



Self-regulatory processes underlying structural stigma and health



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ABSTRACT

In this article, we examine self-regulatory processes that are initiated by structural stigma. To date, the literature on self-regulation as a mechanism that underlies stigma and health outcomes has focused primarily on harmful health-related behaviors that are associated with perceived discrimination. Numerous studies find that when people experience discrimination, they are more likely to engage in behaviors that pose risks for health, such as overeating and substance use. However, a large body of literature also finds that low power – which is also a chronic, though often more subtle, experience for stigmatized groups – is associated with a heightened activation of inhibitory processes. This inhibition system has wide-ranging influences on cognition, behavior, and affect. We provide an overview of these two literatures, examine synergies, and propose potential implications for measurement and research design.

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Introduction

When people experience low status through social exclusion, discrimination, ostracism, or other related processes, they are less able to maintain attention, resist temptation, and persist at difficult tasks. These varied responses have collectively been described as failures to self-regulate, which has been defined as the capacity to control or alter one's responses (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Twenge, Catanese, & Baumeister, 2002), or disinhibition.

Despite numerous empirical studies finding that status threats are related to a reduced capacity to self-regulate, the scope of this research is narrowly focused. Several large-scale survey studies report associations between status threats and certain health behaviors (see Pascoe & Richman, 2009 for a review), but empirical findings on causal relationships are limited. The extant experimental research is primarily lab-based with non-stigmatized participants whose behavioral responses are measured after relatively mild and temporary status threats. For example, after being socially excluded, people perform worse on an assortment of self-regulation tasks (such as resisting unhealthy snack food and persisting on a frustrating puzzle) and pursue pleasurable activities despite the unfavorable long-term consequences (Baumeister et al., 2005). People are also more likely to procrastinate and engage in

other self-defeating behaviors after being excluded (Baumeister, Twenge, & Nuss, 2002; Twenge et al., 2002).

We propose that the empirical findings from the power literature can inform a broader understanding of how structural as well as interpersonal stigma affects health. The essential role of power in the stigmatization process has been a basic tenet of the stigma literature. Link and Phelan (2001) in their foundational *Conceptualizing Stigma* paper emphasized how power—social, economic, and political—is a critical ingredient in the production and enactment of stigma. They also noted that the degree of stigmatization that people experience will be profoundly shaped by the relative power of the stigmatized and the stigmatizer. Yet, power has been given little attention in the health disparities literature; individual's perceptions of social power are often not incorporated in analyses exploring disparities in health between advantaged and disadvantaged groups.

One particularly relevant theoretical perspective involves low power and the behavioral inhibition system. Several studies demonstrate that, when people feel relatively powerless, the behavioral inhibition system (BIS) is activated. The BIS has been likened to an alarm system that, once activated by threats or potential punishments, triggers heightened vigilance for threats, avoidance, action suppression, and negative affect (Anderson & Berdahl, 2002; Carver & White, 1994). In contrast, when people feel powerful, the behavioral approach system (BAS) is activated. This motivational system regulates behavior associated with rewards, and corresponds with seeking opportunities and engaging in behaviors that are related to reward outcomes such as safety, social attachment, and achievement. This “approach-inhibition” theory of power (Keltner, Gruenfeld, & Anderson, 2003) has

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generated a large body of empirical findings that substantiate and elaborate the original theory.

A full understanding of the ways structural stigma affects health behavior requires attention to the links between stigma and power, and the potential implications for inhibition and basic cognitive, behavioral, and affective processes. Previous work on health and stigma has primarily focused on discrimination and status, whereas a consideration of power highlights that stigma affects an individual's ability to attain desired outcomes, with consequences for health behavior. In addition, perceptions of low power may occur outside experiences of social exclusion or discrimination and may occur in more subtle, yet consistent and pervasive ways.

Studies have examined how power activation operates at an implicit level by varying such things as posture, gestures, clothing, and vertical positioning among non-stigmatized groups. Certain postures, for example, are associated with different levels of power. A comprehensive meta-analysis of nonverbal displays of power and other hierarchical processes showed that people associated this dimension of “verticality” with more bodily openness, smaller interpersonal distances, and certain features of speech such as heightened expressiveness, volume, and variability (Hall, Coats, & LeBeau, 2005). Given these assumptions that people hold about nonverbal displays of power, even posing in such postures for short periods of time reliably produces nonconscious internalization of different levels of power. In one study, posing for one minute in either a low-power posture, which was created by a contractive posture with arms and legs crossed, versus a high-power expansive posture with open arms and uncrossed legs, was causally related to neuroendocrine responses (Carney, Cuddy, & Yap, 2010). Similarly, Schubert and Koole (2009) found that making a fist led men to adopt more powerful self-concepts. Clothing, such as wearing a doctor's coat (Adam & Galinsky, 2012), and vertical position (Schubert, 2005) have also been used to nonconsciously activate power in an interaction.

More frequently, empirical studies use explicit manipulations of power imbalances. For example, researchers may vary people's experiences of power by role assignments such as acting as either the boss (or other type of leadership role) or employee (or the follower or non-decision maker) on a joint task. In this way, participants may temporarily have the experience of high or low power.

These experimental studies demonstrate the relatively mild ways in which power has been manipulated in the lab. For the most part, they mirror the ubiquitous experiences that people encounter from time to time. We may sometimes be the one who makes decisions or otherwise exerts power, and other times, we respond to decisions or commands made by someone else. For stigmatized groups, however, experiences of relative powerlessness occur frequently and across multiple contexts and are not balanced or somehow offset by high power experiences. Although these effects occur at the interpersonal level, as when interacting with a potential employer or during encounters with the medical system, restrictive laws and policies directed at stigmatized groups (e.g., same sex marriage laws) can also signal low power even in the absence of interpersonal interactions. As we will describe, chronic experiences of low power predict a heightened activation of inhibition-related processes that influence cognition, behavior, and affect and have important implications for downstream health effects.

Power and status

The terms power and status are often used synonymously, but distinctions between the terms have implications for our proposed framework. Power has most frequently been conceptualized as

social influence stemming from asymmetrical control over valued resources that are physical (i.e., food and safety), economic (i.e., money and employment opportunities), or social (i.e., acceptance and support; Fiske, 1993, 2010). This conceptualization emphasizes that power is a social construct that emerges in interpersonal interaction and is exercised primarily via direct interpersonal influence. This definition does not map on well to many indirect forms of power relevant to intergroup relations such as institutional racism. Thus, we favor a definition of power suggested by Vescio and Guinote (2010) who conceptualized it as a force that emerges as one seeks desired outcomes in light of the social and nonsocial opportunities and constraints in the environment. By use of this definition, power dynamics can be understood as operating at the structural level, through governmental policies directed at disadvantaged groups. For example, state level bans on same sex marriage (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010), and imposed limitations on voting privileges for individuals diagnosed with a mental illness (Corrigan, Markowitz, & Watson, 2004). Also, power can be considered at the interpersonal level as with apparent power imbalances when a boss and employee or doctor and patient interact.

Alternatively, status is the term most commonly used in reference to stigma and is defined as the social value of a person or group (Fiske, 2010). By virtue of their position in a social hierarchy, members of marginalized groups such as the uneducated, poor, or overweight have lower status than their more educated, wealthy, thin, or otherwise better socially situated counterparts. Status dynamics also play out in the interpersonal relations among people. The belief that others hold about whether someone possesses resources and/or personal characteristics that are important for the achievement of collective goals also influences perceptions of status (see Leary, Jongman-Sereno, & Diebels, 2014). Members of stigmatized groups are unlikely to be viewed as contributors to these goals (Kurzman & Leary, 2001). Structural and interpersonal stigma, combining experiences of both a diminished control over resources and a devalued social identity, are defined by both low power and low status (also see Phelan, Lucas, Ridgeway, & Taylor, 2014).

Inhibitory-related processes and implications for disinhibition

Structural stigma creates environments that have increased threat, punishment, lack of resources, and other social constraints. Such environments should dispose people to elevated activity of processes that are related to the inhibition system. In this section, we review evidence that these experiences of low power promote a more active inhibition system. For each of the outcomes—cognition, behavior, and affect—we draw connections with possible health implications. We also emphasize connections between the power and stigma literature, focusing in particular on the interaction of inhibitory and disinhibitory tendencies that occur in response to low power and low status among stigmatized groups.

Attention and information processing

People attend to and process information differently depending on their level of power in an interaction. Attention strategies and goals are in part determined by asymmetrical outcome dependence—the extent one person or group must rely on another to achieve desired outcomes (see Russell & Fiske, 2010, for review). The powerless, whose outcomes can be greatly affected by the decisions and actions of those in power, are especially attuned to the powerful and are likely to engage in effortful, deliberate, and accuracy-oriented impression formation processes (Russell & Fiske,

2010). Relative to high-power people, for example, those in low-power positions are better at taking the perspectives of their interaction partners (Galinsky, Magee, Inesi, & Gruenfeld, 2006). On the other hand, people with higher power, whose outcomes are relatively impervious to the actions of those with lower power, have little reason to attend to and individuate members of a lower power outgroup. Such differential attention provides members of the lower power group with a more diverse and individuated perception of those in power. This orientation can also be instrumental to increasing personal agency and control among those low in power (van Dijke & Poppe, 2006).

Effortful information processing on the part of those low in power, though adaptive, can also have some negative consequences. Specifically, when the low powered are acutely focused on the characteristics and intentions of the high-powered, their capacity to attend to and process other information is limited (Guinote, 2007a; see also Guinote, 2007b). For low power groups, considering a wide scope of information may be adaptive in achieving control within their environment (Weick, Guinote, & Wilkinson, 2011), but it may also impair the ability to stay task-focused; multiple sources of information create multiple sources of action control and less clear priorities (see Kuhl, 1986). In a series of studies, Smith and Trope (2006) found that compared with people who were primed for high power, those primed for low power were less able to extract the gist from information presented to them and were less likely to see the “big picture” by synthesizing and connecting pieces of information to higher level goals.

Attentional flexibility, the ability to transition attention in a way that directs processing toward relevant information as situations and task demands change, is also affected by relative power position. For example, when people are low in power, they tend to get distracted by peripheral information. When asked to perform a multi-step strategy task that required switching between goals and subgoals, Smith, Jostman, Galinsky, and Van Dijk (2008) found that low-power people were less able to update current goal focus and ignore irrelevant goals and consequently did not perform as well as high power or control group participants. When participants completed a visual processing task requiring directed attention to a central target while presenting peripheral information, Guinote (2007a, 2007b) found that those in the high-powered role were able to differentiate and selectively focus upon relevant information and were less affected by irrelevant peripheral cues. Comparatively, individuals in low power positions attended to the central and peripheral cues equally, presumably because they needed to allocate their attention more broadly to capture both threat and task-related information. Consequently, those in the high power role demonstrated more proficiency at the task.

The disproportionate attention that people with low relative power pay to those with higher power is relevant for the health behaviors and outcomes of stigmatized groups. These considerations are particularly important in the context of encounters in the medical system when the perceived potential for discrimination is high. Burgess, Warren, Phelan, Dovidio, and van Ryn (2010) provided compelling evidence that minority patients often have concerns about being stereotyped as unintelligent, “second class citizens” and undeserving of adequate care. Concerns about identity management can also be cognitively taxing, leaving fewer resources available for other cognitive demands. Indeed, research on social identity threat—when people anticipate that they will be devalued in a particular context—suggests similar conclusions. When women were shown images depicting a math, science, and engineering professional conference that was either gender-balanced or gender-unbalanced (social identity threat condition), women showed more vigilance (to both the details of the conference images (i.e., they could recall and recognize more details of the

conference) and to cues in their physical context, compared with women who watched the gender-balanced images. Potential targets allocated *more* attention towards identity-relevant cues in order to assess the likelihood of encountering identity threat in a specific math, science and engineering setting (Murphy, Steele, & Gross, 2007). Making a stigmatized status salient also promotes heightened vigilance toward signs of potential threat (Kaiser, Vick, & Major, 2006).

The implication for stigmatized groups is that the attention paid to higher power others and impression management disrupts self-regulatory processes in other domains—including health-related domains. These self-regulatory deficits have been found to occur in response to structural stigma even when people are not in an interpersonal interaction. As such, even being reminded of ones’ stigmatized status could activate these processes. After people were aware of their stigmatized status (African American at an achievement test), they experienced impaired functioning on both an attentional and physical self-regulation task, relative to people who did not have high stigma saliency (Inzlicht, McKay, & Aronson, 2006). Similarly, Johnson, Richeson, and Finkel (2011) examined the self-regulatory consequences of having a low SES background in the setting of an elite university. They found that increasing stigma saliency caused participants to be less able to regulate their eating behavior and attentional resources compared to when their stigma was not salient. These studies suggest institutional policies that create environments in which people are made highly aware of their stigmatized status may exert similar effects on behaviors that require self-regulatory capacity.

Attention and information processing play a critical role in health behaviors. The strategic ways in which attention is allocated regulates motives and behaviors that are adaptive but can also limit the ability to process other information, such as health-relevant information that a doctor may communicate. In clinical encounters, a lower capacity to focus attention could translate into a decreased ability to process information and follow treatment instructions. These decrements can have direct effects on treatment outcomes, particularly for cases in which complicated procedures are communicated to patients (e.g., asthma or diabetes control). Poor health literacy is an enduring issue in patient care. When people have difficulty understanding and using health information, they are more likely to take medicines on erratic schedules, miss follow-up appointments, and not understand instructions they receive from health professionals (Parker et al., 1999).

Behavioral responses

The cognitive effects of low power also have implications for behavioral outcomes. Operating as a feedback loop, low power increases cognitive demands that then decrease performance on cognitively challenging tasks. For low power groups, poor performance is often regarded as a result of motivational losses. However, viewed through the lens of low power, these deficits may instead reflect difficulties in focusing and keeping important goals in working memory (e.g., Smith et al., 2008). Diminished performance can lead to a cycle in which people feel less efficacious about their ability to achieve their goals, such as medical treatment adherence, and are less proficient at their attempts to fulfill them. In a correlational study, Lattanner and Richman (2012) found that lower generalized sense of power (the amount of control a person has in achieving desired outcomes, e.g., “I can get people to listen to what I say; I can get others to do what I want”) was related to impairments in cognitive processes that are essential for goal pursuit and behavior, such as the successful completion of daily activities. In a survey study of approximately 200 adults residing in the U.S., Lattanner and Richman found significant associations between

perceived low power and general cognitive failures including lapses in attention, focus, and memory that interfere with daily tasks. In addition, low power was related to the ability to initiate and maintain intentions and actions. Those who reported lower power had increased preoccupation following setbacks, heightened hesitation when making decisions, and lower persistence on tasks.

The ways in which low power directly impairs effective goal pursuit also has implications for health outcomes. Making sound health related decisions often relies upon the formation of and successful adherence to health-related goals. In a set of studies, [Guinote \(2007c\)](#) found that compared to participants in high power positions, those in low power spent more time deciding upon a course of action to take when forming goal intentions. In addition, when deciding on the appropriate time to initiate goal directed behaviors, participants in low power positions reported longer delays before initiating goal-directed action demonstrating a tendency to procrastinate. Once goal directed action was initiated on a challenging task, low power similarly affected goal attainment. Participants in low power positions showed lower persistence on the task and were less creative in generating novel solutions to successfully solve the task. The impact of low power on goal pursuit has further been demonstrated by [Guinote \(2008\)](#), who found that participants in a position of low power were less able to take advantage of situational affordances beneficial for goal completion. This finding parallels the impaired ability to selectively differentiate between information and resources that would be applicable to goal achievement. The inhibition system that is linked with powerlessness is also associated with behavioral avoidance and withdrawal of effort. Some experimental evidence suggests that low power predicts a lower likelihood to take action ([Galinsky, Gruenfeld, & Magee, 2003](#)). The behavioral avoidance and reluctance to take action that is associated with the inhibition system of low power can also translate to reluctance to or delay in seeking care for health issues or greater passivity in doctor–patient interactions.

Studies on status threats and impairments in self-regulation have largely focused on people who do not have a stigmatized identity. However, evidence suggests that similar effects occur for stigmatized groups. Physiologically, subtle and chronic forms of discrimination have been posited as a source of stress that impacts health by over-activation of physiological systems (e.g., elevated blood pressure, heart rate, cortisol secretions), and these heightened physiological responses over time can increase vulnerability to illness and have downstream adverse effects on health ([Pascoe & Richman, 2009](#)). Perceived discrimination has been linked to specific physical health problems such as hypertension, self-reported poor health, and breast cancer as well as potential risk factors for disease such as obesity, high blood pressure, and substance use (e.g., [Williams & Mohammed, 2009](#), for a review).

Experiences of discrimination based on race, social class, sexual orientation, or other social identities are also associated with engagement in risky health behaviors that have clear links to disease outcomes. For example, increases in reports of everyday and lifetime discrimination are associated with increased weight gain. [Cozier, Wise, Palmer, and Rosenberg \(2009\)](#) examined the association of perceived racism with weight change over the course of eight years among black women and found that weight gain increased as levels of everyday and lifetime racism increased. An examination of participants' eating patterns shows that the mean scores of everyday racism were positively associated with frequency of consuming fast food, suggesting the potential for self-regulatory deficits in response to discrimination. Perceived racial discrimination is also associated with other health risk behaviors such as alcohol use and smoking. [Martin, Tuch, and Roman \(2003\)](#) found that reported discrimination was a strong predictor of heavy drinking among employed African Americans, even after

controlling for socioeconomic position, and reports of discrimination were associated with consuming more alcoholic beverages per week in the CARDIA dataset ([Borrell et al., 2007](#)).

People engage in health-compromising behaviors following discrimination as a means to cope with the aversive experience and reduce stress responses (e.g., [Williams & Mohammed, 2009](#); see [Brondolo, Brady Ver Halen, Pencille, Beatty, & Contrada, 2009](#) for a review of coping strategies in response to racism). Some evidence also suggests that the increased tendency to engage in risky behaviors reflects a more general disinhibition that occurs in response to discrimination in which short-term gains are favored over long-term goals. People become more oriented toward health compromising behaviors, and efforts to refrain from temptations are more difficult. These responses may occur automatically ([Richman, Boynton, Constanzo, & Banas, 2013](#)) and may be mediated by affective responses such as anger (e.g., [Gibbons et al., 2010](#)).

In a meta-analysis of perceived discrimination and a variety of health behaviors, including alcohol use and abuse, smoking behavior, substance use, good health habits (e.g., sleep, diet, and exercise), medication adherence, missing doctor appointments, and eating behaviors and attitudes, [Pascoe and Richman \(2009\)](#) found that the perception of discrimination was broadly related to an increase in unhealthy behaviors and/or a decrease in healthy behaviors. Pascoe and Richman proposed that the association between discrimination and health behaviors could represent a breakdown in an individual's ability to self-regulate when faced with health-related decisions or situations following experiences of discrimination.¹ In addition, to the extent that people prioritize healthy living as a desired goal state, chronic lapses in meeting these goals can contribute to depression and anxiety ([Strauman, 2002](#)). Thus, when people experience self-regulatory failure in their efforts to resist tempting food or substances, mental as well as physical health may be negatively affected. However, we also note that [Jackson, Knight, and Rafferty \(2010\)](#) found that unhealthy behaviors (smoking, drinking, and being obese) have some protective effects on mental health for African Americans.

Emotion regulation

The heightened activation of the behavioral inhibition system in response to low power also suggests certain affective tendencies. Since the inhibition system makes selective attention to threat (versus rewards and opportunities) more likely, low power promotes attention to negative affect in other people. During a dyadic decision-making task, for example, participants who were in a low power position perceived negative, threat-related emotions from their partner. When participant ratings were compared with the actual ratings offered by their partner, low power participants thought their partner held more anger, contempt, and disgust toward them than they actually did. In contrast, those in high power underestimated the level of negative emotions their partner felt toward them ([Anderson & Berdahl, 2002](#)). In another dyadic interaction study, [Langer and Keltner \(2008\)](#) found that people high in power reported more positive affect and that people in low power reported more negative affect than their partners. In general, the evidence suggests that in low power situations, people have less positive affect and more negative affect than those in high power. Those in low power experience more fear, guilt, and shame,

¹ Although high self-control predicts effective engagement in positive health behaviors such as exercise and controlled caloric consumption (e.g., [Crescioni et al., 2011](#)), these behaviors are multiply determined. Additional macro-level processes are beyond the scope of this analysis.

whereas high-power individuals tend to experience more desire, enthusiasm, and pride (Keltner et al., 2003).

Power can also differentiate the degree to which people openly express their opinions and emotions (Berdahl & Martorana, 2006). In a study of power's effects on approach- or inhibition-oriented conversational behaviors, participants took on a randomly assigned leadership or subordinate role in a filmed group discussion about a controversial topic. The results of self-report and videotaped data revealed that the subordinates displayed less openness in expressing their true opinions and experienced more inhibition compared to power holders.

The findings on affective tendencies associated with inhibition are significant because epidemiological evidence suggests that negative emotions play an important role in the development of a variety of diseases, such as diabetes and hypertension. Depression, anxiety, and stress have been shown to increase the production of proinflammatory cytokines including IL-6 and C-reactive protein (CRP), which play a pathogenic role in a variety of diseases as well as self-rated health (Kiecolt-Glaser, McQuire, Robles, & Glaser, 2002). Furthermore, chronically high levels of negative emotions such as anxiety, anger, and depression are associated with adverse health behaviors such as smoking, excessive alcohol consumption, greater body mass, and lower physical activity (e.g., Kubzansky et al., 1997). Chronic attempts to inhibit the expression of negative emotion are also associated with increased sympathetic activation of the cardiovascular system and decreases in positive emotional experiences (Gross, 2002).

Stigmatized status is also associated with more negative emotional responses. Cote and Moskowitz (2002) found that individuals experienced lower positive mood and higher unpleasant mood in a low-status condition compared with an equal-status and high status condition; one study used an event-contingent recording methodology to study affect in everyday life, and the other used an experimental manipulation of status. Discrimination as a result of a stigmatized status is an aversive experience. The relationship between stigma-related stress and adverse mental health outcomes is well documented. Mental health indicators include decreased well-being and life satisfaction and increased generalized distress. Clinical diagnosis of mental health outcomes such as depression and generalized anxiety disorders are associated with experiences of discrimination (Pascoe & Richman, 2009; Williams, Neighbors, & Jackson, 2003).

Affective components of response inhibition suggest a potential mechanism by which stigma affects mental health. Emotion regulation strategies are a key to understanding the stigma-distress relationship. Hatzenbuehler, Nolen-Hoeksema, and Dovidio (2009) found that the strategies stigmatized people use to manage their emotional responses affect their degree of distress. In a daily diary study, people tended to ruminate about and suppress their emotional responses more frequently on days in which they experienced discrimination. Furthermore, on days when people indicated that they responded to discrimination by ruminating, they were more likely to experience distress. These findings suggest that certain regulatory strategies that occur more frequently among stigmatized groups also increase vulnerability to adverse mental health outcomes.

Summary

Considering the effects of structural stigma in terms of both threats to power and status allows for a more complete understanding of how inhibitory-related processes and disinhibition underlie health risk behaviors and downstream adverse health outcomes for stigmatized groups. Low power encourages a heightened attunement to social threats, careful and controlled

cognition during decision making, socially constrained behavior, and negative affect, which are all associated with acts of inhibition. The evidence suggests that the consequences of chronic response inhibition may be broad and pervasive, including impairment on tasks that rely on cognitive functioning, depletion of resources needed for self-control, as well as altering self-regulatory orientations of goal pursuit. Increased negative affect and decreased emotion expression can also have a cumulative, deleterious impact over time. The heightened vulnerability to many health-risk behaviors such as overeating, smoking, and alcohol consumption among low power, low status groups can be understood in terms of activation of the inhibition system, which affects the capacity for effortful self-regulation.

Limitations

Our framework has limitations that should be mentioned. Empirical studies in the power literature primarily use laboratory-based manipulations of power with non-stigmatized participants. The impact that chronic states of low power may have on stigmatized groups is less clear. The proposed framework addresses only the proximal cognitive, behavioral, and affective responses that increase risk for downstream negative health outcomes. Currently, few measures are designed to assess chronic forms of power over longer periods of time. Further, the ways in which members of stigmatized groups experience low power and manage these experiences varies. These differences are not fully captured in the state of the current power literature. Finally, the empirical evidence that informs our framework primarily stems from studies that were not focused on health related outcomes, nor were they carried out within a health relevant context. Although we suggest that the evidence from these studies can be applied to health relevant situations, there are dynamics unique to health care settings in which power differentials may be necessary and potentially beneficial. For example, within a doctor–patient interaction, a doctor perceived as more powerful may also be perceived as more competent, and these two influences may combine in ways that increase self-efficacy for the patient. However, the same power differential could result in the patient feeling overly dependent upon the doctor and as a result, less likely to take control of his or her treatment. Our model does not yet address the complexity of how this type of dynamic might function over time.

Future directions

Our framework suggests several avenues for future research that examines mechanisms underlying structural stigma and health outcomes. We encourage further research that is focused on the interplay between inhibition and disinhibition that is activated by structural stigma. An emphasis on the interaction of both responses more fully represents the range of self-regulatory processes that are affected by structural stigma. Some research questions may examine how subtle indications of low power inhibit effective health maintenance behaviors and promote risky behaviors and how vigilance to threat and decreased goal-directed behaviors combine to influence health practices.

Contexts in which there are well-documented power imbalances, such as doctor–patient interaction or other interfaces within the medical system in which health information is disseminated, are important to examine with regard to how self-regulatory mechanisms impact information processing. For example, when patients perceive that they may be evaluated according to stereotypes about their group, does attention to that potential threat impair their ability to communicate with the provider and

understand the medical information they receive? How does this process ultimately affect treatment adherence?

Another important area of future research is to examine the extent to which response inhibition predicts a selective focus on barriers or threats to achieving a given health goal. Further insight into how attention is allocated can inform the development of more effective health communication. Health-relevant information can be framed in terms of the benefits (gains) or costs (losses) associated with a particular behavior (Rothman & Salovey, 1997). Tailored messaging of health-related information that emphasizes loss aversion as opposed to gain framing may be more effective with stigmatized groups, although contextual factors also need to be measured.

The situational determinants of how certain emotion regulation strategies are adopted among stigmatized groups is another important avenue of future inquiry. Structural stigma may signal directly or indirectly that emotions can be expressed or suppressed. More empirical attention to the strategies people use to manage their emotional responses is needed in order to better understand the role of emotion regulation and mental health outcomes for stigmatized groups.

Lastly, we encourage the development of intervention strategies that are informed by the theoretical framework we have presented. Interventions that typically improve self-regulation, such as the formation of higher order goals and abstract reasoning are likely to have limited success when people are in positions of low power. To be effective, interventions aimed at promoting personal agency and control may hold promise for circumventing inhibitory response tendencies in the face of structural stigma.

Conclusions

When people are stigmatized, they are often denied access to resources by those who have power over them and experience social exclusion. These experiences of low power and status have implications for self-regulatory processes that have downstream effects on health outcomes. To date, these two literatures on responses to positions of relative low power and status have largely been considered separately, with little cross talk between the different theoretical perspectives. These literatures are located in different fields, with the power research mainly residing in the organizational behavior literature and far removed from the health domain, and the discrimination literature primarily focused in psychology and public health. To understand more fully the ways in which structural stigma impacts health, research needs to examine the role of inhibitory processes related to low power.

The empirical research on power has applicability to a wider range of contexts and levels of analysis than has been measured thus far. This research has been primarily conducted through laboratory-based studies that focus on the individual level of analysis. However, the findings suggest concrete, testable ways to measure the impact of the (often imperceptible) ways in which structural forms of stigma can come to influence well being of social disadvantaged groups. Inhibition and disinhibition should be considered central mechanisms by which stigma creates adverse health outcomes. Given that power is an inherent aspect of structural stigma, health disparities research can benefit from incorporating these findings.

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References

- Adam, H., & Galinsky, A. D. (2012). Enclotted cognition. *Journal of Experimental Social Psychology*, 48, 918–925.
- Anderson, C., & Berdahl, J. L. (2002). The experience of power. *Journal of Personality and Social Psychology*, 83, 1362–1377.
- Baumeister, R., DeWall, N., Ciarocco, N., & Twenge, J. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, 88, 589–604.
- Baumeister, R. F., Twenge, J. M., & Nuss, C. (2002). Effects of social exclusion on cognitive processes: anticipated aloneness reduces intelligent thought. *Journal of Personality and Social Psychology*, 83, 817–827.
- Berdahl, J. L., & Martorana, P. (2006). Effects of power on emotion and expression during a controversial group discussion. *European Journal of Social Psychology: Special Issue on Social Power*, 36, 497–510.
- Borrell, L. N., Jacobs, D. R., Williams, D. R., Pletcher, M. J., Houston, T. K., & Kiefe, C. I. (2007). Self-reported racial discrimination and substance use in the Coronary Artery Risk Development in Adults Study. *American Journal of Epidemiology*, 166(9), 1068–1079.
- Brondolo, E., Brady Ver Halen, N., Pencille, M., Beatty, D., & Contrada, R. J. (2009). Coping with racism: a selective review of the literature and a theoretical and methodological critique. *Journal of Behavioral Medicine*, 32(1), 64–88.
- Burgess, D. J., Warren, J., Phelan, S., Dovidio, J., & van Ryn, M. (2010). Stereotype threat and health disparities: what medical educators and future physicians need to know. *Journal of General Internal Medicine*, 25, 169–177.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: the BIS/BAS scales. *Journal of Personality and Social Psychology*, 67, 319–333.
- Carney, D. R., Cuddy, A. J. C., & Yap, A. J. (2010). Power posing: brief nonverbal displays affect neuroendocrine levels and risk tolerance. *Psychological Science*, 21, 1363–1368.
- Corrigan, P. W., Markowitz, F. E., & Watson, A. C. (2004). Structural levels of mental illness stigma and discrimination. *Schizophrenia Bulletin*, 30, 481–491.
- Côté, S., & Moskowitz, D. S. (2002). How are moods instigated at work? The influence of relational status on mood. In N. M. Ashkanasy, W. J. Zerbe, & C. E. J. Härtel (Eds.), *Managing emotions in the workplace* (pp. 111–134). Armonk, NY: M. E. Sharpe.
- Cozier, Y. C., Wise, L. A., Palmer, J. R., & Rosenberg, L. (2009). Perceived racism in relation to weight change in the Black Women's Health Study. *Annals of Epidemiology*, 19, 379–387.
- Crescioni, A. W., Ehrlinger, J., Alquist, J. L., Conlon, K. E., Baumeister, R. F., Schatschneider, C., et al. (2011). High trait self-control predicts positive health behaviors and success in weight loss. *Journal of Health Psychology*, 16, 750–759.
- van Dijke, M., & Poppe, M. (2006). Striving for personal power as a basis for social power dynamics. *European Journal of Social Psychology*, 36, 537–556.
- Fiske, S. T. (1993). Controlling other people: the impact of power on stereotyping. *American Psychologist*, 48, 621–628.
- Fiske, S. T. (2010). Interpersonal stratification: status, power, and subordination. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds.), *Handbook of social psychology* (5th ed.) (pp. 941–982). New York: Wiley.
- Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology*, 85, 453–466.
- Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science*, 17, 1068–1074.
- Gibbons, F. X., Etcheverry, P. E., Stock, M. L., Gerrard, M., Weng, C., Kiviniemi, M., et al. (2010). Exploring the link between racial discrimination and substance use: what mediates? What buffers? *Journal of Personality and Social Psychology*, 99, 785–801.
- Gross, J. (2002). Emotion regulation: affective, cognitive, and social consequences. *Psychophysiology*, 39, 281–291.
- Guinote, A. (2007a). Power affects basic cognition: increased attentional inhibition and flexibility. *Journal of Experimental Social Psychology*, 43, 685–697.
- Guinote, A. (2007b). Behaviour variability and situated focus theory of power. *European Review of Social Psychology*, 18, 256–295.
- Guinote, A. (2007c). Power and goal pursuit. *Personality and Social Psychology Bulletin*, 33, 1076–1087.
- Guinote, A. (2008). Power and affordances: when the situation has more power over the powerful than powerless individuals. *Journal of Personality and Social Psychology*, 95, 237–252.
- Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: a meta-analysis. *Psychological Bulletin*, 131, 898–924.
- Hatzenbuehler, M. L., McLaughlin, K. A., Keyes, K. M., & Hasin, D. S. (2010). The impact of institutional discrimination on lesbian, gay, and bisexual populations: a prospective study. *Research and Practice*, 100, 452–459.
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Dovidio, J. (2009). How does stigma “get under the skin”? The mediating role of emotion regulation. *Psychological Science*, 20, 1282–1289.
- Inzlicht, M., McKay, L., & Aronson, J. (2006). Stigma as ego depletion: how being the target of prejudice affects self-control. *Psychological Science*, 17, 262–269.
- Jackson, J. S., Knight, K. M., & Rafferty, J. A. (2010). Race and unhealthy behaviors: chronic stress, the HPA axis, and physical and mental health disparities over the life course. *American Journal of Public Health*, 100, 933–939.
- Johnson, S. E., Richeson, J. A., & Finkel, E. J. (2011). Middle class and marginal? The influence of socioeconomic status on the self-regulatory resources of

- students at an elite university. *Journal of Personality and Social Psychology*, 100, 838–852.
- Kaiser, C. R., Vick, S. B., & Major, B. (2006). Prejudice expectations moderate pre-conscious attention to cues that are threatening to social identity. *Psychological Science*, 17, 332–338.
- Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review*, 110, 265–284.
- Kiecolt-Glaser, J. K., McGuire, L., Robles, T. F., & Glaser, R. (2002). Emotions, morbidity, and mortality: new perspectives from psychoneuroimmunology. *Annual Review of Psychology*, 53, 83–107.
- Kubzansky, L. D., Kawachi, I., Spiro, A., III, Weiss, S. T., Vokonas, P. S., & Sparrow, D. (1997). Is worrying bad for your heart? A prospective study of worry and coronary heart disease in the Normative Aging Study. *Circulation*, 95, 818–824.
- Kuhl, J. (1986). Motivation and information processing: a new look at decision making, dynamic change, and action control. In R. M. Sorrentino, & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 404–434). New York, NY, US: Guilford Press.
- Kurzban, R., & Leary, M. R. (2001). Evolutionary origins of stigmatization: the functions of social exclusion. *Psychological Bulletin*, 127, 187–208.
- Langer, C. A., & Keltner, D. (2008). Social power and emotional experience: actor and partner effects within dyadic interactions. *Journal of Experimental Social Psychology*, 44, 848–856.
- Lattanner, M., & Richman, L. S. (2012). *Low power and cognitive failure: Implications for daily decision making*. Unpublished data.
- Leary, M. R., Jongman-Sereno, K., & Diebels, K. J. (2014). The pursuit of status: a self-presentational perspective on the quest for social value. In J. T. Cheng, J. L. Tracy, & C. Anderson (Eds.), *The psychology of social status*. New York: Springer (in press).
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27, 363–385.
- Martin, J. K., Tuch, S. A., & Roman, P. M. (2003). Problem drinking patterns among African Americans: the impacts of reports of discrimination, perceptions of prejudice, and “risky” coping strategies. *Journal of Health and Social Behavior*, 44, 408–425.
- Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat: how situational cues affect women in math, science, and engineering settings. *Psychological Science*, 18, 879–885.
- Parker, R. M., Williams, M. V., Weiss, B. D., Baker, D. W., Davis, T. C., Doak, C. C., et al. (1999). Health literacy: report of the council on scientific affairs. *Journal of the American Medical Association*, 281, 552–557.
- Pascoe, E. A., & Richman, L. S. (2009). Perceived discrimination and health: a meta-analytic review. *Psychological Bulletin*, 135, 531–554.
- Phelan, J. C., Lucas, J., Ridgeway, C., & Taylor, C. (2014). Stigma, status, and population health. *Social Science & Medicine*, 103, 15–23.
- Richman, L. S., Boynton, M. H., Costanzo, P., & Banas, K. (2013). Interactive effects of discrimination and racial identity on alcohol-related thoughts and use. *Basic and Applied Social Psychology*, 35, 396–407.
- Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: the role of message framing. *Psychological Bulletin*, 121, 3–19.
- Russell, A. M., & Fiske, R. T. (2010). Power and social perception. In A. Guinote, & T. Vescio (Eds.), *The social psychology of power* (pp. 231–250). New York: The Guilford Press.
- Schubert, T. W. (2005). Your highness: vertical positions as perceptual symbols of power. *Journal of Personality and Social Psychology*, 89, 1–21.
- Schubert, T. W., & Koole, S. L. (2009). The embodied self: making a fist enhances men’s power-related self-conceptions. *Journal of Experimental Social Psychology*, 45, 828–834.
- Smith, P. K., Jostman, N. B., Galinsky, A. D., & Van Dijk, W. W. (2008). Lacking power impair executive functions. *Psychological Science*, 19, 441–447.
- Smith, P. K., & Trope, Y. (2006). You focus on the forest when you’re in charge of the trees: power priming and abstract information processing. *Journal of Personality and Social Psychology*, 90, 578–596.
- Strauman, T. J. (2002). Self-regulation and depression. *Self and Identity*, 1, 151–157.
- Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2002). Social exclusion causes self-defeating behavior. *Journal of Personality and Social Psychology*, 83, 606–615.
- Vescio, T. K., & Guinote, A. (2010). Power: new understandings and future directions. In A. Guinote, & T. Vescio (Eds.), *The social psychology of power* (pp. 428–455). New York: The Guilford Press.
- Weick, M., Guinote, A., & Wilkinson, D. (2011). Lack of power enhances visual perceptual discrimination. *Canadian Journal of Experimental Psychology*, 65, 208–213.
- Williams, D. R., & Mohammed, S. A. (2009). Discrimination & racial disparities in health, evidence & needed research. *Journal of Behavioral Medicine*, 32, 20–47.
- Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: findings from community studies. *American Journal of Public Health*, 93, 200–208.