, our research also sheds light on the underpinnings of this phenomenon. Specifically, we show that the binding values suppress sensory consumption through feelings of shame. And a large volume of research has documented the behavioral and psychological consequences of shame (Schaumberg & Skowronek, 2022; Smith et al., 2002; Sznycer et al., 2012; Tangney et al., 1996, 2007). As such, we can utilize this stream of research to generate additional predictions for the operation of

sensory suppression. For instance, it is possible that the binding values lend people to moralize the self rather than the behavior. Further, it is likely that shame associated with the sensory products might lead to maladaptive behaviors like hiding, avoidance, and distress. Hence, this understanding can help generate better interventions to counter sensory suppression and its negative consequences.

Furthermore, our research also demonstrates the contexts wherein the communities will engage in sensory consumption. We show that the effects of binding values on sensory consumption attenuate after moral licensing. Further, we also show that binding values increase sensory consumption when the products are framed as status products or when the sensory products are utilized for shared consumption. Thus, these results show that communities with binding values do partake in sensory consumption when they feel licensed to do so or when the consumption context aligns with the social-order moral motives. Thus, our findings suggest that the effects of binding values on sensory suppression are systematically predictable.

Our research also contributes to the understanding of how moral values shape attitudes, choices, and behaviors (Aquino & Reed, 2002; Feinberg et al., 2019; Goodwin, 2018; Inbar, 2018; Skitka, 2010). That is, a large stream of work has examined how moral values can influence downstream behaviors; however, none of the extant works have examined the relationship between moral beliefs and sensory pursuits. More closely, a growing stream of work in moral pluralism has examined how specific moral beliefs and motives can lead to divergent behavior patterns (Goenka & Thomas, 2020, 2022; Goenka & van Osselaer, 2019, 2021; Graham et al., 2009; Inbar et al., 2012; Janoff-Bulman & Carnes, 2013; Koleva et al., 2012; Mooijman et al., 2018). We build on this stream of research to show how a specific set of moral values (i.e., binding values) are responsible for inhibiting sensory consumption.

Relatedly, we contribute to the literature on pleasure pursuit (Alba & Williams, 2013; Frijda, 2009; Hirschman & Holbrook, 1982; Jordan, 2000; Kringelbach & Berridge, 2010; Rozin, 1999a). Several researchers have sought to understand the nature of sensory pleasures and why humans are hard-wired to pursue them. Some researchers have also explored why people might shun sensory pleasure (Cohen et al., 2014; Kim et al., 2013). However, this field remains at a nascent stage. Hence, our findings contribute to this emerging stream of work by empirically demonstrating one instance of how moral values can motivate people to suppress their pursuit of sensory pleasures.

Finally, these findings also produce some practical guidelines. As mentioned before, policymakers attempt to regulate sensory products like alcohol, tobacco, and recreational drugs in several countries. Our research can help these policymakers better understand the antecedents of why their representative communities might shun sensory consumption and thus help them design more effective regulatory laws.

Further, several large commercial organizations sell sensory products worldwide (Krishna, 2012). Our findings can help these organizations understand which societies might be less receptive to sensory consumption. Importantly, our findings show that the aversion to sensory consumption can be mitigated by reframing the product as status consumption. Organizations can reframe their sensory product with a status positioning to boost sales in Asian countries and conservative communities. Support for this notion can be seen through the marketing strategies of some liquor brands. Many liquor brands position their products by emphasizing taste and flavor in Europe; however, the same brands tend to position their products as luxury items in China by emphasizing the quality, craftsmanship, and exclusivity of the products (Chow & Burkitt, 2015). Hence, following suit with this strategy, our findings suggest

that organizations should be cognizant of how some cultures might be averse to sensory consumption and reposition their products accordingly.

Limitations and Future Directions

This research is the first step in examining the moral inhibition of sensory consumption. As such, our work presents some limitations and offers several avenues for future research. First, while we demonstrate two proximal drivers of sensory suppression (prescriptive beliefs and shame), undoubtedly, the effect must be driven by other concurrent processes. Thus, future research can explore how other mechanisms like rationalization and processing style might influence the effect of binding values on sensory consumption (Blanken et al., 2015; Greene & Haidt, 2002). Moreover, subsequent work can explore how moral values influence the physiological arousal of sensory pleasure (Cheng et al., 2013). If the binding values reduce the desire for sensory consumption, do they also reduce the physiological response (i.e., salivation and brain activation patterns) to the sensory products?

Relatedly, our research has been limited to examining sensory consumption in relation to social order morality and social justice morality. Our examination is not comprehensive for all forms of morality that might influence sensory pursuits. For instance, it could be the case that people who tend to endorse a utilitarian reasoning style also inhibit sensory consumption when it does not serve the greater good (see Singer, 2017, for example). Hence, future research can explore various complementary processes and moral mindsets to complete our understanding of how morality influences sensory consumption.

Further, our research is limited in its scope of sensory pleasures examined. As mentioned previously, we focused on examining sensory pleasures through preferences for sensory products. Of course, people also seek sensory pleasures through non-consumption behaviors like

sexual activities. Therefore, we encourage future research to explore the link between moral values and sensory pursuits through other types of behaviors.

Finally, we stress that our research is descriptive, not prescriptive, in nature. That is, we show that the binding values can meaningfully suppress sensory consumption. However, we cannot conclude whether this inhibition produces any benefits or harm to individuals and societies. While the moral philosophies outlined previously (Dalai Lama, 2012; Gandhi, 1948; Marx, 1844; Mill, 1863; Pope Francis, 2017) would argue that sensory pleasures are harmful to society, our findings cannot speak to these claims. Thus, future research can explore how sensory suppression influences subjective well-being in the short-term and long-term to complete the understanding of the hedonic consequences. Furthermore, research can also explore how sensory suppression impacts social institutions, economic growth, and other welfare metrics to realize the merits and demerits of sensory suppression more comprehensively.

Conclusion

The present research is a beginning step in understanding this widespread phenomenon of sensory suppression. We sought to understand why some societies embrace sensory consumption while other societies shun sensory consumption. We explain this paradox by identifying how one specific set of moral values (i.e., binding values) is invoked to suppress sensory pursuits in these societies. Importantly, we show how the moral beliefs adopted by these individuals and societies can meaningfully alter consumption preferences and produce significant consequences for an economy. Thus, this research suggests that moral economics—the study of the interplay of moral values and economic decisions—is a promising new domain at the intersection of philosophy, psychology, and economics that can offer fascinating insights into people's behaviors.

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Table 1

Regression using Binding Values to Predict Country-Level Sensory Consumption (Study 1)

	B	*SE*	*t*	*p*
Intercept	2.54	.14	17.96	<.001
Binding Values	-.45	.08	-5.53	<.001
Individualizing Values	-.02	.08	-.23	.822
Year (2008-2012)	-.01	.01	-1.22	.221
GDP (per capita)	.50	.07	6.79	<.001
Product Category Dummies		*Yes*		
Covariance Parameters	*B*	*SE*	*Z*	*p*
Residuals	.37	.01	26.99	<.001
Country Variance	.35	.07	5.05	<.001
R^2		.49		

Note: The table above reports the output for a linear mixed model regression analysis. The per-capita spending on sensory products in the country was the outcome variable. The prevalence of binding values in the country was the focal predictor. The model shows that binding values predict lower spending on sensory products.

Table 2

Regression using Binding Values to Predict Sensory Consumption (Study 2)

	Model 1				Model 2			
	B	*SE*	*t*	*p*	*B*	*SE*	*t*	*p*
Intercept	3.34	.39	8.66	<.001	1.98	.63	3.13	.002
Binding Values	-.34	.09	-3.90	<.001	-.70	.12	-5.88	<.001
Individualizing Values	.60	.09	7.03	<.001	.68	.09	7.46	<.001
Female	-.09	.17	-.60	.548	-.25	.16	-1.50	.134
Age	-.01	.01	-1.61	.109	-.01	.01	-1.99	.047
Race (White)	-.41	.20	-2.00	.046	-.43	.19	-2.16	.031
Education	.09	.07	1.28	.201	.05	.07	.77	.445
Income	-.00	.02	-.15	.880	-.01	.02	-.26	.798
Collectivism					.08	.10	.79	.428
Political (Conservative)					.21	.05	3.79	<.001
Religiosity					.16	.05	3.38	<.001
Product Replicate Dummies			*Yes*				*Yes*	
Covariance Parameters	*B*	*SE*	*Z*	*p*	*B*	*SE*	*Z*	*p*
Residuals	4.79	.09	54.99	<.001	4.79	.09	54.99	<.001
Person Variance	2.52	.19	12.94	<.001	2.32	.18	12.77	<.001
R^2			.09				.09	

Note: The table above reports the output for two linear mixed model regression analyses. The desirability for sensory products is the outcome variable. In Model 1, binding values was the focal predictor. The model shows that binding values predict less desire for sensory products. In Model 2, we included collectivism, political orientation, and religiosity as controls. The model again shows that binding values predict less desire for sensory products.

Table 3

Regression analysis to Predict Sensory Consumption (Study 5)

	B	*SE*	*t*	*p*
Intercept	3.34	.33	10.05	<.001
Moral Licensing	.34	.13	2.55	.011
Binding Values	-.34	.09	-3.51	<.001
Binding * Moral Licensing	.50	.13	3.75	<.001
Individualizing Values	.44	.07	6.56	<.001
Gender (Female)	-.59	.13	-4.34	<.001
Age	-.02	.01	-3.56	<.001
Race (White)	-.03	.17	-.17	.870
Education	.04	.06	.66	.513
Income	-.00	.02	-.26	.797
Product Replicate Dummies			*Yes*	
Covariance Parameters	*B*	*SE*	*Z*	*p*
Residuals	4.79	.07	64.32	<.001
Person Variance	2.29	.15	14.96	<.001
R^2			.08	

Note: The table above reports the output for a linear mixed model regression analysis. The desirability for sensory products is the outcome variable. The model shows that binding values predict a lower desire for sensory products; however, this effect is attenuated after moral licensing.

Table 4

Regression using Binding Values to Predict Sensory Consumption (Study 6)

	B	*SE*	*t*	*p*
Intercept	4.48	.34	13.24	<.001
Framing Type (Status)	-.14	.14	-.99	.324
Binding Values	-.34	.10	-3.27	.001
Binding * Status	1.16	.15	7.92	<.001
Individualizing Values	.11	.07	1.52	.130
Gender (Female)	-.05	.15	-.35	.726
Age	-.01	.01	-1.29	.195
Race (White)	-.21	.17	-1.25	.212
Education	.09	.06	1.53	.126
Income	-.01	.02	-.26	.797
Product Replicate Dummies		*Yes*		
Covariance Parameters	*B*	*SE*	*Z*	*p*
Residuals	3.84	.11	35.25	<.001
Person Variance	2.01	.17	11.79	<.001
R^2		.05		

Note: The table above reports the output for a linear mixed model regression analysis. The desirability for products is the outcome variable. The model shows that binding values predict a lower desire for products when they are framed as sensory products, but binding values predict a greater desire for products when they are framed as status products.

Table 5

Regression using Binding Values to Predict Sensory Consumption *(Study 7)*

	B	*SE*	*t*	*p*
Intercept	4.55	.37	12.16	<.001
Consumption Type (Shared)	.09	.16	.63	.532
Binding Values	-.41	.11	-3.69	<.001
Binding * Shared	.87	.16	5.50	<.001
Individualizing Values	.34	.08	4.20	<.001
Gender (Female)	.27	.16	1.67	.094
Age	-.04	.01	-4.98	<.001
Race (White)	.34	.19	1.72	.086
Education	.00	.07	.08	.940
Income	-.00	.02	-.18	.861
Product Replicate Dummies		*Yes*		
Covariance Parameters	*B*	*SE*	*Z*	*p*
Residuals	5.17	.16	31.56	<.001
Person Variance	2.05	.20	10.26	<.001
R^2		.06		

Note: The table above reports the output for a linear mixed model regression analysis. The purchase intention for products is the outcome variable. The model shows that binding values predict lower purchase intentions for personal sensory products but greater purchase intentions for shared sensory products.

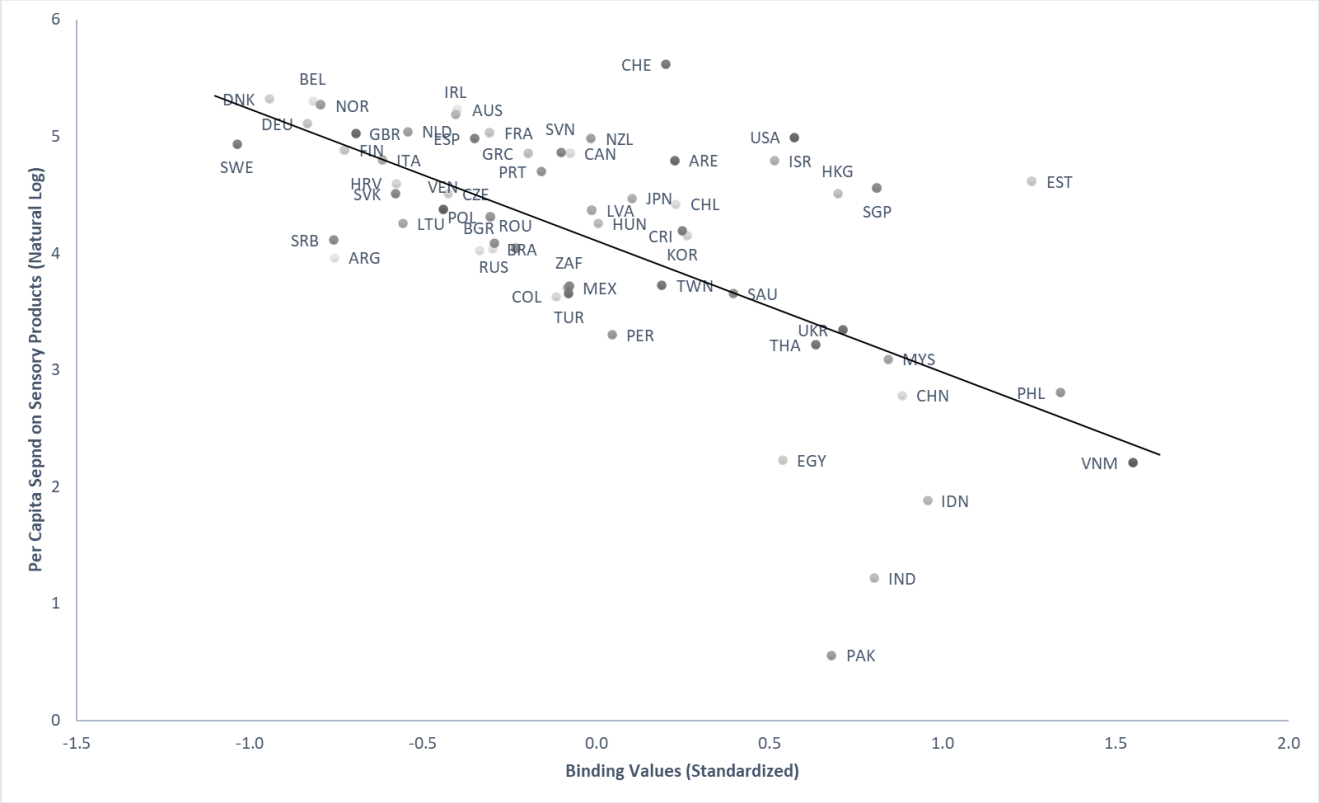


Figure 1. Binding values and sensory consumption across countries (Study 1). Each data point represents per capita spending in one country aggregated across the five sensory products and aggregated across the five years. Vertical axis represents the USD per-capita spending values (natural logarithmic transformation). Horizontal axis represents standardized scores of the binding values. The data show that countries with stronger binding values are less likely to spend on sensory products.

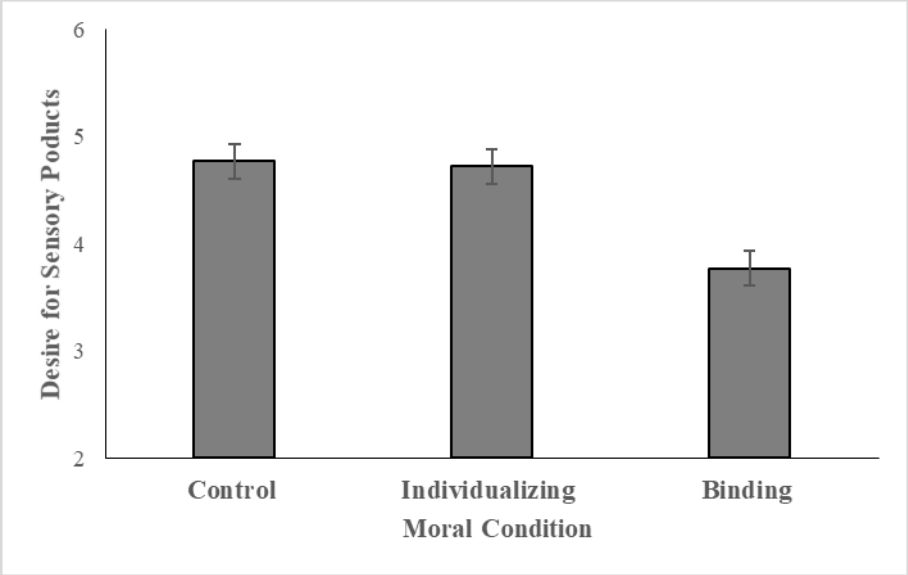


Figure 2. The effect of moral primes on desire for sensory products (Study 3). Values on vertical axis represent the desire for sensory products. The horizontal axis represents the different moral conditions. Errors bars represent ± 1 SE. The data show that participants in the binding condition demonstrate a lower desire for sensory products.

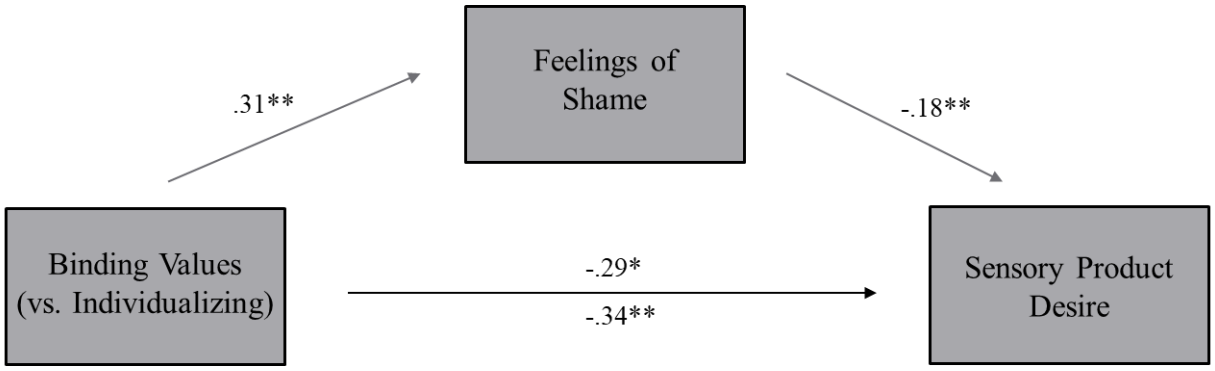


Figure 3. Mediation pathway shows that feelings of shame mediate the effect of binding values on the desire for sensory products (Study 4A). Standardized coefficients are reported. Values above the line represent the direct effect, and values below the line represent the total effect. *p < .05, **p < .01.

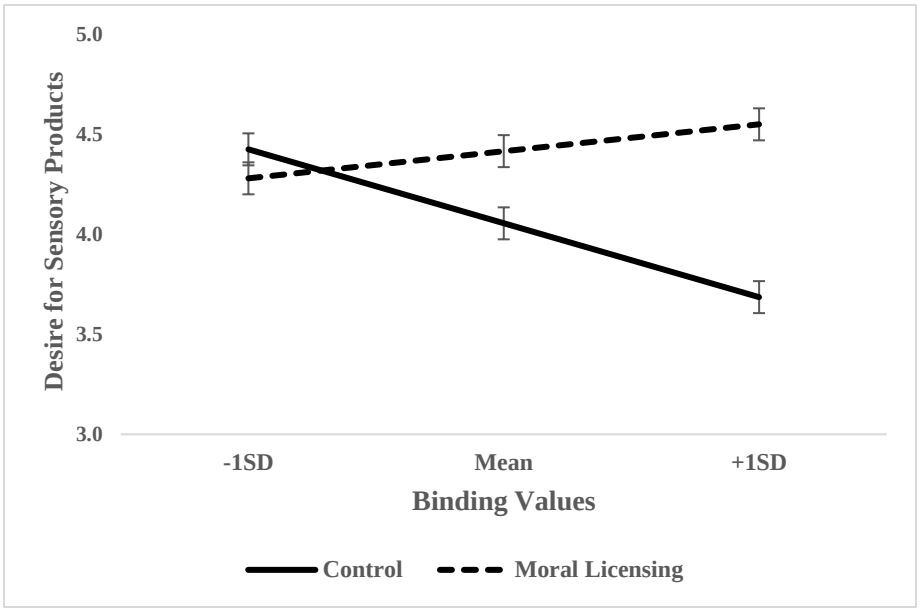


Figure 4. Binding values and desire for sensory products (Study 5). Values on the vertical axis represent the regression predicted values of desirability for sensory products. The horizontal axis represents trait-level binding values. Errors bars represent ± 1 SE. The data show that binding values predict lower desirability for sensory products in the control condition, but this effect is attenuated in the moral licensing condition.

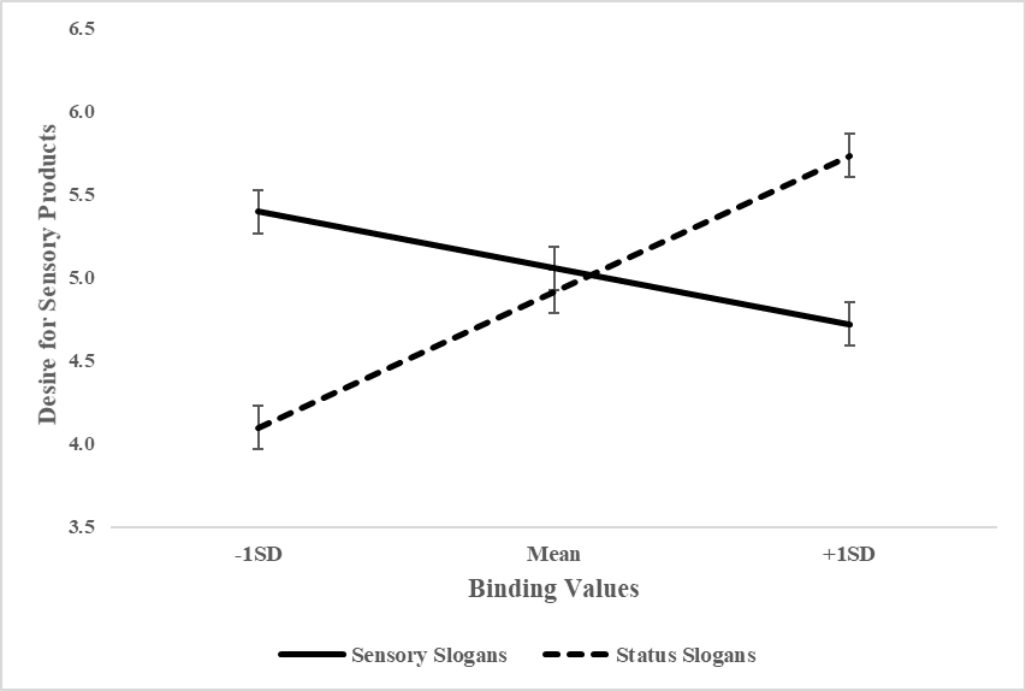


Figure 5. Binding values and desire for sensory products (Study 6). Values on vertical axis represent the regression predicted values of product desirability. The horizontal axis represents trait-level binding values. Errors bars represent ± 1 SE. The data show that binding values predict lower desirability for products framed as sensory products, but binding values predict greater desirability when they are framed as status products.

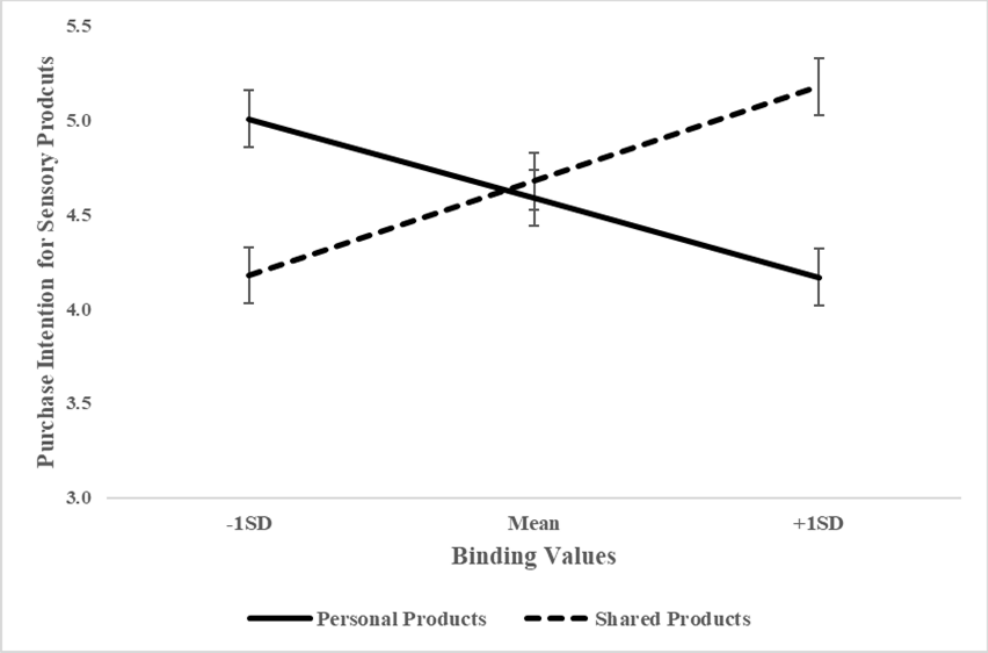


Figure 6. Binding values and purchase intentions for sensory products (Study 7). Values on vertical axis represent the regression predicted values of purchase intention. The horizontal axis represents trait-level binding values. Errors bars represent ± 1 SE. The data show that binding values predict lower purchase intention for personal sensory products but greater purchase intentions for shared sensory products.

When is Sensory Consumption Immoral?

Supplemental Online Materials

*This document provides detailed descriptions for all study procedures. It also includes all wording for manipulations and results for pretests and manipulation checks. Finally, it includes all supplementary analyses.

Study 1 SOM

Descriptive Statistics: Per Capita Spending

Variable	N	Mean	SD
Carbonated Drinks	305	101.26	77.19
Caffeinated Drinks	305	40.59	25.51
Alcohol	305	551.16	421.88
Tobacco	305	225.62	153.33
Fragrances	305	19.08	14.77
All Sensory Products	1525	187.54	282.48
Per-Capita GDP	305	27760.64	15814.74

Note: Final dataset represents data for 61 countries x 5 years = 305 data points. All values are reported in annual per-capita USD.

Descriptive Statistics: Moral Foundations Scale Scores

Variable	N	Mean	SD
Binding Values	305	3.55	.23
Individualizing Values	305	1.99	.33

Note: The scale is 0: Strongly Disagree - 5: Strongly Agree

Correlation Matrix

	Bind.	Indiv.	Sens. Prod	GDP
Binding Values	-			
Indiv. Values	.03	-		
Sensory Products *(per capita USD)*	-.16***	.02	-	
GDP *(per capita USD)*	-.22***	-.06*	.32***	-

Note: *$p < .05$, **$p < .01$, ***$p < .001$

Correlations for Individual Product Categories

We also see that the correlation pattern holds for the eight products individually.

Product Category	Correlation with Binding Values
Tobacco	-.32***
Alcohol	-.33***
Carbonated Drinks	-.32***
Caffeinated Drinks	-.32***
Fragrances	-.20***

Correlations with Binding Moral Values Subscales

The three subscales for binding values scales reveal a similar pattern of correlations as the composite scale. That is, authority (r = -.14, p < .001), loyalty (r = -.11, p < .001), and purity (r = -.18, p < .001) are negatively correlated with the spending on the sensory product categories.

Regression on Neutral Products

To confirm that the observed results are particular to sensory products, we also conducted a regression analysis using some neutral products. That is, we picked the four product categories – toiletries, shoes, electronics, and stationary - that do not typically provide sensory pleasures. First, we see that the binding values was not significantly correlated with these products: toiletries (r = .04, p = .542), shoes (r = .10, p = .183), electronics (r = .06, p = .456), stationary (r = .05, p = .512).

Then, we performed a regression using the natural logarithmic transformed values of the per-capita spending of the four product categories as the dependent variable. The table below reports the results of this regression analysis. We see no predictive effect of the binding values on these products.

	B	*SE*	*t*	*p*
Intercept	1.68	.10	16.37	<.001
Binding Values	-.01	.02	-.48	.634
Year (2008-2012)	-.03	.01	-3.16	.002
GDP per capita	.61	.05	12.21	<.001
Product Replicates		*Yes*		
Covariance Parameters	*B*	*SE*	*Z*	*P*
Residuals	.12	.01	22.12	<.001
Country Variance	.18	.04	4.94	<.001

Study 2 SOM

Moral Domains Measure

Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of personality and social psychology*, 101(2), 366-385.

Product Stimuli

The following 15 products were presented individually, in a randomized order.

1. Coke
2. Mountain Dew
3. Pepsi
4. Snapple Iced-Tea
5. Starbucks Coffee
6. Red Bull
7. Bud Light Beer
8. Red Wine Bottle
9. Grey Goose Vodka
10. Juul Vape
11. Scented Candle
12. Aromatherapy Diffuser
13. Perfume
14. Vibrator
15. Fleshlight

Below each product was the question –

How desirable do you find this product? (1: Not at All; 9: Extremely) *Slider Scale*

Prescriptive Beliefs Measure

Now, we are interested in understanding how people derive pleasure from products. People can use products to derive Sensory Pleasure.

Sensory Pleasure - Sensory pleasures are obtained from the five senses in our physical body (e.g. taste, touch, smell). We can consume products for sensory pleasures. For example, eating food can provide sensory pleasure through our taste buds and smell receptors. Drinking alcohol and smoking tobacco provide sensory pleasures. Similarly, sex toys can provide sensory pleasure through our erogenous zones.

Please respond to the following question –

I think people should try to reduce their desire for sensory pleasure”
(1: Strongly Disagree; 9: Strongly Agree)

Attention Check

On the next page, you will be asked to enter a keyword. Please enter this keyword: Attention. Do not choose any choice below, and continue onto the next page.

Paper
Chair
Plants
Grocery
Floor

On next page

Please provide the keyword you were given on the previous page in the space below:
_____

Participants who did not enter the keyword 'attention' were removed from the sample.

Demographic Questions

What is your Gender?
Male (0), Female (1)

What is your age? (years)
Drop down menu – with options starting from 18, 19, 20……65+

Please indicate your political views on the scale below, arranged from extremely liberal (left) to extremely conservative (right). Where would you place yourself on this scale?
Slider Scale 1: Extremely Liberal ----- 7: Extremely Conservative

I see myself as someone who is very religious
1: Strongly Disagree ---- 7: Strongly Agree

What is the highest level of education you have completed?
1: Less than High School
2: High School/GED
3: Some College
4: 2-year College
5: 4-year College
6: Masters Degree
7: Doctoral Degree
8: Professional Degree (JD, MD)

What is your Race? (check all that apply)
White/Caucasian
African American
Hispanic
Asian
Native American
Pacific Islander
Other

What is your combined annual household income?
Drop down menu with choices starting from under $20K, $20-$29K, $30-39K….150K+

Descriptive Statistics

Means and Standard Deviations

	M	*SD*
Sensory Product Desirability	4.43	2.97
Individualizing Values	4.72	.87
Binding Values	3.52	1.21
Prescriptive Beliefs Measure	3.30	2.42
Gender (1=Female, 0 = Male)	.52	.50
Age	21.34	11.09
Education	4.27	1.28
Race (1=White, 0=Other)[1]	.79	.40
Income	5.90	3.68
Political Orientation (Conservative)	3.63	1.75
Religiosity	3.42	2.15
Collectivism	4.63	.98

[1] White = 79.4%, African-American = 6.9%, Hispanic = 3.5%, Asian = 6.2%, Native = 0.7%, Other/Bi-Racial = 3.2%

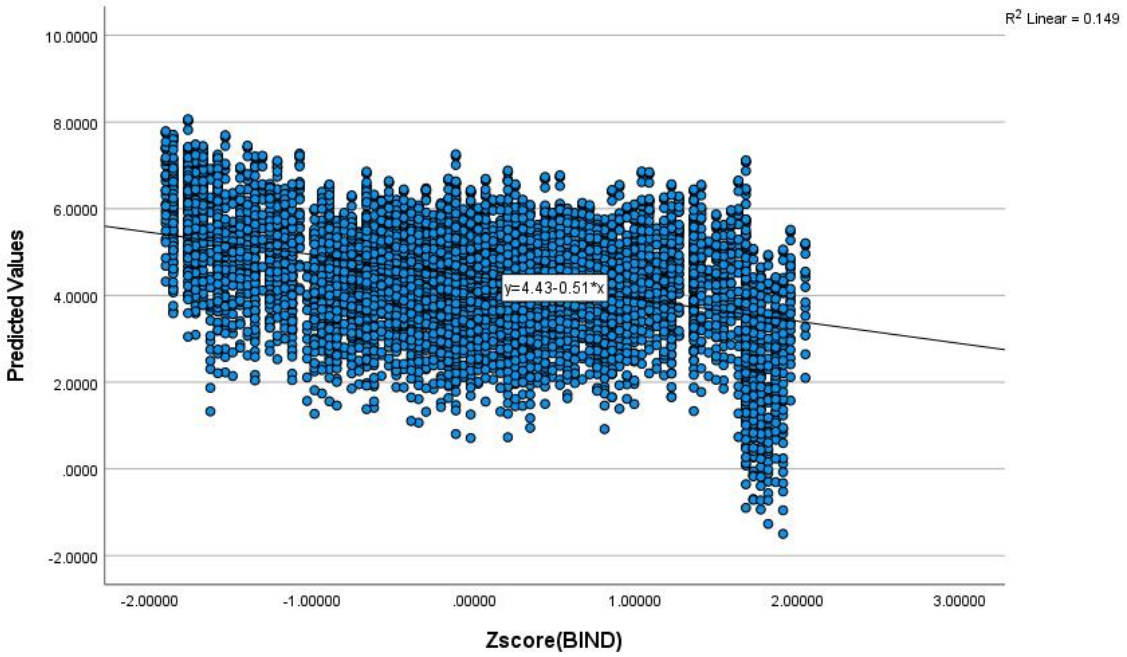
Correlation Table

	Sen. Des	Indiv	Bind	Presc. Bel.	Coll	Pol	Rel
Sensory Product Desire	-						
Individualizing Values	.23***	-					
Binding Values	-.17***	-.25***	-				
Prescriptive Beliefs	-.19***	-.34***	.53***	-			
Collectivism	-.00	.19***	.51***	.19***	-		
Political Orientation	-.02	-.33***	.44***	.26***	.08**	-	
Religiosity	-.001	-.15***	.56***	.35***	.26***	.44***	-

*$p < .05$, **$p < .01$, ***$p < .001$

Graphs

The scatter plot below graphs the predicted values from the regression analysis (reported in main text) against the binding values. The graph shows that the binding values predicts less desire for sensory products.



Correlations with Binding Moral Values Subscales

The three subscales for binding values scales reveal a similar pattern of correlations as the composite scale. That is authority (r = -.29, p < .001), loyalty (r = -.24, p < .001), and purity (r = -.24, p < .001) are negatively correlated with the desire for sensory products.

Mediation Analysis

```
Model  : 4
    Y  : ProductD (Average Product Desire for all 15 products)
    X  : ZBIND  (Standardized Binding Values Score)
    M  : MoralPle (Prescriptive Beliefs)

Sample
Size:  6495

**************************************************************************
OUTCOME VARIABLE:
 MoralPle

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .534       .285      4.198   2590.544      1.000   6493.000       .000

Model
             coeff         se          t          p       LLCI       ULCI
constant     3.296       .025    129.630       .000      3.246      3.345
ZBIND        1.294       .025     50.897       .000      1.244      1.344

**************************************************************************
OUTCOME VARIABLE:
 ProductD

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .207       .043      8.416    146.038      2.000   6492.000       .000

Model
             coeff         se          t          p       LLCI       ULCI
constant     4.978       .068     73.010       .000      4.845      5.112
ZBIND        -.298       .043     -6.991       .000      -.381      -.214
MoralPle     -.166       .018     -9.451       .000      -.201      -.132

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 ProductD

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .173       .030      8.531    200.032      1.000   6493.000       .000

Model
             coeff         se          t          p       LLCI       ULCI
constant     4.431       .036    122.263       .000      4.360      4.502
ZBIND        -.513       .036    -14.143       .000      -.584      -.442

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
c_cs
     -.513       .036    -14.143       .000      -.584      -.442      -.173      -
.173

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
c'_cs
```

```
      -.298       .043     -6.991       .000      -.381      -.214      -.100      -
.100

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
MoralPle      -.215       .023      -.261      -.169

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
MoralPle      -.072       .008      -.088      -.057

Completely standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
MoralPle      -.072       .008      -.088      -.057

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:  5000
```

Study 3 SOM

Moral Values Primes

These primes are taken from

Mooijman, M., Meindl, P., Oyserman, D., Monterosso, J., Dehghani, M., Doris, J. M., & Graham, J. (2018). Resisting Temptation for the Good of the Group: Binding Moral Values and the Moralization of Self-Control. *Journal of Personality and Social Psychology, 115*(3), 585–599

Individualizing Condition

Sostoras was a great cultural hero of ancient Sumer. Sostoras was a decorated warrior, but more than anything, his fame derived from his reputation as a man of exceptional character. Throughout his life, Sostoras showed unwavering concern for the well-being of others, as well as a ceaseless respect for justice and fairness.
As a result of his superior moral standing in Sumer, Sostoras was eventually awarded a small kingdom of his own to rule. For 50 years, Sostoras worked tirelessly to improve himself and his kingdom by cultivating the character and virtuousness of himself and his citizens. When Sostoras finally died, his kingdom was known throughout Sumer as a bastion for compassion, fairness, and equality.

Binding Condition

Sostoras was a great cultural hero of ancient Sumer. Sostoras was a decorated warrior, but more than anything, his fame derived from his reputation as a man of exceptional character. Throughout his life, Sostoras showed unwavering loyalty and patriotism, as well as a ceaseless respect for traditions. He was also considered a true holy man on account of his deep and lasting piousness and chasteness.
As a result of his superior moral standing in Sumer, Sostoras was eventually awarded a small kingdom of his own to rule. For 50 years, Sostoras worked tirelessly to purify himself and his kingdom by cultivating the character and virtuousness of himself and his citizens. When Sostoras finally died, his kingdom was known throughout Sumer as a bastion of purity, respect for tradition, and loyalty.

Control Condition

Sostoras was a man who lived in ancient Sumer. Sostoras was a pottery producer. Throughout his life, Sostoras enjoyed talking about the events of the day with other people. As a result of living in Sumer, Sostoras was a Sumerian citizen. This gave him the right to own, and cultivate, land. It is unclear to historians whether Sostoras took advantage of this right.

Attention Check

1. Where did Sostoras live?
   A. India B. China C. Sumer D. Norway

2. What was Sostoras's occupation?
   A. Warrior B. Potter C. Fisherman D. Sailor

3. What was Sostoras known for? (check all that apply)
   a) Pottery
   b) Compassion, Fairness, Equality
   c) Purity, Respect for Traditions, and Loyalty

Participants were removed if they got the first question wrong.

Product Stimuli

Same as Study 2

Prescriptive Beliefs Measure

Same as Study 2

Means of Individual Products

The means reported in the manuscript are aggregate sensory products and aggregate status products. The table below reports the means for each of the fifteen products. We see a similar pattern across all the sensory products.

	Control	**Individualizing**	**Binding**
Coke	5.44	5.89	4.20
Mountain Dew	3.68	3.45	2.63
Pepsi	4.19	4.18	3.28
Iced Tea	5.06	5.37	3.76
Coffee	6.40	6.15	5.86
Red Bull	3.47	3.26	2.58
Beer	4.34	4.48	3.61
Wine	5.45	5.55	4.59
Vodka	5.47	5.56	4.53
Juul	3.08	3.39	2.23
Candle	6.91	6.29	5.32
Aromatherapy	5.70	5.11	4.37
Perfume	5.91	5.39	4.55
Vibrator	3.74	3.58	2.85
Flesh Light	2.66	3.12	2.21
AVG SENSORY PRODUCTS	**4.77**	**4.72**	**3.77**

Racial Breakdown

White = 75.7%,
African-American = 1.5%,
Hispanic = 3.1%,
Asian = 12.7%,
Native = 0.7%,
Other/Bi-Racial = 6.9%

Mediation Analysis

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.5.3 ***************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : AVGSENSO (Average Desire for 15 sensory products)
    X  : DummBind (Binding Values Condition = 1; Else = 0)
    M  : MoralPle  (Prescriptive Beliefs)

Sample
Size:  260

**************************************************************************
OUTCOME VARIABLE:
 MoralPle

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .201       .040      4.366     10.822      1.000    258.000       .001

Model
              coeff         se          t          p       LLCI       ULCI
constant      3.289       .156     21.118       .000      2.982      3.596
DummBind       .924       .281      3.290       .001       .371      1.476

Standardized coefficients
              coeff
DummBind       .434

**************************************************************************
OUTCOME VARIABLE:
 AVGSENSO

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .480       .230      1.879     38.368      2.000    257.000       .000

Model
              coeff         se          t          p       LLCI       ULCI
constant      5.684       .169     33.679       .000      5.352      6.017
DummBind      -.707       .188     -3.763       .000     -1.078      -.337
MoralPle      -.286       .041     -6.995       .000      -.366      -.205

Standardized coefficients
              coeff
DummBind      -.455
MoralPle      -.391

************************ TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 AVGSENSO

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .289       .083      2.228     23.452      1.000    258.000       .000
```

```
Model
              coeff         se          t          p       LLCI       ULCI
constant      4.745       .111     42.643       .000      4.526      4.964
DummBind      -.971       .201     -4.843       .000     -1.366      -.576

Standardized coefficients
              coeff
DummBind      -.624

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
      -.971       .201     -4.843       .000     -1.366      -.576      -.624

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
      -.707       .188     -3.763       .000     -1.078      -.337      -.455

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
MoralPle      -.264       .100      -.477      -.088

Partially standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
MoralPle      -.170       .061      -.297      -.059
```

Study 4A SOM

Moral Values Primes

Same as Study 3

Attention Check

Same as Study 3

Product Stimuli

Same as Study 2

Shame Measure

Now, we are interested in understanding how your emotions guided your product preferences.

When evaluating the products, to what extent do you feel the following emotions:

The products make me feel shameful
The products make me feel humiliated
The products make me feel disgraced

1: Not At All ---- 7: Extremely

Racial Breakdown

White = 81.7%
African-American = 5.9%,
Hispanic = 2.8%,
Asian = 6.2%,
Native = 0.3%,
Pacific Islander = .03%
Other/Bi-Racial = 2.8%

Mediation Analysis

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.0 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : AVGProdu (Average desire for 15 products)
    X  : MoralCon (Binding condition = 1, Individualizing condition = 0)
    M  : SHAMEAVG (Measure of feelings of shame)

Sample
Size:  289

**************************************************************************



OUTCOME VARIABLE:
 SHAMEAVG

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .153       .024      1.818      6.915      1.000    287.000       .009

Model
              coeff         se          t          p       LLCI       ULCI
constant      1.714       .110     15.515       .000      1.496      1.931
MoralCon       .417       .159      2.630       .009       .105       .730

Standardized coefficients
              coeff
MoralCon       .306

**************************************************************************
OUTCOME VARIABLE:
 AVGProdu

Model Summary
          R       R-sq        MSE          F        df1        df2          p
       .249       .062      2.698      9.491      2.000    286.000       .000

Model
              coeff         se          t          p       LLCI       ULCI
constant      4.902       .182     26.869       .000      4.543      5.262
MoralCon      -.484       .196     -2.472       .014      -.869      -.099
SHAMEAVG      -.228       .072     -3.166       .002      -.369      -.086

Standardized coefficients
              coeff
MoralCon      -.286
SHAMEAVG      -.183

************************* TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 AVGProdu

Model Summary
          R       R-sq        MSE          F        df1        df2          p
```

```
       .171       .029      2.783      8.687      1.000    287.000       .003

Model
              coeff         se          t          p       LLCI       ULCI
constant      4.512       .137     33.020       .000      4.243      4.781
MoralCon      -.579       .196     -2.947       .003      -.965      -.192

Standardized coefficients
              coeff
MoralCon      -.342

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps
      -.579       .196     -2.947       .003      -.965      -.192      -.342

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps
      -.484       .196     -2.472       .014      -.869      -.099      -.286

Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
SHAMEAVG      -.095       .054      -.223      -.012

Partially standardized indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
SHAMEAVG      -.056       .031      -.128      -.007

*********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

------ END MATRIX -----
```

Study 4B SOM

Manipulation

Control

In this study, we are interested in examining preferences for sensory products.
Sensory products are those products that are used for sensory pleasures like food, alcohol, sex toys, etc.
You will see a series of such products. Please respond to the questions that follow.

Shame Condition

In this study, we are interested in examining preferences for sensory products.
Sensory products are those products that are used for sensory pleasures like food, alcohol, sex toys, etc.
Many people find these products to be shameful. That is, many people are ashamed to purchase these products or use these products. They feel that using sex toys, smoking, and drinking alcohol is disgraceful and should be avoided. Some even say that using these products can feel humiliating.
You will see a series of such products. Please respond to the questions that follow.

Product Stimuli

Same as Study 2

Shame Manipulation Check

Same three-item shame measure from Study 5A

Attention Check

Same as Study 2

Racial Breakdown

White = 85.5%
African-American = 5.4%,
Hispanic = 2.9%,
Asian = 4.0%,
Native = 0.4%,
Other/Bi-Racial = 1.8%

Study 5 SOM

Moral Domains Measure

Same as Study 2

Manipulation

Control Condition

Please recall the events of a typical day in your life. Write 4-5 sentences in the box below.

Moral Licensing Condition

Please recall a time within the past week when you acted in such a way that you felt righteous or honorable. Describe the event in detail below (4-5 sentences).

Product Stimuli

Same as Study 2

Descriptive Statistics

Means and Standard Deviations

	M	*SD*
Product Desirability	4.23	2.89
Individualizing Values	4.78	.71
Binding Values	3.49	1.11
Gender (1=Female, 0 = Male)	.50	.50
Age	23.74	11.13
Education	4.53	1.26
Race (1=White, 0=Other)[1]	.79	.41
Income	6.39	3.88

[1] White = 79.28%, African-American = 7.64%, Hispanic = 1.87%, Asian = 5.09%, Native = 0.34%, Other/Bi-Racial = 5.77%

Correlation Table

	Control	Licens.	Indiv	Bind
Product Desire (Control)	-	-		
Product Desire (Licensing)	-	-		
Individualizing Values	.04*	.26***	-	
Binding Values	-.12***	.05**	.04**	-

*p < .05, **p < .01, ***p < .001

Replication Study

We ran a previous version of this study, using the same procedure, which also found convergent results (with a marginally significant interaction). The study was preregistered (https://osf.io/frw2t).

Method.
We recruited 498 U.S. residents (M_{age} = 38.80 years; 55.66% female; 80.5% White) online through MTurk in exchange for a small compensation. All other procedure was identical to the study reported in the main manuscript.

Results
Four participants did not respond to the writing prompt and were excluded from the analysis as preregistered, resulting in 494 participants in the final data analysis.

We performed a regression analysis using linear mixed models. The desirability ratings of the products (i.e., fifteen repeated measures per participant) were regressed on the standardized binding scale, a dummy variable identifying the two conditions (0 = Control, 1 = Moral Licensing) and their interaction term. Further, we also included standardized individualizing values and demographics as covariates – age, gender (female = 1, male = 0), income, education level, race (white = 1, not white = 0). Dummy variables for product replicates were included, and individual participants were treated as random effects to control for unobserved heterogeneity across the responses.
We see that the interaction between the binding values scale and the condition dummy is marginally significant (B = .25, SE = .14, t = 1.86, p = .064, 95% CI [-.01, .52]). Analyses of simple slopes revealed that people who have stronger binding values show less desirability for the sensory products in the control condition (Simple Slope: B = -.25, SE = .09, t = -2.61, p = .009, 95% CI [-.44, -.06]). This effect was attenuated in the moral licensing condition, as binding values no longer predicted lower desirability for the sensory products (Simple Slope: B = -.00, SE = .09, t = -.01, p = .992, 95% CI [-.19, .19]).

Regression analysis to Predict Sensory Consumption (Replication Study)

	B	*SE*	*t*	*p*
Intercept	3.21	.32	10.09	<.001
Moral Licensing	.39	.14	2.83	.005
Binding Values	-.25	.09	-2.61	.009
Binding * Moral Licensing	.25	.14	1.86	.064
Individualizing Values	.36	.07	5.24	<.001
Gender (Female)	-.16	.14	-1.18	.237
Age	-.03	.01	-4.46	<.001
Race (White)	-.09	.17	-.53	.594
Education	-.01	.05	-.26	.796
Income	.01	.02	.72	.474
Product Replicate Dummies			*Yes*	
Covariance Parameters	*B*	*SE*	*Z*	*p*
Residuals	5.16	.09	58.75	<.001
Person Variance	1.91	.15	13.17	<.001

Hence, this replication finds convergent results as the study reported in the main manuscript.

Study 6 SOM

Moral Domains Measure

Same as Study 2

Product Stimuli

Participants saw six products that were framed to be either sensory or status consumption. The table below lists the six products along with the accompanying slogans in either framing condition.

PRODUCT	SENSORY SLOGAN	STATUS SLOGAN
Boylan Cola	The Cold Crisp Taste of Boylan Cola	Hand Crafted Premium Cola
La Colombe Coffee	Perfect Cup of Smooth Full-Bodied Coffee	Gourmet Small Batch Coffee
Grey Goose Vodka	A Complexity of Flavors and Sensations with Every Sip	Drink Luxury
Polo Sweater	Made with the Softest Cashmere for Cozy Warmth	Show your Style with Polo
L'Occitane Shampoo	Soft Silky Hair with a Citrus Scent	Crafted with the finest ingredients to create an impact
Creed Perfume	Refreshing Scent of Sun-Kissed Citrus and Rich Musk	Sophisticated Scent, Fit for Royalty

Participants saw the six products individually, in randomized order. Below each product was the question:

How desirable do you find this product? (1: Not at All; 9: Extremely) *Slider Scale*

Descriptive Statistics

Means and Standard Deviations

	M	*SD*
Sensory Product Desirability	5.05	2.52
Status Product Desirability	4.93	2.51
Individualizing Values	4.86	.71
Binding Values	3.54	1.10
Gender (1=Female, 0 = Male)	.49	.50
Age	21.32	11.20
Education	4.49	1.27
Race (1=White, 0=Other)[1]	.72	.45
Income	6.61	4.03

[1] White = 72.1%, African-American = 8.6%, Hispanic = 4.6%, Asian = 12.4%, Native = 0.6%, Other/Bi-Racial = 1.6%

Correlation Table

	Sen. Des	Stat. Des	Indiv	Bind
Sensory Product Desire	-	-		
Status Product Desire	-	-		
Individualizing Values	.07**	.04	-	
Binding Values	-.14***	.33***	.07**	-

*$p < .05$, **$p < .01$, ***$p < .001$

Correlations with Binding Moral Values Subscales

The three subscales for binding values scales reveal a similar pattern of correlations as the composite scale. That is authority ($r = -.21$, $p < .001$), loyalty ($r = -.17$, $p = .007$), and purity ($r = -.18$, $p = .005$) are negatively correlated with the desirability for products with sensory framing. But authority ($r = .49$, $p < .001$), loyalty ($r = .47$, $p < .001$), and purity ($r = .35$, $p < .001$) are positively correlated with the desirability for products with status framing.

Study 7 SOM

Moral Domains Measure

Same as Study 2

Product Stimuli

Participants saw five products that were framed to be either personal or shared consumption. The table below lists the five products along with the accompanying slogans in either condition.

PERSONAL CONSUMPTION	SHARED CONSUMPTION
<single chocolate> Indulge yourself with the finest Lindt Chocolate	<Box of Chocolates> Indulge the Family with the Finest Lindt Chocolates
<single coke bottle> The Cold Crisp Taste of Coke	<Two Coke Bottles> Share the Cold Crisp Taste of Coke with a Friend
<Single Beer Bottle> Budweiser: Smooth Refreshing Taste	<Six Pack of Beer> Budweiser: The Smooth Refreshing Taste Makes Parties Fun
<Vibrator and Flesh light> Adult Toys for Your Pleasure	<Vibrating Penis Ring> Pleasure For Both: A Toy to Spice Up Your Relationship
<Candle> Relax yourself with a Soothing Scented Candle	<Candle> Aphrodisiac Love Potion to Spark Romance

Participants saw the six products individually, in randomized order. Below each product was the question

How likely are you to purchase this product? (1: Not at All; 9: Extremely) *Slider Scale*

Product Pretest

We recruited 101 participants through Mturk to complete the Pretest. Half the participants saw the five personal consumption products, and the other half of the participants viewed the five shared consumption products. For each product participants rated:

To what extent does this product provide sensory pleasure? Slider Scale 1-9

To what extent is this product shared/used with other people? Slider Scale 1-9

We performed a repeated measures ANOVA with the five sensory ratings as the dependent variable and the condition as the independent variable. We see that participants viewed the personal products (M = 6.77) and the shared products (M = 6.73) to provide similar levels of sensory pleasure ($F(1, 99) = .02$, $p = .882$). Thus, products in both conditions were considered to be sensory to a similar extent.

We performed another repeated measures ANOVA with the five sharing ratings as the dependent variable and the condition as the independent variable. We see that participants viewed the shared products (M = 6.82) as more likely to be shared with others than the personal use products (M = 4.43; $F(1, 99) = 68.99$, $p < .001$).

Descriptive Statistics

Means and Standard Deviations

	M	*SD*
Personal Product Purchase Intention	4.59	2.93
Shared Product Purchase Intention	4.68	2.95
Individualizing Values	4.78	.75
Binding Values	3.45	1.11
Gender (1=Female, 0 = Male)	.47	.49
Age	21.80	11.52
Education	4.45	1.33
Race (1=White, 0=Other)[1]	.78	.42
Income	6.23	3.81

[1] White = 77.8%, African-American = 8.2%, Hispanic = 4.4%, Asian = 7.4%, Native = 0.6%, Other/Bi-Racial = 1.6%

Correlation Table

	Pers	Shared	Indiv	Bind
Personal Product Purchase	-	-		
Shared Product Purchase	-	-		
Individualizing Values	.08**	.16***	-	
Binding Values	-.17***	.16***	.06**	-

*$p < .05$, **$p < .01$, ***$p < .001$

Correlations with Binding Moral Values Subscales

The three subscales for binding values scales reveal a similar pattern of correlations as the composite scale. That is authority ($r = -.27$, $p < .001$), loyalty ($r = -.26$, $p < .001$), and purity ($r = -.25$, $p < .001$) are negatively correlated with the purchase for personal sensory products. But authority ($r = .29$, $p < .001$), loyalty ($r = .20$, $p = .001$), and purity ($r = .17$, $p = .006$) are positively correlated with the purchase for shared sensory products.