The Burden of Stigma on Health and Wellbeing: A Taxonomy of Concealment, Course, Disruptiveness, Aesthetics, Origin, and Peril across 93 Stigmas

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Abstract

Most individuals are stigmatized at some point. However, research often examines stigmas separately, thus underestimating the overall impact of stigma and precluding comparisons across stigmatized identities and conditions. In their classic text, *Social Stigma: The Psychology of Marked Relationships*, Edward Jones and colleagues laid the groundwork for unifying the study of different stigmas by considering the shared dimensional features of stigmas: aesthetics, concealability, course, disruptiveness, origin, peril. Despite the prominence of this framework, no study has documented the extent to which stigmas differ along these dimensions, and the implications of this variation for health and wellbeing. We reinvigorated this framework to spur a comprehensive account of stigma's impact by classifying 93 stigmas along these dimensions. With the input of expert and general public raters, we located these stigmas in a six-dimensional space and created discrete clusters organized around these dimensions. We then linked this taxonomy to health and stigma-related mechanisms. This quantitative taxonomy offers insights into understanding the relationship between stigma and health.

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Stigma is defined as an attribute or characteristic that is devalued in a particular social context (Crocker, Major, & Steele, 1998), serving to reduce an individual "from a whole and usual person to a tainted, discounted one" (Goffman, 1963, p. 3). When taking all stigmatized attributes into account, stigma affects a substantial segment of the U.S. population at any given time, with most individuals being stigmatized at some point in their lives. Noting that stigma directly affects nearly everyone, Goffman (1963) writes, "The issue becomes not whether a person has experience with a stigma of his own, because he has, but rather how many varieties he has had his own experience with" (p. 129). Indeed, stigma encompasses a wide range of highly prevalent personal attributes (e.g., old age, obesity, depression) as well as numerous highly impactful identities or health conditions (e.g., minority sexual orientation, physical disabilities, chronic illnesses). Various stigmatized attributes have been shown to undermine health and wellbeing through a host of shared mechanisms, such as limited access to structural resources (Hatzenbuehler, 2016), social isolation (Pachankis, 2007), maladaptive emotion regulation and coping behaviors (Hatzenbuehler, 2009; Williams, Neighbors, & Jackson, 2008), and stress exposure (Major & O'Brien, 2005; Meyer, 2003).

It is noteworthy, however, that the adverse effects of stigma on health and wellbeing vary significantly across stigmatized groups. For example, sexual minority individuals disproportionately experience a number of mental health problems relative to heterosexuals (e.g., depression and anxiety; Cochran & Mays, 2009; Meyer, 2003), whereas elevated rates of mental disorders are consistently not observed among African Americans (relative to Whites) despite the pervasiveness of racial discrimination (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005). Further, among people with mobility impairments, those with congenital disabilities report significantly higher self-esteem and life satisfaction than those with disabilities acquired later in life (Bogart, 2014). Such health discrepancies raise important, but largely unanswered, questions for stigma researchers: Which features of various stigmatized statuses contribute to their consistently adverse impact on health, and which features protect the stigmatized from negative health consequences? Does the time of onset for a stigmatized attribute reliably predict psychological outcomes beyond people with physical disabilities? More broadly, what dimensional features might unite or differentiate stigmatized statuses and explain their diverse impact on health and wellbeing?

These questions call for a comprehensive framework that objectively conceptualizes and measures a large set of stigmatized statuses along a number of dimensions. Such a framework would elucidate health discrepancies across different stigmatized groups by identifying specific dimensional features that make some stigmatized statuses more damaging to health and wellbeing than others. Additionally, it would advance research on stigma and health in several important ways. First, by describing a large array of stigmatized statuses along a limited number of shared dimensions, which could be further utilized to create relatively discrete clusters of stigmatized statuses, this framework would facilitate information exchange among researchers by providing a common language for discussing stigmatized statuses that may have previously been understood from divergent perspectives. Second, by locating a large array of stigmatized statuses in relation to one another in a common dimensional space, this taxonomy would enable researchers to determine the generalizability of findings from one stigma to another based on their similarities and

differences in dimensional ratings or to simply examine the dimensions themselves rather than separate stigmatized statuses. This parsimony could significantly maximize limited research resources, especially for stigmatized statuses that are relatively rare or otherwise under-represented in the empirical literature. Lastly, because existing research on stigma and health has tended to proceed along a one stigma-one outcome path of investigation, the full burden of stigma on population health is often under-estimated (Hatzenbuehler, Phelan, & Link, 2013). A cross-cutting dimensional taxonomy that can be applied across all stigmatized identities, conditions, and attributes would address this limitation of the literature by encouraging efforts to examine the health impact of multiple stigmatized statuses simultaneously.

An Overview of Existing Stigma Frameworks

Stigma researchers have been developing systematic frameworks to organize myriad stigmatized identities, conditions, and attributes since the field's inception, although these frameworks are rarely utilized to explain health discrepancies across numerous stigmatized groups. In his pioneering focus on individuals who are the target of stigma, Goffman (1963) organized stigmatized statuses into three broad categories: character blemishes indicative of moral failings (e.g., mental illness), body abominations (e.g., physical disabilities), and tribal blemishes (e.g., race/ethnicity, religion). In his analysis, Goffman also distinguished between those stigmatized individuals who are discredited (i.e., whose stigmatized statuses are visible) versus discreditable (i.e., whose stigmatized statuses are concealable in daily social interactions).

Other researchers have organized stigmatized statuses based on their evolutionary and social functions. For example, Kurzban and Leary (2001) suggested that stigma has evolved to serve several functions, including avoiding high-risk social investments, strengthening one's own group while exploiting other groups, and avoiding parasitic infection. Phelan and colleagues (2008), in contrast, proposed that stigmatized statuses can be categorized based on their social functions: Some serve to keep the stigmatized in (i.e., norm enforcement), others keep the stigmatized down (i.e., exploitation/dominance), and others keep the stigmatized away (i.e., disease avoidance). Still others have categorized stigmatized statuses based on the content of social perceptions they tend to invoke. According to the stereotype content model (Cuddy, Fiske, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002), perceptions of stigmatized groups vary along the dimensions of warmth and competence, which combine to predict unique emotional and behavioral reactions of non-stigmatized individuals towards those with various stigmatized attributes. For example, both older adults and people with physical disabilities are typically perceived as high in warmth but low in competence and, as a result, tend to elicit pity and helping. In contrast, people who are homeless or use drugs are typically perceived as low in both warmth and competence, leading to contempt and social avoidance. Other frameworks are concerned with psychological and social contextual processes that justify expressed prejudice toward some stigmatized groups and not others (e.g., Crandall & Eshleman, 2003), although they do not examine whether features of the stigmatized conditions themselves determine whether prejudice is expressed.

Jones and Colleagues' (1984) Dimensional Conceptualization of Stigma

Whereas the frameworks described in the previous section represent attempts to organize stigmas into meaningful categories based on similar properties, a dimensional conceptualization focuses on systematically documenting the ways stigmas differ from one another and the implications of these differences. In their pioneering book, *Social Stigma: The Psychology of Marked Relationships*, Jones and colleagues (1984) outlined six dimensions along which all stigmatized attributes are expected to vary. These dimensions include concealability (i.e., the extent to which a stigma is visible to others), course (i.e., the extent to which a stigma persists over time), disruptiveness (i.e., the extent to which a stigma interferes with smooth social interactions), aesthetics (i.e., the potential for a stigma to evoke a disgust reaction), origin (i.e., whether a stigma is believed to be present at birth, accidental, or deliberate), and peril (i.e., the extent to which a stigma poses a personal threat or potential for contagion). Building on this theoretical framework, previous research has examined how each of these six dimensions relates to the perceptions of stigmatized individuals on the part of the non-stigmatized and to the experiences of stigmatized individuals themselves, with concealability and origin having received the most empirical attention.

Across a large number of studies, individuals with concealable stigmatized statuses have been shown to access less social support to cope with stigma-related stressors, experience greater social isolation, and report more adverse psychological outcomes, such as greater negative affect and lower self-esteem, than those with conspicuous stigmatized statuses (e.g., Frable, Platt, & Hoey, 1998; Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; see Chaudoir, Earnshaw, & Andel, 2013, for a review). Some evidence, however, indicates that concealability can be beneficial under certain circumstances by enabling individuals to pass as "normal," thus avoiding prejudice and discrimination in social interactions. Among HIV-positive individuals, for example, those with visible symptoms reported more stigmatizing experiences and greater psychological distress than those without visible symptoms (Stutterheim et al., 2011). Similarly, in a population-based sample of sexual minority men, those who had not disclosed their sexual orientation to others reported better mental health than those who had disclosed (Pachankis, Cochran, & Mays, 2015). Another study further showed that children with congenital heart disease were more well-adjusted than children with facial scars, even though the former group actually experienced more functional limitations than the latter (Goldberg, 1974).

Origin is closely related to the construct of onset controllability, which has been studied extensively in the stigma literature. As illustrated by Weiner and colleagues (1988), stigmatized statuses perceived to be onset-uncontrollable (e.g., physical disabilities, cancer) elicited pity and helping behaviors, whereas stigmatized statuses perceived to be onset-controllable (e.g., obesity, HIV) elicited hostility and behavioral avoidance. Other studies further identified onset controllability as a key dimension predicting social rejection towards individuals with various physical and mental illnesses (e.g., Crandall & Moriarty, 1995; Feldman & Crandall, 2007; Hebl & Kleck, 2002). Recent research on mental illness stigma, however, has demonstrated that attributing mental illnesses to biological causes, such as neurochemical imbalances and genetic abnormalities, can be problematic. Specifically, although biological explanations might reduce personal blame, they can exacerbate some

forms of stigma (e.g., social distance) by enhancing the public perceptions of mental illnesses as severe and persistent (Kvaale, Gottdiener, & Haslam, 2013; Phelan, 2002, 2005). Additionally, these biological explanations have also been linked to increased internalized stigma and pessimism about one's prognosis among individuals affected by mental illnesses (see Lebowitz, 2014, for a review).

Though less empirical research has systematically examined the role of the four remaining stigma dimensions proposed by Jones and colleagues (1984), some evidence points to their value in predicting the perceptions towards, and experiences of, stigmatized individuals. With respect to peril, the belief that individuals with mental illnesses are dangerous and violent is considered a key predictor of stigmatizing attitudes towards this group (Angermeyer & Matschinger, 1996; Feldman & Crandall, 2007; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). In the case of serious physical illnesses, such as cancer, the perception of the disease as perilous (i.e., threatening) can often induce a heightened sense of vulnerability among healthy individuals, thus leading to social rejection and victim blaming (Stahly, 1988). With respect to aesthetics, evidence suggests that humans possess sensitive pathogen-detection perceptual systems that motivate distance away from visible markers of contagious disease (e.g., lesions, rashes; Crandall & Moriarty, 1995). This imperfect system might over-generalize to motivate avoidance away from aesthetically unappealing, although not contagious, physical traits indicating possible illness, such as obesity and missing limbs (Park, Schaller, & Crandall, 2007). These findings cohere with a large body of research on attractiveness more generally, which consistently finds more positive attitudes towards individuals who are deemed physically attractive compared to those deemed unattractive (e.g., Eagly, Ashmore, Makhijani, & Longo, 1991; Langlois, Ritter, Casey, & Sawin, 1995).

Another important dimension in the taxonomy put forth by Jones and colleagues (1984) concerns disruptiveness. Certain stigmatized statuses, such as physical disabilities (e.g., wheelchair use and blindness), are relatively rare and therefore unfamiliar to most members of the general public. As a result, they can interfere with smooth social interactions given that most non-stigmatized individuals might be uncertain about how to behave due to a lack of knowledge and experience with these stigmatized statuses (Hebl, Tickle, & Heatherton, 2000). Lastly, though relatively under-investigated, the expected course of a stigma is likely important to the attitudes about, and experience of, that stigma. For example, greater bias is directed toward the unemployed when their unemployment is seen as persistent compared to temporary (Clark, Georgellis, & Sanfey, 2001), whereas obesity continues to exert poor mental health effects even after it has remitted (Levy & Pilver, 2012).

The Present Research

As summarized in the previous sections, existing approaches to organizing stigmatized statuses have largely relied on qualitative descriptions of ways in which stigmatized statuses might vary (e.g., Goffman, 1963; Kurzban & Leary, 2001; Phelan et al., 2008). Jones and colleagues (1984) provided an important advancement by offering a dimensional conceptualization that focuses on systematically documenting the ways stigmas differ from one another. Although this framework inspired important empirical studies on each

dimension, there are a number of limitations in the extant research that has evaluated this framework. Specifically, this work has considered the dimensions in isolation, has examined a limited number of stigmatized conditions/statuses, and has largely focused on the impact of these single dimensions on interpersonal outcomes (e.g., social distance; Crandall & Moriarty, 1995; Feldman & Crandall, 2007). No study, to our knowledge, has quantitatively ranked myriad stigmatized statuses along shared dimensions in order to systematically compare and contrast their health impacts. Consequently, a complete empirical assessment of the potential utility of the dimensions first proposed by Jones and colleagues (1984) nearly three decades ago has not yet been systematically achieved. To this end, the present research sought to generate a tool that would enable a more complete understanding of the overall impact of stigma on health and wellbeing by building on the seminal work of Jones and colleagues (1984). In so doing, the present investigation represents the first empirical systematic assessment of the theoretical taxonomy of stigma put forth by Jones and colleagues (1984).

Across two studies, we developed a quantitative taxonomy that locates each of 93 stigmatized statuses along the six dimensions described by Jones and colleagues (1984). Additionally, we applied this taxonomy to understand stigma's full impact on health and wellbeing across individuals with a wide range of stigmatized attributes. Such a taxonomy can shed light on the similarities and differences across all stigmatized statuses, thereby facilitating information exchange across a field that has typically studied individual stigmatized statuses in isolation (Hatzenbuehler et al., 2013). By allowing researchers to apply lessons learned about one stigma to other dimensionally-similar stigmatized statuses, this approach offers particular promise for understanding stigmatized statuses that are rarely studied, either because of their numeric infrequency or a general lack of research resources. Through the application of this taxonomy to the context of health disparities, the present research also contributes to the existing literature by elucidating the role of specific stigma dimensions as correlates of health and wellbeing and the psychosocial mechanisms through which stigma compromises health.

In Study 1, we derived a list of 93 stigmatized identities, health conditions, and personal attributes upon a thorough review of the stigma literature and expert consultation, with the goal of capturing the full spectrum of the stigma experience in the general population. We then asked stigma experts and members of the general public to quantitatively rate each of the 93 stigmatized statuses in terms of their concealability, course, disruptiveness, aesthetics, origin, and peril. Experts also rated perceived social distance of the general population toward each stigmatized status. The general public rated their own social distance towards each stigmatized status. We provided initial validation for the resulting dimensional ratings in two ways. First, we examined the associations between each of the six dimensional ratings and the social distance ratings. Second, by utilizing hierarchical cluster analysis, we sought to classify all 93 stigmatized statuses into a few meaningful clusters as a function of their dimensional ratings. This approach would enhance the value of our taxonomy by empirically identifying dimensionally-similar stigmatized statuses, providing much-needed parsimony in a framework that involves multiple dimensional ratings for a large number of stigmatized statuses.

In Study 2, we presented further evidence for the utility of this taxonomy by applying it to understand the experience of stigmatized individuals themselves, especially as it pertains to their physical health and psychological well-being. In particular, we administered measures of general health and mental health outcomes, along with potential psychosocial mechanisms (e.g., social isolation, stress exposure) and stigma-specific mechanisms (e.g., perceived discrimination, stigma consciousness) linking stigma to poor health and wellbeing, to individuals who endorsed a wide range of the 93 stigmatized statuses we previously identified. We then examined how each of the dimensions and clusters relate to these mechanisms and outcomes. Finally, to further demonstrate the utility of adopting a taxonomical approach in studying stigma, we conducted two additional tests. First, we examined whether cluster membership differentially influenced (i.e., moderated) the associations between psychosocial and stigma-related mechanisms and poor health. Examining the presence of differential associations between these mechanisms and health according to cluster membership is particularly relevant to researchers interested in reducing stigma and improving stigma coping, as targeting certain mechanisms may be more effective for stigmas in some clusters than in others. Second, we used our taxonomical approach to study the impact of intersectional stigmas on health, providing a new method for testing psychological theories of intersectionality. While tests of intersectionality theory gain prominence in psychological research, most such tests are limited by examining co-occurring stigmatized statuses qualitatively or using statistical interaction terms. The approach advanced here empirically recognizes that the average person possesses more stigmatized characteristics than can typically be analyzed using statistical interaction and also recognizes that each of those characteristics possesses a unique dimensional fingerprint with potentially distinct health implications.

Study 1

As the first phase of the current project, Study 1 has four objectives: (1) derive a list of stigmatized identities, conditions, and attributes that represent the full spectrum of the stigma experience in the general population; (2) obtain dimensional ratings for each of the stigmatized statuses on this list and determine agreement on these ratings within stigma experts and the general public as well as between experts and the public; (3) examine associations between these dimensional ratings and social distance, a meaningful interpersonal outcome commonly used in stigma research (e.g., Crandall & Moriarty, 1995; Feldman & Crandall, 2007; Link et al., 2004); and (4) classify all 93 stigmatized statuses into meaningful clusters as a function of their dimensional ratings and examine variation in social distance across these clusters. Through accomplishing these objectives, this study sought to provide initial validation for our dimensional taxonomy and represented the first attempt, to our knowledge, to organize stigmatized statuses into empirically-derived clusters, lending parsimony to a multifaceted theoretical framework.

Participants

Expert raters—We recruited stigma experts to provide dimensional and social distance ratings with respect to each of the 93 stigmatized statuses. Experts were identified as individuals who had published at least one highly cited academic paper regarding stigma.

Two graduate research assistants searched Social Science Citation Index and Google Scholar to identify these papers. Based on this search process, 197 experts were contacted; 83 replied to express interest in participating. Sixty-four began the survey; this sample included four of the present authors who were identified by this search strategy. Fifty-three completed at least 85% of the survey. The final analytic sample included those 64 experts who submitted at least partial data. However, because calculating rater agreement could only be performed using complete data, we limited agreement analyses to the 53 experts who each submitted at least 85% of data. We imputed the 5.0% of the data that were missing from this sample overall using the sample mean for each respective item.

Most of the participants were psychologists (49.1%), followed by sociologists (22.6%), psychiatrists (9.4%), and epidemiologists (5.7%). Anthropology, nursing, social work, communications, and economic scholars were also represented. The most common stigma studied by the experts was stigma toward people with mental illness (47%); other experts studied stigma related to HIV, sexual orientation and gender diversity, epilepsy, teen pregnancy, addiction, disability, obesity, homelessness, and race. The mean age of the sample was 52.12 years ($SD = 11.35$). Half (50.0%) identified as female, about half (48.5%) as male, and one (1.5%) as "other." Eight were currently living in Europe and one in Canada; the remainder were living in the U.S. All participants were given the option of receiving $100 for their participation or donating this money to a charity of their choice.

General public raters—We also recruited 216 participants from Amazon Mechanical Turk (MTurk) to provide dimensional and social distance ratings with respect to each of the 93 stigmatized statuses. We removed twenty participants who submitted partial responses and three who submitted responses with little-to-no variation (e.g., selected the first option for every response), resulting in a final sample of 193 participants. The mean age of the sample was 36.45 years (SD = 11.11). The majority of participants ($n = 167$; 86.5%) were White; 57% of the participants were female (n = 110), 42% ($n = 81$) were male, and 0.5% ($n = 1$) reported being transgender female; 1 (0.5%) reported being gender non-conforming. The majority ($n = 118$, 61.1%) reported full-time work; 25 (13.0%) reported being unemployed and not a student. The majority ($n = 109$; 56.5%) reported an annual income less than $30,000. Participants represented 39 U.S. states with California, New York, Florida, and Texas being the most represented.

Materials and Measures

List of 93 stigmatized statuses—We opted to broadly define stigma as any socially-devalued characteristic or attribute serving to reduce an individual "from a whole and usual person to a tainted, discounted one" (Crocker et al., 1998; Goffman, 1963) in the current research to ensure the inclusion of a wide range of stigmatized statuses. We searched academic databases (i.e., PubMed, PsycINFO, Google Scholar) and seminal works in stigma research (i.e., Goffman, 1963; Jones et al., 1984) to identify identities, health conditions, and personal attributes that met this definition. After discussing our search results across a series of meetings involving all members of the research team, we generated a list of 89 characteristics that could be considered stigmatized in contemporary U.S. society. This list was then presented to a group of 25 graduate students who were enrolled in a seminar on

stigma for their feedback. These students suggested four additional characteristics that met the above definition of stigma, yielding the final list of 93 stigmatized characteristics used in this study.

Stigma dimensions—We asked respondents to indicate the position of each of the 93 stigmatized statuses along each of the six dimensions proposed by Jones and colleagues (1984). Instructions asked expert raters to respond based on their understanding of general social perception of each stigmatized status, rather than their personal opinion, and asked the general public raters to respond based on their own opinion. Item wording was the same for both expert raters and the general public. For each stigmatized status, participants were asked to rate its concealability ("How easily is this condition or identity able to be concealed in a typical social interaction between typical members of the U.S. population?" 0 [*totally concealable in casual social interaction*], 6 [*never able to be concealed in casual social interaction*]), course ("To what extent does the general U.S. population expect the condition or identity to improve or persist, worsen, or recur?" 0 [*temporary, expected to totally disappear over a short period of time*], 6 [*persistent, expected to remain unchanged, worsen, or recur over the life course*]), disruptiveness ("To what extent does the condition or identity disrupt typical social interactions taking place among typical members of the U.S. population, assuming the stigma is known?" 0 [*does not disrupt normal social interaction*], 6 [*normal social interaction is extremely difficult*]), aesthetics ("To what extent does the condition prompt physical revulsion among typical members of the U.S. population in typical social interactions, assuming the stigma is known?" 0 [*condition or identity is not generally seen as repulsive*], 6 [*condition or identity is generally seen as extremely repulsive*]), origin ("To what extent do people in the U.S. generally see the stigmatized individual as being responsible for his/her condition or identity?" 0 [*condition is seen as totally out of individual's control*], 6 [*condition is seen as totally under the individual's control*]), and peril ("In the general U.S. population, to what extent do people who interact with the stigmatized individual perceive some kind of contagion, threat, peril, or physical danger to themselves in typical social interactions, assuming the stigma is known?" 0 [*there is no perceived contagion, peril, or physical danger to oneself*], 6 [*there is extreme perceived contagion, peril, or physical danger to oneself*]).

Social distance scale—We used the seven-item Social Distance Scale (Link, Cullen, Frank, & Wozniak, 1987) to assess the willingness of individuals to interact in various ways with people from each of the 93 stigmatized statuses (e.g., as a co-worker, as a neighbor, renting a room to). Experts were asked to rate the items in terms of their understanding of general social perception; the general public was asked to rate the items based on their own personal opinion. Participants rated each item using four points, 0 (*definitely unwilling*) to 3 (*definitely willing*). We derived a composite measure of social distance by calculating the mean across all items. The average Cronbach's alpha for social distance across stigmatized statuses was .84 for the expert raters and .83 for the general public raters.

Data Analysis Plan

We examined agreement among expert raters in their dimensional ratings for each stigmatized status. To examine this agreement, we calculated a two-way mixed, average

measures intraclass correlation coefficient with measures of absolute agreement for the mean ratings (Shrout & Fleiss, 1979). We followed identical procedures to examine agreement among the general public raters.

Using all available data, we then aggregated experts' ratings so that each stigmatized status was associated with one rating per dimension. This rating was the mean of all experts' ratings for that stigma on that dimension. We used identical procedures for general public ratings. We then calculated the association between expert ratings and general public ratings as a Pearson correlation coefficient. Given the high degree of association between expert ratings and general public ratings, we combined them by calculating their mean for each stigmatized status for each dimension. These aggregate scores – one per stigma per dimension – served as the central variable in all subsequent analyses.

Using these aggregate scores, we first constructed a rank-ordered list of stigmatized statuses along each dimension in order to provide researchers with information regarding the relative visibility, course, disruptiveness, aesthetics, origin, and peril of each stigmatized status. We also examined the association between aggregated dimensional ratings and social distance, which we also aggregated across expert and general public raters. Finally, we conducted a cluster analysis of these aggregate dimensional ratings using *k*-means clustering to generate an empirically sound and theoretically meaningful classification of stigmatized statuses across the six dimensions. To provide initial validation of the clusters, we compared mean social distance scores across cluster membership using analysis of variance.

Results

Interrater agreement in dimensional ratings—Raters were in high agreement about the relative placement of stigmatized statuses along each dimension. Table 1 displays the within-sample agreement among expert raters and general public raters on each of the dimensions in terms of the intraclass correlation coefficients. Table 1 also shows the correlation between expert ratings and general public ratings on each dimension as Pearson's correlation coefficient (*r*). For illustration purposes, we depict expert and general public ratings for two representative stigmatized statuses in two dimensional graphs in Figure 1. We used the R statistical programming environment (R Core Team, 2016) to create these graphs in which the six-dimensional scores for each stigmatized status were plotted in two dimensions using principal components analysis (PCA) so that the variation along each axis is maximized.

Rank placement of stigmatized statuses along dimensions—Table 2 presents the list of 93 stigmatized statuses and the rank order of their placement along each of the six dimensions using the aggregate ratings of stigma experts and members of the general public. Using a wheelchair and being short or obese were rated as some of the most visible stigmatized statuses, whereas having had an abortion and being atheist or infertile were among the least visible stigmatized statuses. Being old, short, or racial minority were rated as the most persistent-course stigmatized statuses, whereas being unemployed, having a bacterial sexually transmitted disease, and having several remitted forms of cancer were rated as the least persistent. Having symptomatic severe mental illness, autism, or mental

retardation and being deaf were rated as the most disruptive, while divorce, infertility, and remitted breast and prostate cancer were rated as the least disruptive. The most aesthetically unappealing stigmatized statuses included being a sex offender, using injection drugs, and having one of several sexually transmitted diseases, including HIV. Infertility, divorce, and being voluntarily childless, Asian American, or Native American were rated as the least aesthetically unappealing. Stigmatized statuses for which people were rated as being the most personally responsible included having multiple tattoos, body piercings, or facial piercings and being a gang member or polyamorous. In contrast, being short or racial minority were associated with the least personal responsibility. Stigmatized statuses rated as the most perilous included being a gang member, sex offender, drug dealer, criminal, and having HIV. Stigmatized statuses rated as the least perilous included being voluntarily childless, infertile, divorced, short, or Asian American.

Association between dimensional and social distance ratings—Table 1 displays the correlation between each of the six dimensions and social distance. Visibility and course were not associated with social distance. In contrast, participants indicated a desire for greater social distance with respect to stigmatized statuses that were perceived as disruptive, aesthetically unappealing, onset-controllable, and perilous.

Cluster analyses—Using *k*-means clustering, we tested several cluster solutions, ranging from two to ten clusters. Five clusters were found to fit the data best in terms of producing a relatively small within-group sum of Euclidian distances and interpretable results. Table 3 displays the mean dimensional rating, along with its corresponding qualitative descriptor (i.e., high, medium, low), for stigmatized statuses belonging to each cluster. Figure 2 plots each cluster according to its mean dimensional ratings. The cluster membership of each stigmatized status is listed in the right-hand column of Table 2. Figure 3 shows a PCA plot of mean stigma scores, including expert and general public raters in the six-dimensional space projected onto two dimensions so that the variation along each axis is maximized. Colors indicate cluster membership. Gray arrows indicate the projection of dimensional axes into PCA space.

Cluster 1 contained those stigmatized statuses that were rated as highly visible, of persistent or worsening course, and highly disruptive, but seen to be aesthetically innocuous, onset-uncontrollable, and not perilous. These stigmatized statuses included, for example, autism, blindness, facial scars, and mental retardation. Given that this cluster of stigmatized statuses has significant potential to interfere with smooth social interactions (Hebl et al., 2000), we named it the "Awkward" cluster.

Cluster 2 contained those stigmatized statuses that were rated as concealable and aesthetically unappealing, moderate in persistent course and disruptiveness, as well as highly onset-controllable and perilous. Stigmatized statuses in this cluster included, for example, alcohol dependency; drug use, dependence, and dealing; being a gang member; being infected with HIV; homeless; and having a criminal record. Given the relative threat that stigmatized statuses in this cluster pose to interpersonal interactions, we labeled this cluster the "Threatening" cluster.

Cluster 3 contained highly visible and persistent stigmatized statuses of low disruptiveness, unattractiveness, onset controllability, or peril. Stigmatized statuses in this cluster were limited to racial/ethnic minorities and old age. Given the prevalence of stigmatized statuses contained in this cluster, we labeled this cluster "Sociodemographic." Cluster 4 contained stigmatized statuses that were rated as relatively hidden, associated with moderately persistent course and onset controllability, and neither disruptive, aesthetically disturbing, nor perilous. This large cluster included stigmatized statuses such as being an atheist, Jewish, or fundamentalist Christian; having a remitted mood disorder; having had an abortion; infertility; teen parenting; being a sexual minority; current and remitted forms of several cancers; and being working class. Given the chronicity of these identities/conditions for which people are seen as responsible for acquiring despite their relatively innocuous impact on social interactions, we labeled this cluster "Innocuous Persistent."

Cluster 5 contained stigmatized statuses that were similar to those in Cluster 4 in their perceived course, yet they were rated as somewhat more visible, disruptive, aesthetically unappealing, more onset-controllable, and perilous. Example stigmatized statuses of Cluster 5 include obesity, sex work, illiteracy, living in a trailer park, remitted mental illnesses, being transgender, and undocumented immigrant status. Given the chronicity of these stigmatized statuses as well as their moderate visibility, disruptiveness, lack of aesthetic appeal, blameworthiness, and peril, we labeled this cluster "Unappealing Persistent."

In terms of desired social distance across clusters (see Table 3), Cluster 2 (Threatening) was associated with the highest desired social distance ($M = 2.17$, $SD = .59$), which was significantly greater than all other clusters, $p < .001$. The least social distance was desired from individuals with stigmatized statuses in Cluster 3 (Sociodemographic; $M = .56$, $SD = .18$) and Cluster 4 (Innocuous Persistent; $M = .51$, $SD = .23$), which were not significantly different from each other. Desired social distance from stigmatized statuses in Cluster 3 was significantly less than the social distance desired from those with stigmatized statuses in Cluster 2 ($p < .001$) and 5 (Unappealing Persistent; $M = 1.14$, $SD = .41$, $p < .01$). Desired social distance from stigmatized statuses in Cluster 4 was significantly less than the social distance desired from those with stigmatized statuses in Clusters 1 (Awkward; $M = 1.04$, $SD = .52$, $p < .001$), 2 ($p < .001$), and 5 ($p < .001$). Stigmatized statuses in Cluster 5 were associated with significantly greater social distance than those in Clusters 3 ($p < .01$) and 4 ($p < .001$) and significantly less social distance than those in Cluster 2 ($p < .001$).

Study 2

In the second phase of the current project, we sought to utilize the dimensional taxonomy that we created and validated in Study 1 and test its associations with health and wellbeing outcomes among individuals with a wide range of stigmatized attributes. Additionally, we examined how the dimensional taxonomy derived from the cluster analysis relates to a number of psychosocial mechanisms that have been implicated in previous research on stigma and health, including stress reactivity, social isolation, and maladaptive emotion regulation (Hatzenbuehler et al., 2013). Lastly, drawing from the literature on concealable stigmatized identities and psychological wellbeing (Quinn & Chaudoir, 2009), we addressed the question of how our dimensional taxonomy relates to different facets of stigma,

including enacted stigma (e.g., perceived discrimination), anticipated stigma (e.g., stigma consciousness), and internalized stigma (e.g., stigma centrality and salience). To fully capitalize on the potential of our taxonomy, we predicted outcomes from both the dimensional features of the stigmatized statuses endorsed by each participant and the cluster membership of those stigmatized statuses. Finally, to further demonstrate the utility of adopting a taxonomical approach in studying stigma, we conducted two additional tests. First, we examined whether cluster membership differentially influenced (i.e., moderated) the associations between psychosocial and stigma-related mechanisms and poor health, to potentially inform stigma reduction and coping interventions targeting these mechanisms across various stigmatized populations. Second, we used our taxonomical approach to study the impact of intersectional stigmas on health, providing a new method for testing psychological theories of intersectionality.

Participants

We recruited 1,123 individuals using MTurk across two waves. In the first wave, we recruited 609 individuals from the general pool of MTurk workers. In the second wave, we supplemented this sample by recruiting individuals who endorsed stigmatized statuses that were under-represented in the first wave. Specifically, we first asked 1,993 members of the general pool who had not participated in the first wave to endorse their own stigmatized statuses from the list of 93 and to then rank order their stigmatized statuses according to personal importance. We then invited those who indicated a stigma under-represented in the first recruitment wave as being among their two most important stigmatized statuses to complete the full survey. This generated 514 additional participants for a total sample of 1,123 individuals.

To create the final analytic sample, we omitted those individuals who did not complete all demographic variables ($n = 50$) or at least 50% of remaining variables, including outcomes ($n = 65$) and stigma-specific measures ($n = 0$) for those who selected at least one stigma. We also omitted two participants who provided improbable responses. Therefore, the final analytic sample contained 1,025 individuals. Participant demographics are described in Table 4. The sample was diverse in terms of gender, educational attainment, and employment status. About two-thirds (61.8%) were in a relationship. The majority was white (79.5%), non-Hispanic (91.9%) and heterosexual (88.9%).

Materials and Measures

List of 93 stigmatized statuses—Participants selected their own stigmatized statuses from the list of 93 stigmatized statuses created in Study 1 and then rank ordered each stigmatized status in terms of its personal impact (i.e., the extent to which it influences one's life and/or is considered personally significant).

Health outcomes

<u>Depression:</u> Participants completed the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), a 20-item self-report symptom rating scale used to measure depressive symptoms during the past week, with an emphasis on the affective, depressed mood component of depression. Participants indicated the frequency of occurrence of each

symptom over the past week on a four-point scale with the endpoints 0 (*rarely or none of the time [less than 1 day]*) and 3 (*most or all of the time [5–7 days]*). Sample items include "I felt like everything I did was an effort" and "I felt hopeful about the future" (reverse-coded). Cronbach's α was 0.92 in the current sample.

Anxiety: We assessed participants' general level of anxiousness using the 20-item Trait subscale of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Participants rated the extent to which each item describes how they generally feel using a four-point scale, ranging from 1 (*not at all*) to 4 (*very much so*). Sample items include "I feel nervous and restless" and "I feel secure" (reverse-coded). Cronbach's α was 0.95 in the current sample.

General poor health: We assessed general poor health using one item from the Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System Survey (CDC, 2014). Participants responded to the statement "Would you say that in general your health is…" using a five-point scale, ranging from 1 (*excellent*) to 5 (*poor*). This measure has been used to assess general poor health across stigmatized populations (e.g., Crews, Chou, Zhang, Zack, & Saddine, 2014; Crews et al., 2016; Plascak, Molina, Wu-Georges, Idris, & Thompson, 2016).

Unhealthy days: We asked participants to estimate the number of days during the past 30 days when they felt that either their mental or physical health was not good (CDC, 2000). This measure has been used to assess general poor health across stigmatized populations (e.g., Crews, Chou, Zhang, Zack, & Saddine, 2014; Crews et al., 2016; Plascak, Molina, Wu-Georges, Idris, & Thompson, 2016).

Stigma-specific mechanisms

Stigma centrality: We used the four-item Importance to Identity subscale of the Collective Self-Esteem scale (Luhtanen & Crocker, 1992) to assess the personal centrality of participants' two most impactful stigmatized statuses (e.g., "In general, [stigma] is an important part of my self-image."). Participants rated each item using a seven-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). This scale has been shown to mediate the association between one's personal stigmatized status and psychological distress (Quinn & Chaudoir, 2009). In the current sample, Cronbach's α for participants' most impactful stigma was 0.80.

Stigma salience: To assess stigma salience, we asked participants to indicate the extent to which they generally think about each of their two most impactful stigmatized statuses by selecting from one of the seven response options: *almost never*, *several times a year*, *once a month*, *once a week*, *a few times a week*, *once a day*, and *many times each day (*Quinn & Chaudoir, 2009). Following the procedure used by Quinn and Chaudoir (2009), we converted responses into a continuous measure representing number of stigma-related thoughts per day (i.e., 0; 3/365; 12/365; 52/365; 4 X 52/365; 1; 5, respectively). This scale has been shown to mediate the association between one's own stigmatized status and psychological distress (Quinn & Chaudoir, 2009).

Stigma consciousness: The Stigma Consciousness Scale (Pinel, 1999) assesses the extent to which stigmatized individuals expect to be stereotyped by others. Participants rated 10 items (e.g., "When interacting with others, I feel like they interpret all my behaviors in terms of my [stigma]") on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Using this scale, participants separately rated their levels of stigma consciousness regarding the two stigmatized statuses they ranked as most impactful. This scale has been associated with performance impairments across domains among several stigmatized populations (e.g., Brown & Lee, 2005; Schmalz & Kerstetter, 2006). In the current sample, Cronbach's α for participants' most impactful stigma was 0.85.

Perceived stigma: We assessed participants' perception of most other people's beliefs about the two most personally impactful stigmatized statuses they endorsed using the six-item Devaluation subscale of the Perceived Devaluation-Discrimination Scale (Link, 1987) (e.g., "Most people think less of a person like you") following instructions to answer the item in terms of their perceptions of people's response to persons with their respective stigma. Participants rated each item on a four-point scale ranging from 1 (*disagree strongly*) to 4 (*agree strongly*). Among people who have been labeled with various stigmatized statuses (e.g., mental illness), this scale has been associated with negative socioeconomic and psychological outcomes (Link, 1987). In the current sample, Cronbach's α for participants' most impactful stigma was 0.91.

Everyday discrimination: The Everyday Discrimination Scale (Williams, Yu, Jackson, & Anderson, 1997) assesses the frequency with which individuals experience nine types of interpersonal mistreatment as a result of their membership in a stigmatized group. Participants rated each item (e.g., "People act like they think they are better than you") along a six-point scale, ranging from 0 (*never*) to 5 (*almost every day*). For any endorsed item (i.e., greater than *never*) participants indicated whether they attributed that form of discrimination to either their first or second most personally impactful stigmatized statuses. This scale has shown strong associations with mental and physical health problems across stigmatized populations (e.g., Hatzenbuehler, Corbin, & Fromme, 2011; Siefert, Finlayson, Williams, Delva, & Ismail, 2007; Sutin, Stephan, Carretta, & Terracciano, 2015). Cronbach's α for most impactful stigma was 0.92.

General psychosocial mechanisms

Rumination: We used the five-item "brooding" subscale of the Ruminative Response Scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). This subscale captures passive, repetitive thinking about personal shortcomings and life setbacks (e.g., "Think, 'Why can't I handle things better?'"). Participants rated each item on a four-point scale, ranging from 1 (*almost never*) to 4 (*almost always*). This scale has been shown to mediate the association between stigma-related stress and psychological distress (Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009). Cronbach's α was 0.86 in the current sample.

Emotion dysregulation: Prior research has shown that members of some stigmatized groups experience higher levels of emotion dysregulation than non-stigmatized individuals, and elevations in emotion dysregulation occur as a result of stigma-related stressors

(Hatzenbuehler, 2009; Hatzenbuehler et al., 2009; Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008). The 36-item Difficulties with Emotion Regulation Scale assesses general problems with regulating emotions as well as six specific domains of difficulty with emotion regulation: non-acceptance of emotional responses (e.g., "When I'm upset, I become embarrassed for feeling that way"), difficulties engaging in goal-directed behavior (e.g., "When I'm upset, I have difficulty focusing on other things"), impulse control difficulties (e.g., "I experience my emotions as overwhelming and out of control"), lack of emotional awareness (e.g., "I am attentive to my feelings"; reverse-coded), limited access to emotion regulation strategies (e.g., "When I'm upset, I believe that I will remain that way for a long time"), and lack of emotion clarity (e.g., "I have no idea how I am feeling"). Participants responded to each item on a five-point scale, ranging from 1 (*almost never [0–10%]*) to 5 (*almost always [91–100%]*). The full-scale score has been associated with a wide range of adverse mental and behavioral health outcomes, including depression, anxiety, self-injurious behaviors, and partner abuse (Gratz & Roemer, 2004). Cronbach's α was 0.91 in the current sample.

Mastery: We used a seven-item scale developed by Pearlin, Menaghan, Lieberman, and Mullan (1981) to capture perceptions of control and coping. Items (e.g., "I have little control over the things that happen to me") were rated on a four-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The scale has demonstrated significant variation across stigmatized groups in previous research (e.g., Jang, Borenstein-Graves, Haley, Small, & Mortimer, 2003; Meyer, Schwartz, & Frost, 2008). Cronbach's α was 0.86 in the current sample.

Self-esteem: We used the 10-item Rosenberg Self-Esteem Scale (1965) to assess how positively or negatively participants viewed themselves. Participants rated each item using a four-point scale, ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). Sample items include "I take a positive attitude toward myself" and "I certainly feel useless at times" (reverse coded). The scale has been associated with a range of mental health outcomes across stigmatized populations (e.g., Collett, Pugh, Waite, & Freeman, 2016; Pachankis, Goldfried, & Ramrattan, 2008). Cronbach's α was 0.94 in the current sample.

Social support: Perceived social support was assessed using the 12-item Multidimensional Scale of Perceived Social Support Scale (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Participants rated their perceptions of support from family (e.g., "My family really tries to help me"), friends (e.g., "I can count on my friends when things go wrong"), and significant others (e.g., "There is a special person who is around when I am in need") using a 7-point scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Cronbach's α was 0.96.

Data Analysis Plan

Missing data occurred rarely for health outcomes (less than 1.0%), general psychosocial mechanisms (less than 1.0%), and stigma-specific mechanisms (less than 5.0%). Missing data were imputed using PROC MI (SAS 9.4) from participant demographics and other

variables in the same general variable class (e.g., health outcomes, general psychosocial mechanisms).

Given the large number of health outcomes, general psychosocial mechanisms, and stigma-specific mechanisms, we created factor scores of related variables to enhance the parsimony and interpretability of our analyses. To do so, we conducted two exploratory factor analyses (EFA) using direct oblimin rotation, extraction factors with eigenvalues greater than or equal to 1.0. We then saved participants' resultant factor scores for use in remaining analyses. An EFA of our health outcome measures yielded a single factor that consisted of depression, anxiety, general poor health, and unhealthy days, which we labeled as the *health impairment* factor ($r_{average} = .65$). We next conducted an EFA of the stigma and general mechanism variables, which yielded three factors. The *stigma importance* factor consisted of stigma centrality and stigma salience ($r = .42$). The *stigma perception* factor consisted of stigma consciousness, perceived stigma, and everyday discrimination ($r_{average} = .44$). The third factor consisted of the remainder of the mechanisms; however, given the theoretical diversity of these measures, we elected to further split this factor into two separate factors: *emotion regulation difficulties*, which consisted of difficulties in emotion regulation and rumination ($r = .70$), and *stress coping resources*, which consisted of mastery, self-esteem, and social support ($r_{average} = .52$).

Analyses proceeded in four steps. First, we correlated health, psychosocial mechanisms, and stigma-specific mechanisms from the six dimensional ratings of the most personally impactful stigma that participants endorsed. We used linear regression with maximum likelihood estimation to predict all outcomes, entering all dimension scores simultaneously for each factor. We derived the dimension scores from the mean of expert and general population ratings of each dimension in Study 1.

Second, to show the utility of our approach for advancing quantitative psychological research on intersectionality, we also predicted outcomes using dimensional scores that we aggregated across all stigmas that an individual endorsed. Given that most participants indicated multiple stigmatized statuses and that we sought to capture the health implications of all stigmatized statuses as they naturally co-occur, we assigned each participant who endorsed at least one stigma with a score for each dimension that took into account all of the stigmatized statuses endorsed by that individual. To do this, for each dimension, we calculated the mean dimension score across all stigmatized statuses that a participant endorsed using the Study 1 dimension ratings. For example, if a participant endorsed two stigmatized statuses, Stigma A with a visibility score of 1.0 and Stigma B with a visibility score of 2.0, the participant's visibility score would be 1.5. We calculated this type of aggregate score for each of the six dimensions for each participant. We then tested these six aggregated dimension scores as correlates of the health and mechanism factors, as described above. While other approaches might also be defensible (e.g., predicting outcomes from each participant's "worst," or highest rated, stigmatized status for each dimension), we decided to predict outcomes from the six aggregated dimension scores across all of participants' endorsed stigmas given our goal to be maximally comprehensive in capturing stigmas as they happen to co-occur.

Third, we compared all health outcomes and mechanisms across the clusters to which participants' most impactful stigma belonged using one-way analysis of variance (ANOVA) with Bonferroni posthoc adjustment. Specifically, we correlated outcomes and mechanisms from the five clusters derived in Study 1 based on dimensional ratings of all stigmatized statuses.

Finally, we also examined whether cluster membership moderated associations between stigma-related and general psychosocial mechanisms and poor health. To do this, we used AMOS (Version 22; Arbuckle, 2006) to test the fit of models in which the health factor was separately regressed onto the stigma importance, stigma perception, emotion regulation, and stress adjustment resources factors. For each mechanism, we first compared the model fit of an unstructured model to a model that constrained the regression weights to be equal across all five clusters as an omnibus test of moderation for cluster membership. We then conducted follow-up pairwise comparisons, again comparing unstructured models to models constraining two cluster groups to have equivalent regression weights, to detect specific cluster differences in the association between each mechanism and health.

Results

Prevalence of stigmatized statuses in the current sample—All participants selected the stigmatized statuses that applied to them from the list of 93 stigmatized statuses. Forty-six individuals did not select any stigma and were not included in analyses. Eighty-eight (8%) selected only one stigma. The mean number of stigmatized statuses selected was 6.08 ($SD = 4.58$; median = 5; range = 0–32). Participants endorsed 80 of the 93 stigmatized statuses as their most impactful stigma. The most commonly endorsed stigmatized statuses were unemployment ($n = 436$, 42.5%); working class/poor ($n = 422$, 41.2%); fat/overweight/ obese (current average severity) ($n = 345$, 33.7%); fat/overweight/obese (remitted average severity) ($n = 317$, 30.9%); working in a service industry ($n = 299$, 29.2%); atheist ($n = 276$, 26.9%); depression (remitted) ($n = 270$, 26.3%); smoking cigarettes daily ($n = 244$, 23.8%); depression (symptomatic) ($n = 203$, 19.8%); and voluntarily childless ($n = 182$, 17.8%). The most commonly endorsed stigmatized statuses that were considered the most impactful were fat/overweight/obese (current average severity) ($n = 132$, 12.9%); working class/poor ($n = 86$, 8.4%); depression (symptomatic) ($n = 81$, 7.9%); unemployed ($n = 52$, 5.1%); atheist ($n = 50$, 4.9%); Asian American ($n = 44$, 4.3%); fundamentalist Christian ($n = 35$, 3.4%); Latina/o ($n = 34$, 3.3%); smoking cigarettes daily ($n = 31$, 3.0%); and Black/African American ($n = 31$, 3.0%). See Table 2 for complete list of stigmatized statuses by their frequency of endorsement.

Associations between stigma dimensions and health, psychosocial mechanisms, and stigma-related mechanisms for participants' most impactful stigma—When correlating outcomes from the dimensions associated with participants' most impactful stigma, the dimensions of disruptiveness, peril, and persistent course showed the most robust associations across the health and mechanism factors (Table 5). Disruptiveness was positively associated with health impairment, stigma importance, stigma perception, emotion regulation, and was negatively associated with participants' stress adjustment resources. Peril was positively associated with stigma perception and stress

adjustment resources, and was also negatively associated with stigma importance. Persistent course stigmatized statuses demonstrated negative associations with health impairment as well as positive associations with stigma importance and stress adjustment resources. Aesthetically unappealing stigmatized statuses were positively associated with stigma importance. Stigmatized statuses ascribed to personal responsibility were positively associated with stigma importance. No significant associations were observed for visibility.

Associations between stigma dimensions and health, psychosocial mechanisms, and stigma-related mechanisms across all stigmas endorsed by each participant—When correlating outcomes from the dimension scores averaged across all stigmas endorsed by each participant, the dimension of disruptiveness again stood out as possessing the most robust associations with the health and mechanism factors (Table 6). Disruptiveness was positively associated with health impairment and emotion regulation difficulties, and was negatively associated with stress adjustment resources. Peril was again positively associated with stigma perception. Persistent course stigmatized statuses were negatively associated with health impairment and stigma perception. Possessing more visible stigmas was associated with fewer emotion regulation deficits than possessing a more concealable stigma. Stigmatized statuses ascribed to personal responsibility were negatively associated with stigma perception. No significant associations were observed for the unappealing aesthetics dimension.

Mean comparisons between clusters for health, psychosocial mechanisms, and stigma-related mechanisms for participants' most impactful stigma—In Table 7, we present the mean of each cluster for all health and mechanism variables, as well as qualitative descriptions of each clusters' relative standing to each other on these variables. Generally, participants whose most impactful stigma belonged to Clusters 1 (Awkward), 2 (Threatening), and 5 (Unappealing Persistent) experienced more health impairments than participants whose most impactful stigma belonged to Clusters 3 (Sociodemographic) or 4 (Innocuous Persistent). Stigma importance was felt evenly across cluster membership. However, those in Clusters 1 (Awkward), 2 (Threatening), and 5 (Unappealing Persistent) reported greater stigma perception and emotion regulation difficulties. Those in Clusters 3 (Sociodemographic) and 4 (Innocuous Persistent) reported greater stress adjustment resources.

Many of the stigmatized conditions we examined (e.g., depression or alcohol use) are health outcomes themselves, a fact which might confound associations between stigma-related phenomena and health. That is, deficits associated with the condition itself, rather than stigma-related phenomena, might be responsible for observed associations examined here. To address the possibility that stigmatized health conditions might be responsible for the observed cluster differences in health, we conducted a sensitivity analysis using ANCOVA to test stigma cluster membership as a correlate of health, controlling for whether each participants' primary stigma was health- ($n = 423$) or non-health related ($n = 556$). Results indicated those with health-related stigmas reported greater health impairments than those without health-related stigmas ($F = 12.94$, $p < .001$). However, the omnibus test of cluster membership on health was significant ($F = 5.49$, $p < .001$), indicating that stigma cluster

membership still significantly accounted for participant health factor scores when controlling for the health-related nature of the stigma. Planned pairwise comparisons testing the previously observed cluster differences in health impairment indicated that group differences were still observed between Clusters 1 and 3 ($F = 7.70$, $p = .003$), 1 and 4 ($F = 23.17$, $p < .001$), and 2 and 4 ($F = 13.92$, $p < .001$), and were non-significant but marginally different for Clusters 2 and 3 ($F = 2.70$, $p = .06$). Health no longer significantly differed between Clusters 3 and 5 ($F = .05$, $p = .83$) or Clusters 4 and 5 ($F = 2.60$, $p = .11$).

Testing cluster membership of most impactful stigma as a moderator of the association between stigma mechanisms and health—The results of the omnibus test, wherein we tested cluster membership as a moderator of stigma importance's association with health, and follow-up pairwise comparisons are presented in Table 8. The overall association between stigma importance and health was significantly moderated by cluster membership ($\chi 2 = 31.75$, $p < .001$). Notably, the association between stigma importance and health was significantly lower for individuals in the Cluster 3 (Sociodemographic) than any other cluster. The overall association between stigma perception and health was also moderated by cluster membership ($\chi 2 = 18.50$, $p = .001$), whereby the strength of this association was strongest among those in Cluster 1 (Awkward). The association between emotion regulation difficulties and health was also moderated by cluster membership ($\chi 2 = 28.14$, $p < .001$), such that the association was strongest among participants whose stigma fell within Clusters 2 (Threatening) and 5 (Unappealing Persistent). The association between stress adjustment resources and health was also moderated by cluster membership ($\chi 2 = 21.24$, $p < .001$), and was weakest for individuals whose stigma fell within Clusters 3 (Sociodemographic) and 4 (Innocuous Persistent).

General Discussion

Across two studies, we created an empirical classification of 93 stigmatized statuses according to their shared dimensional features, with the goal of spurring a comprehensive account of the impact of stigma on health and wellbeing. Our approach represents the first empirical assessment of the theoretical dimensions proposed by Jones and colleagues (1984) several decades ago, which has become even more relevant with recent conceptualizations of stigma as a fundamental cause of both mental and physical health disparities (e.g., Hatzenbuehler et al., 2013). In Study 1, we derived ratings of these dimensions – namely, visibility, course, disruptiveness, aesthetics, origin, and peril – for each of the 93 stigmatized statuses. These ratings were highly reliable within and between stigma experts and members of the general population. Supporting the taxonomy's validity, these dimensional ratings were consistently associated with social distance and yielded useful clusters for uniting stigmatized statuses that share dimensional features. In Study 2, we linked these dimensional ratings and clusters to the psychological well-being of stigmatized individuals themselves, including health outcomes as well as numerous psychosocial mechanisms that have been previously shown to underlie the association between stigma and health. We demonstrated the utility of our approach in two ways. First, we examined whether cluster membership moderated associations between mechanisms and health. Second, we used our approach to capture the naturally occurring intersectional nature of multiple stigmas within participants.

The application of the dimensional taxonomy created here provides a tool to begin understanding the full public health impact of stigma. Specifically, our results extend previous findings regarding associations between individual dimensions, typically studied in isolation, and health and well-being. These results extend, help resolve, or in some cases contradict previous findings.

Perhaps the most parsimonious, and therefore useful, aspect of our approach is our location of each stigmatized status within a cluster described by shared dimensional features. Using this approach, we showed that each stigmatized status can be located within one of five clusters distinguished by a unique dimensional fingerprint with distinct relationships to mental health. Specifically, stigmatized statuses belonging to the Awkward cluster (e.g., high visibility, persistent course, high disruptiveness) tended to be perceived as impactful stigmas that were associated with health impairment. Stigmatized statuses belonging to the Threatening cluster (e.g., aesthetically unappealing, high assumed personal responsibility, high peril) were associated with reports of interpersonal discrimination and expectations of stigma, but were not particularly central or salient to people's identities. The Threatening cluster was also associated with greater health impairments. Stigmatized statuses in the Innocuous Persistent cluster (e.g., moderately persistent course, aesthetically appealing, moderate personal responsibility) and the Sociodemographic cluster (e.g., high visibility, persistent course) were associated with fewer health impairments, less perceived stigma, fewer emotion regulation difficulties, and greater resources to cope with stress than stigmas belonging to the other clusters. Finally, stigmatized statuses belonging to the Unappealing Persistent cluster (e.g., moderately persistent course, somewhat aesthetically unappealing, moderate personal responsibility) generally possessed greater emotion regulation difficulties and fewer stress adjustment resources.

Taken together, the cluster approach established here allows researchers to easily compare and contrast stigmatized statuses, even those typically examined in isolation, according to their cluster membership. As one example, differences in the experience of Muslim stigma is typically studied separately from the experience of transgender stigma. However, because both stigmatized statuses belong to the Unappealing Persistent cluster, they share dimensional features (e.g., low visibility, moderately persistent course, low disruptiveness), from which discrimination and health experiences can be compared. Grouping stigmas according to dimensionally similar clusters encourages greater collaboration across researchers studying previously isolated stigmas and therefore encourages greater unity and coherence across the field of stigma and health.

Categorizing stigmas according to a handful of clusters is useful for parsimoniously understanding not only differences in health, stigma-related mechanisms, and general psychosocial mechanisms across stigmas, but also for understanding differences in how those mechanisms relate to health across stigmas. Differential associations between mechanisms and health according to cluster membership is particularly relevant to researchers interested in reducing stigma and improving stigma coping, as targeting certain mechanisms may be more effective for stigmas in some clusters than in others. Our results indicated that the associations between stigma-specific and psychosocial mechanisms and health was significantly moderated by cluster membership. For example, while overall levels

of stigma-related mechanisms were low across the Innocuous Persistent and Sociodemographic clusters, one notable difference between them was the that the stigma importance mechanism did not appear to influence health among those in the Sociodemographic cluster. On the other hand, the association between stigma-related mechanisms and health was generally strongest for those in the Awkward cluster. The association between stigma-related mechanisms and health for those in this cluster can be understood by the comparatively highly disruptive and visible natures of Awkward stigmas, particularly as visibility has been tied to lower attributional ambiguity and greater emotional consequences when facing stigma-salient stress (Crocker, Voelkl, Testa, & Major, 1991; Santuzzi & Ruscher, 2002). The lack of association between stigma importance and health for individuals in the Sociodemographic cluster potentially confirms previous weak associations between collective self-esteem and wellbeing among these highly visible, persistent-course stigmatized populations (Crocker, Luhtanen, Blaine, & Broadnax, 1994) and previous stronger associations between stigma centrality and health for stigmas of the type in our Innocuous Persistent cluster (e.g., concealable, low peril, low disruptiveness, persistent course) (Quinn & Chaudoir, 2009). Although the non-stigma related psychosocial mechanisms, namely emotion regulation and stress-adjustment resources, were highly associated with health across all clusters, these associations were comparatively weaker for the Innocuous Persistent and Sociodemographic clusters. Given our observation that these clusters experience lower levels of social distance due to their stigmas, it stands to reason that emotion regulation and stress adjustment resources might play a comparatively smaller role for individuals whose stigmas incur less social distance.

In addition to creating and validating a dimensional taxonomy of stigma, the present research represents the first attempt, to our knowledge, to assess a comprehensive range of stigmatized identities, conditions, and attributes in a general sample of U.S. adults. To this end, our results provide preliminary information regarding the relative frequency of different stigmatized statuses in such a sample. More than 95% of the participants endorsed at least one stigma, and approximately 90% of participants endorsed multiple stigmatized statuses. The average participant in our sample endorsed six stigmatized statuses. Obesity, socioeconomic deprivation, and mental illnesses were among the most commonly endorsed stigmatized statuses. Minority racial and religious groups joined this list when restricted to the stigmatized statuses that participants endorsed as most personally impactful. While prevalence estimates of these conditions in the general population awaits future probability-based sampling designs, the preliminary information provided here regarding the distribution of various stigmatized statuses suggests that stigma might affect the majority of the adult U.S. population with significant public health implications.

Because our taxonomy lends itself to capturing multiple stigmatized statuses residing within the same person, this approach can provide a much-needed empirical platform for the study of intersectionality (Cole, 2009; McCall, 2005). In fact, when we examined dimensional correlates using all of an individual's stigmas at once, we found a somewhat different pattern of results than when we examined these correlates using an individual's most impactful stigma. For example, in the intersectional analyses, most of the dimensions were no longer as strongly associated with stigma importance as they had been in the solitary analyses, preliminarily suggesting that aggregating across multiple stigmas might dilute the ability of

dimensions to predict stigma's impact. However, most other associations between dimensions and our outcomes continued to remain significant, or even became stronger, using the aggregate approach. Future research might use our taxonomy to advance quantitative solutions to capturing intersectionality, such as by aggregating dimensional scores across all of the stigmatized statuses that each participant endorses, as we did here, or weighting more heavily those stigmatized statuses that are considered to be more personally impactful when predicting health. These aggregate scores could then be used to predict health-relevant outcomes while preserving the naturally occurring distribution of multiple stigmas within each participant. Our quantitative approach to intersectionality can help overcome limitations of existing approaches that tend to examine the joint influence of only a few prominent intersecting stigmas (e.g., race/ethnicity, gender, and socioeconomic status) as a statistical interaction term predicting health. The approach advanced here empirically recognizes that the average person possesses many more stigmatized characteristics than can typically be analyzed using statistical interaction and also recognizes that each of those characteristics possesses a unique dimensional fingerprint with potentially distinct health implications.

Despite the promise offered by the approach advanced here, results must be interpreted in light of limitations. The present research utilized MTurk as a convenient, cost-effective source of data collection. Given that MTurk workers tend to be younger, under-employed, more well-educated, and more predominantly White compared to the U.S. population (Levay, Freese, & Druckman, 2016), future research ought to take advantage of probability sampling to assess the generalizability of our results and capture the prevalence of various stigmatized conditions across the population. Such an approach might nonetheless also have to oversample particularly rare stigmatized statuses, as we have done, in order to compile a sufficient sample size for analyses. Even with our multistage sampling approach to ensuring sufficient representation across stigmatized statuses, we were unable to recruit participants who ranked 13 of the 93 stigmatized statuses as personally impactful. Recruiting individuals with these stigmatized statuses (e.g., illiteracy, gang member, severe forms of cancer) would require a concerted outlay of resources. The majority of these stigmatized statuses are located in the Threatening cluster, posing challenges to the generalizability of the associations found for that particular cluster.

To facilitate comprehensibility in this initial attempt to document the overall impact of stigma on health, we condensed several measures of health (i.e., depression, anxiety, general health status, and number of unhealthy days) to represent our primary outcome. However, it will be important for future research to examine the utility of our taxonomy in predicting specific health outcomes across various stigmatized statuses. Future research could also utilize longitudinal designs to examine the role of specific psychosocial mechanisms (e.g., social isolation, emotion dysregulation) as prospective mediators underlying the relationship between stigma dimensional ratings and both mental and physical health outcomes. Future research might also benefit from including additional mechanisms, such as whether the stigmatized individual perceives the stigma as legitimate (Corrigan & Watson, 2002), which we did not include here.

The present research is also inherently limited in not being able to examine the data in every possible way in this first report, although we offer suggestions for future applications. For example, because our primary goal was to establish a valid taxonomy capable of spurring future research across stigmatized identities, conditions, and attributes, we sought to be maximally comprehensive with our analytical approach by including all stigmas, including those directly related to health impairments. This approach presents a unique challenge, as it is possible that the health-related stigmas may confound our prediction of health-related outcomes. We attempted to address this issue by controlling for whether an individual's primary stigma was related to mental or physical health. While this analysis suggests that significant cluster differences in health remain even after controlling for whether the primary stigma was health-related, two cluster comparisons were no longer similar in magnitude with this control. Prospective studies with individuals who possess health-related stigmas could delineate the impact of the stigma on health compared to the impact of the health condition itself. It is worth noting, however, that stigma associated with mental illness has been shown to predict poor psychological outcomes above and beyond the psychiatric symptoms themselves (Link, Cullen, Struening, Shrout, & Dohrenwend, 1989), raising the possibility of a similar phenomenon for other stigmas that are also themselves health-relevant outcomes.

Further, despite our systematic approach to identifying stigmatized statuses for inclusion, it could be argued that some of the identities, conditions, and attributes that we included on our list of stigmas are not particularly stigmatizing because they do not incur significant social disadvantage or power inequities, which some have argued are central to the stigma process (Link & Phelan, 2001). However, we believe that our approach to classifying stigmatized statuses empirically addresses this problem. If divergent definitions of stigma suggest that some of these conditions should not be included, those stigmatized statuses will likely occupy a similar dimensional space. For example, stigmatized statuses in Innocuous Persistent cluster, such as diabetes and psoriasis, are not visible, disruptive, or perilous, which might allow affected individuals to access full social power. As such, these stigmatized statuses might not meet certain sociological definitions of stigma (e.g., those that invoke social power inequities; Link & Phelan, 2001). Researchers who adopt the sociological definition of stigma in their work can thus simply disregard stigmatized statuses in the Innocuous Persistent cluster without implication for stigmatized statuses in the remaining clusters that do meet their conceptual requirements. However, we note that all of the stigmatized statuses on our list are supported by a research literature into the stigma experiences of people with those conditions (e.g., Ginsburg, & Link, 1993; Schabert, Browne, Mosely, & Speight, 2013).

The impact and health consequences of stigma are likely context dependent, as stigma itself is context dependent (Hatzenbuehler, 2016). For the sake of parsimony in this first use of the taxonomy, we created dimensional ratings based on the perception of the general U.S. population. Yet, even within the U.S., stigma and its consequences depend on the finer-grained situations in which they are enacted. For instance, while being deaf is stigmatized within the general U.S population, it would not be stigmatized within a community or setting comprised primarily of deaf people (Solomon, 2012). Therefore, future research using this comprehensive taxonomy might wish to determine whether the specific contexts

in which the taxonomy is applied moderate the overall associations found here as applied to the general U.S. population.

How researchers use the taxonomy advanced here depends on the specific purpose of the future research. The taxonomy created here lends itself to comparing across stigmatized statuses in predicting various outcomes, such as health. Yet, the decision of whether to compare various stigmatized statuses according to their location along each of the six continuous dimensions or according to their cluster membership might be informed by the comparative precision that is useful for any given study. Studies that compare a large number of stigmas, for instance, might be best served by utilizing the cluster membership of stigmas given the relative parsimony provided by this approach (i.e., membership in one of five clusters) rather than utilizing the location of each stigma along the continuous space of the six dimensions. Conversely, research that seeks to understand which facets of a particular set of stigmas are most responsible for predicting a given outcome would be best served by utilizing the information provided by each dimension, perhaps simultaneously entering each stigma's score for each dimension into a regression predicting that particular outcome. The present research paves the way for either approach by locating each stigma along each dimension as well as in a discrete cluster of stigmas sharing dimensional features.

In conclusion, the taxonomy validated here draws upon a widely-known framework of stigma dimensions to provide a comprehensive yet parsimonious empirical tool for advancing the understanding of stigma's impact on health. In our initial use of this taxonomy, we found that some types of stigma, united by various dimensional features, were associated with better mental health, fewer discrimination experiences, and greater mastery, social support, and self-esteem than other stigmatized statuses with distinct dimensional features. Our hope is that this taxonomy spurs future uses, ideally applied to population-based samples and across a broader range of health outcomes, to continue comparing across stigmatized statuses to understand their shared and unique implications for health and the psychosocial processes that exacerbate and protect against stigma's threat to health. Perhaps one of the most striking findings of the present research is the near universal endorsement of stigmatized statuses in our sample and the large number of stigmatized statuses endorsed by each person. This finding alone speaks to the need for a comprehensive taxonomy of stigma and suggests that the tool created here might be fruitfully employed in future research to better understand the complexity of this persistent public health problem.

Acknowledgments

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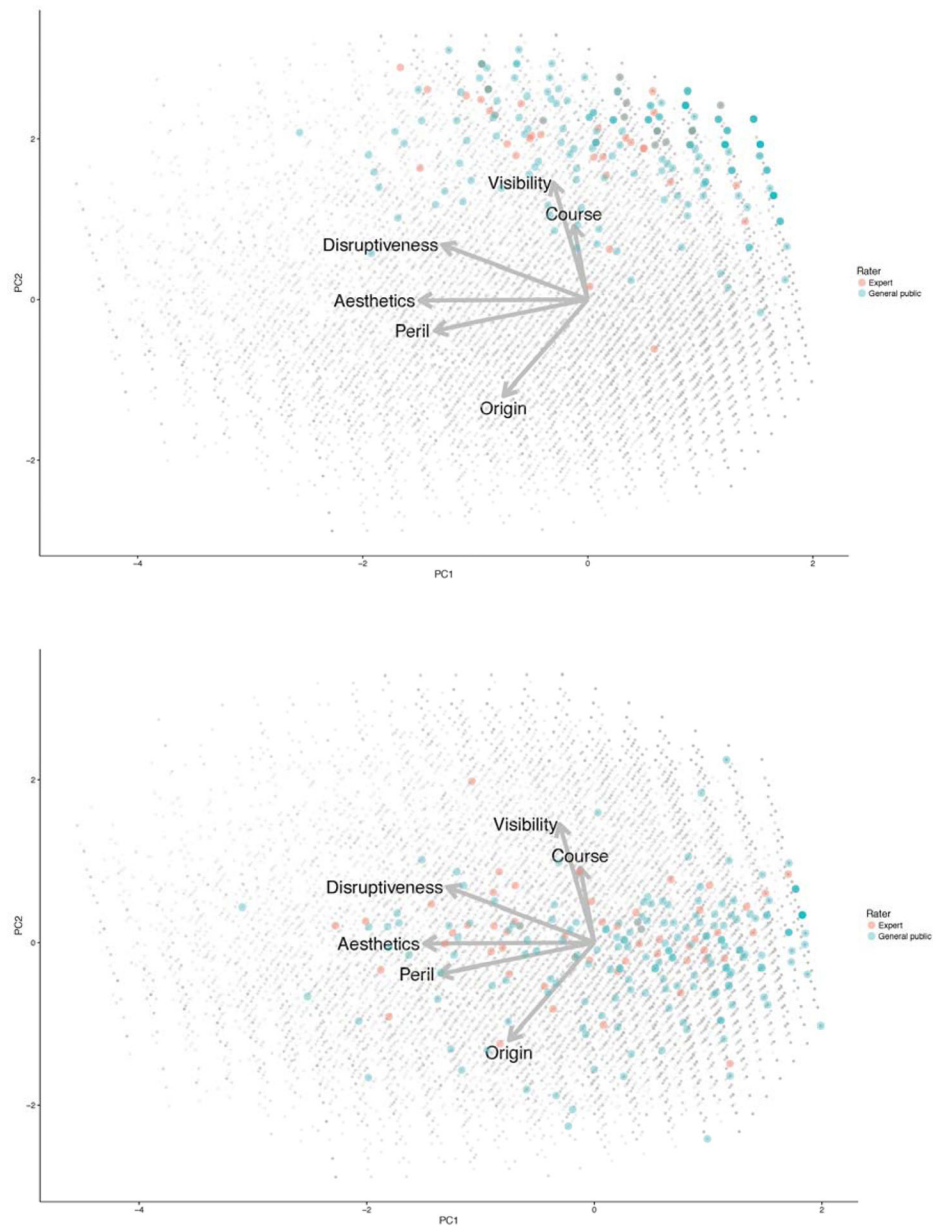
Figure 1.
Expert and general public ratings of the six stigma dimensions for old age (top) and being lesbian, gay, or bisexual (bottom). This figure shows principal components analysis plots of expert and general public ratings in the six-dimensional space projected onto two dimensions so that the variation along each axis is maximized. Gray arrows indicate the projection of dimensional axes into PCA space.
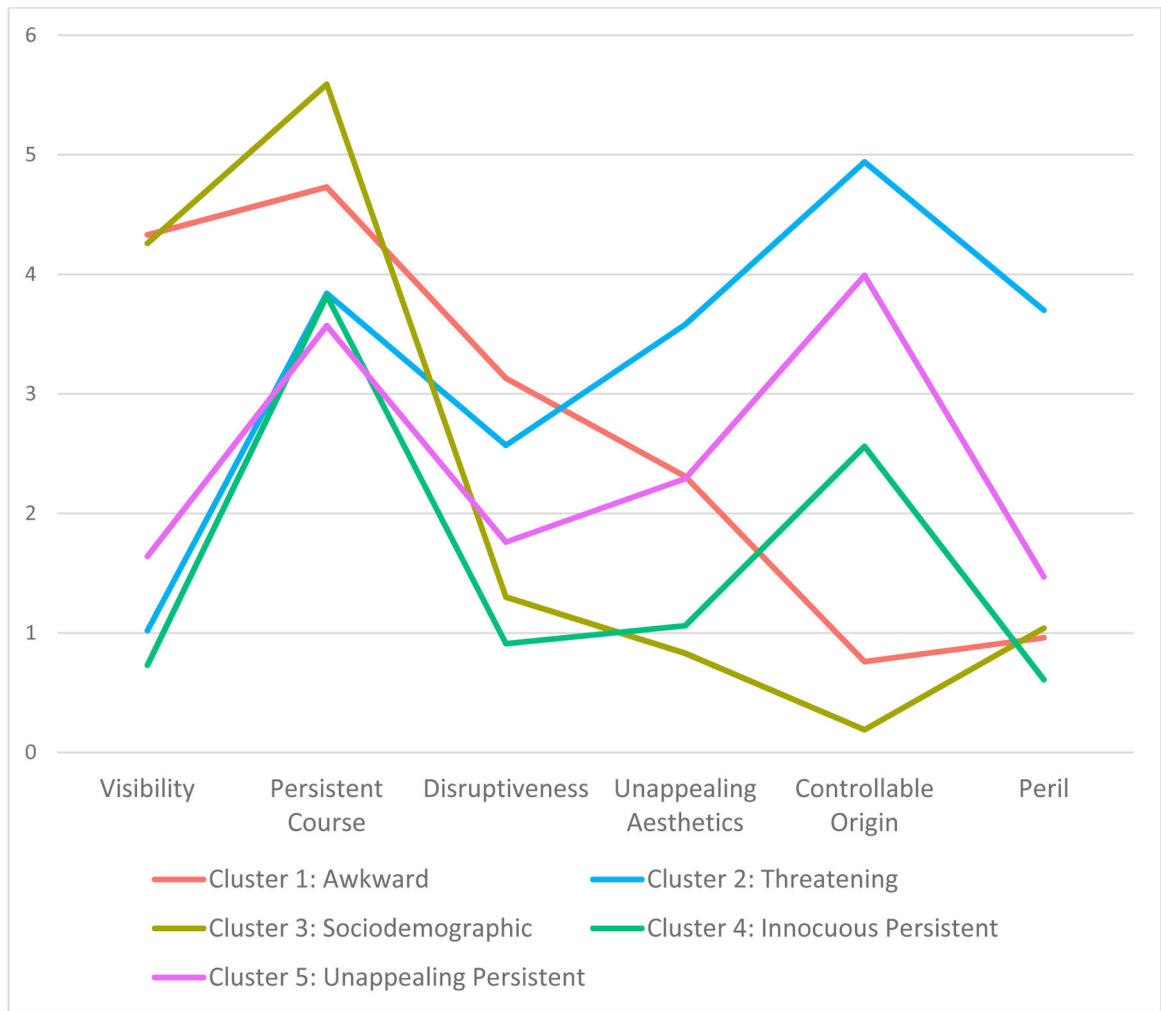
Figure 2.
Mean dimensional ratings of stigma clusters.

Figure 3.

The location of 93 stigmatized statuses and their respective dimensional clusters. This figure shows a principal components analysis (PCA) plot of mean stigma scores, including expert and general public raters in the six dimensional space projected onto two dimensions so that the variation along each axis is maximized. Colors indicate cluster membership. Gray arrows indicate the projection of dimensional axes into PCA space.

Table 1

Agreement on Dimension Ratings Within Experts, Within the General Public, and Between Expert and General Public Raters, and Correlations Between Dimensions and Social Distance

Dimension	Agreement Within Expert Raters (ICC)	Agreement Within General Public Raters (ICC)	Correlation (*r*) Between Expert Raters and General Public Raters	Correlation (*r*) with Social Distance Scale
Visibility	.99	.99	.98	−.09
Persistent Course	.96	.99	.96	−.06
Disruptiveness	.97	.99	.95	.71[**]
Unappealing Aesthetics	.97	.99	.87	.72[**]
Controllable Origin	.99	.99	.98	.46[**]
Peril	.98	.99	.95	.87[**]

Note. ICC=Intraclass Correlation Coefficient. *r*=Pearson's correlation coefficient.

[**] $p < .001$.

Table 2

Dimensional Ratings, Rank, Clusters, and Frequency of 93 stigmatized statuses

Stigma	Visibility [a]	Persistent Course	Disrupt	Unappeal-ing Aesthetics	Controll-able Origin	Peril	Cluster	n	%
Autism Or Autism Spectrum Disorder	3.68 / 20	5.09 / 17	4.38 / 2	2.41 / 31	.53 / 74	1.51 / 30	1	13	1.3
Bipolar Disorder Symptomatic	2.60 / 25	4.31 / 40	3.67 / 5	2.23 / 34	1.64 / 55	2.82 / 16	1	34	3.3
Blind Completely	4.97 / 6	5.39 / 11	3.39 / 9	1.42 / 53	.29 / 82	.44 / 77	1	3	.3
Cleft Lip And Palate Current	5.29 / 4	4.21 / 41	2.46 / 20	3.46 / 11	.43 / 75	.29 / 88	1	3	.3
Deaf Completely	4.67 / 9	5.30 / 12	4.05 / 4	1.35 / 55	.38 / 78	.41 / 79	1	4	.4
Facial Scars	4.12 / 16	4.48 / 35	1.85 / 35	2.79 / 23	1.20 / 63	.49 / 71	1	106	10.3
Mental Retardation	4.18 / 15	5.56 / 6	4.35 / 3	2.85 / 21	.22 / 85	.90 / 44	1	1	.1
Movement/Gait Impairment Current Avg. Sev.	4.12 / 17	3.94 / 45	2.03 / 32	1.58 / 49	.77 / 67	.59 / 65	1	56	5.5
Schizophrenia Symptomatic	3.53 / 21	4.81 / 28	4.39 / 1	3.20 / 16	1.25 / 61	3.83 / 6	1	3	.3
Short	5.65 / 2	5.68 / 2	2.26 / 22	2.64 / 27	.10 / 93	.22 / 90	1	20	2.0
Speech Disability	4.36 / 13	3.91 / 46	3.63 / 6	2.04 / 37	.97 / 65	.32 / 86	1	27	2.6
Stroke Recent Avg. Impairment	3.20 / 22	3.86 / 48	2.72 / 17	1.42 / 54	1.12 / 64	.69 / 53	1	9	.9
Unattractive	4.50 / 11	4.91 / 26	2.07 / 29	3.29 / 15	1.24 / 62	.42 / 78	1	127	12.4
Using A Wheel Chair All The Time	5.69 / 1	4.77 / 29	2.52 / 18	1.59 / 48	.61 / 73	.52 / 68	1	10	1.0
Alcohol Dependency Current	1.79 / 35	3.68 / 53	3.04 / 13	2.84 / 22	4.67 / 25	2.93 / 13	2	45	4.4
Bacterial STD	.28 / 86	2.48 / 91	1.20 / 59	3.95 / 3	4.44 / 31	3.45 / 11	2	23	2.2
Cocaine Use Recreationally	.95 / 52	3.19 / 73	2.25 / 23	2.72 / 26	5.47 / 10	2.86 / 14	2	81	7.9
Criminal Record	.35 / 83	5.11 / 16	2.18 / 25	2.93 / 19	5.17 / 17	3.92 / 4	2	68	6.6
Crystal Meth. Use Recreationally	1.47 / 41	3.58 / 56	2.76 / 16	3.55 / 10	5.42 / 11	3.52 / 10	2	23	2.2
Drug Dealing	.77 / 61	3.51 / 59	2.97 / 14	3.71 / 7	5.55 / 6	4.21 / 3	2	27	2.6
Drug Dependency Current	2.05 / 29	3.85 / 49	3.46 / 8	3.41 / 13	4.79 / 23	3.66 / 9	2	28	2.7
Gang Member Currently	1.25 / 44	3.96 / 44	3.31 / 10	3.65 / 9	5.56 / 4	5.08 / 1	2	0	0
Genital Herpes	.22 / 88	4.11 / 42	1.07 / 68	3.80 / 5	4.22 / 35	3.26 / 12	2	17	1.7
HIV Avg. Symptoms	.69 / 64	5.05 / 19	1.78 / 37	4.01 / 2	4.13 / 36	3.88 / 5	2	1	.1
Homeless	2.04 / 30	3.20 / 72	2.88 / 15	3.34 / 14	3.90 / 40	2.83 / 15	2	58	5.7
Injection Drug Use	1.57 / 39	3.72 / 52	3.06 / 12	3.94 / 4	5.34 / 12	3.69 / 8	2	11	1.1
On Parole Currently	.48 / 72	3.04 / 83	2.41 / 21	2.95 / 18	5.02 / 19	3.80 / 7	2	10	1.0
Sex Offender	.37 / 79	5.29 / 13	3.58 / 7	5.31 / 1	5.50 / 8	4.70 / 2	2	2	.2

Stigma	Visibility [a]	Persistent Course	Disrupt	Unappeal-ing Aesthetics	Controll-able Origin	Peril	Cluster	n	%
Asian American	4.56 / 10	5.46 / 10	.78 / 77	.38 / 91	.15 / 92	.25 / 89	3	87	8.5
Black/African American	5.24 / 5	5.66 / 3	1.62 / 41	.93 / 72	.21 / 86	2.06 / 23	3	63	6.1
Latina/Latino	3.79 / 18	5.63 / 4	1.21 / 58	.58 / 84	.18 / 89	1.30 / 33	3	76	7.4
Middle Eastern	4.20 / 14	5.59 / 5	1.80 / 36	1.09 / 66	.19 / 87	2.11 / 22	3	14	1.4
Multiracial	3.08 / 23	5.55 / 7	1.01 / 71	.57 / 85	.18 / 90	.79 / 48	3	44	4.3
Native American	3.75 / 19	5.51 / 9	1.12 / 64	.49 / 89	.18 / 88	.67 / 57	3	19	1.9
Old Age	4.75 / 7	5.77 / 1	1.74 / 38	2.09 / 35	.28 / 84	.51 / 70	3	99	9.7
South Asian	4.73 / 8	5.53 / 8	1.09 / 66	.50 / 87	.17 / 91	.64 / 60	3	39	3.8
Asexual	.44 / 75	4.36 / 38	.81 / 76	.88 / 73	2.34 / 49	.45 / 76	4	19	1.9
Atheist	.16 / 92	4.58 / 32	.88 / 74	1.23 / 64	5.48 / 9	.83 / 45	4	276	26.9
Bipolar Disorder Remitted	.60 / 67	3.51 / 60	1.45 / 48	1.19 / 65	1.60 / 57	1.75 / 24	4	22	2.1
Breast Cancer Current Avg. Symptoms	1.06 / 50	3.05 / 82	1.08 / 67	.98 / 68	.28 / 83	.69 / 55	4	1	.1
Breast Cancer Remitted	.29 / 85	2.72 / 89	.40 / 91	.49 / 88	.35 / 80	.48 / 74	4	6	.6
Chest Scars	.37 / 80	4.57 / 33	.48 / 87	1.84 / 41	1.65 / 54	.39 / 82	4	25	2.4
Colorectal Cancer Current Avg. Symptoms	1.04 / 51	3.26 / 69	1.19 / 61	1.23 / 62	.38 / 77	.71 / 51	4	0	0
Colorectal Cancer Remitted	.29 / 84	2.77 / 87	.47 / 88	.67 / 83	.39 / 76	.51 / 69	4	2	.2
Depression Remitted	.39 / 78	2.77 / 88	1.06 / 69	.82 / 76	2.27 / 50	1.06 / 39	4	270	26.3
Diabetes Type 2	.56 / 68	4.43 / 36	.70 / 80	.77 / 78	2.77 / 46	.66 / 59	4	27	2.6
Divorced Previously	.19 / 89	4.33 / 39	.37 / 93	.35 / 92	4.28 / 32	.21 / 91	4	131	12.8
Documented Immigrant	.46 / 74	4.62 / 30	.70 / 82	.72 / 80	4.98 / 20	.63 / 61	4	20	2.0
Fundamentalist Christian	.48 / 73	4.91 / 25	.95 / 73	.86 / 74	5.08 / 18	.62 / 63	4	74	7.2
Had An Abortion Previously	.11 / 93	5.00 / 21	.65 / 84	1.34 / 56	5.26 / 16	.31 / 87	4	62	6.0
Heart Attack Recent Avg. Impairment	1.33 / 43	3.41 / 62	1.49 / 45	.83 / 75	1.61 / 56	.73 / 49	4	4	.4
Infertile	.16 / 91	4.37 / 37	.40 / 92	.27 / 93	.69 / 71	.20 / 92	4	21	2.0
Intersex	.81 / 58	4.92 / 24	1.64 / 39	2.50 / 28	1.41 / 58	.70 / 52	4	1	.1
Jewish	.77 / 60	5.05 / 20	.70 / 81	2.33 / 33	4.22 / 33	.49 / 72	4	15	1.5
Lesbian/Gay/Bisexual/Non-Heterosexual	.65 / 65	5.12 / 15	1.39 / 51	1.73 / 45	2.41 / 47	1.19 / 37	4	94	9.2
Less Than A High School Education	1.21 / 45	3.33 / 67	1.36 / 52	1.31 / 58	4.22 / 34	.61 / 64	4	14	1.4
Limb Scars	.87 / 56	4.53 / 34	.60 / 86	1.77 / 44	1.70 / 52	.33 / 85	4	93	9.1
Lung Cancer Current Avg. Symptoms	1.61 / 38	3.86 / 47	1.47 / 46	1.26 / 60	1.98 / 51	.81 / 46	4	0	0
Lung Cancer Remitted	.48 / 71	3.15 / 75	.62 / 85	.68 / 82	1.66 / 53	.58 / 67	4	1	.1

Stigma	Visibility [a]	Persistent Course	Disrupt	Unappeal-ing Aesthetics	Controll-able Origin	Peril	Cluster	n	%
Movement/Gait Impairment Remitted Avg. Sev.	2.31 / 28	2.86 / 85	1.22 / 56	.73 / 79	.71 / 70	.40 / 81	4	70	6.8
Prostate Cancer Current Avg. Symptoms	.89 / 55	3.14 / 77	1.10 / 65	.95 / 71	.32 / 81	.68 / 56	4	0	0
Prostate Cancer Remitted	.23 / 87	2.61 / 90	.41 / 90	.51 / 86	.36 / 79	.47 / 75	4	2	.2
Psoriasis Remitted Avg. Severity	1.67 / 37	2.43 / 92	.77 / 79	1.04 / 67	.75 / 68	1.06 / 40	4	27	2.6
Teen Parent Currently	1.15 / 46	4.89 / 27	1.21 / 57	1.25 / 61	4.77 / 24	.38 / 83	4	5	.5
Teen Parent Previously	.36 / 82	4.95 / 22	.78 / 78	.96 / 70	4.65 / 26	.34 / 84	4	32	3.1
Unemployed	.70 / 63	2.03 / 93	1.28 / 54	1.33 / 57	3.72 / 41	.72 / 50	4	436	42.5
Voluntarily Childless	.41 / 77	3.54 / 58	.46 / 89	.43 / 90	5.33 / 13	.15 / 93	4	182	17.8
Was Raped Previously	.17 / 90	4.95 / 23	1.03 / 70	.98 / 69	1.32 / 59	.49 / 73	4	66	6.4
Working Class Or Poor	1.48 / 40	3.45 / 61	1.16 / 63	1.23 / 63	3.29 / 44	.93 / 43	4	422	41.2
Working In A Manual Industry	1.14 / 47	3.30 / 68	.81 / 75	.82 / 77	3.57 / 43	.58 / 66	4	138	13.5
Working In A Service Industry	.81 / 59	3.06 / 81	.70 / 83	.68 / 81	3.61 / 42	.41 / 80	4	299	29.2
Alcohol Dependency Remitted	.51 / 70	3.08 / 79	1.19 / 60	1.27 / 59	4.54 / 29	1.68 / 28	5	95	9.3
Depression Symptomatic	1.88 / 33	3.24 / 70	3.11 / 11	1.57 / 50	2.36 / 48	1.75 / 25	5	203	19.8
Drug Dependency Remitted	.52 / 69	3.21 / 71	1.33 / 53	1.72 / 46	4.62 / 27	2.15 / 21	5	93	9.1
Fat/Overweight/Obese Current Avg. Severity	5.40 / 3	3.82 / 50	2.07 / 28	3.66 / 8	4.91 / 21	.95 / 42	5	345	33.7
Fat/Overweight/Obese Remitted Avg. Severity	2.43 / 27	2.82 / 86	1.00 / 72	1.43 / 52	4.59 / 28	.63 / 62	5	317	30.9
Fecal Incontinence	1.39 / 42	3.58 / 57	2.47 / 19	3.76 / 6	.65 / 72	.80 / 47	5	19	1.9
Having Sex For Money	.37 / 81	3.13 / 78	2.14 / 27	3.46 / 12	5.31 / 15	1.71 / 26	5	23	2.2
Illiteracy	1.83 / 34	3.15 / 76	2.23 / 24	1.66 / 47	4.01 / 37	.69 / 54	5	0	0
Living In A Trailer Park	.85 / 57	3.08 / 80	1.18 / 62	1.94 / 40	3.98 / 38	1.21 / 36	5	70	6.8
Living In Public Housing	.91 / 53	3.18 / 74	1.24 / 55	1.82 / 43	3.91 / 39	1.39 / 32	5	35	3.4
Marijuana Use Recreationally	.63 / 66	2.99 / 84	1.45 / 47	1.43 / 51	5.51 / 7	1.68 / 27	5	261	25.5
Multiple Body Piercings	1.72 / 36	3.33 / 66	1.54 / 43	2.43 / 30	5.75 / 2	1.15 / 38	5	54	5.3
Multiple Facial Piercings	4.40 / 12	3.39 / 64	2.03 / 31	2.74 / 25	5.56 / 5	.97 / 41	5	34	3.3
Multiple Tattoos	2.01 / 31	4.61 / 31	1.44 / 49	2.08 / 36	5.75 / 1	1.21 / 35	5	123	12.0
Muslim	1.09 / 49	5.14 / 14	1.56 / 42	2.01 / 39	4.49 / 30	2.22 / 20	5	12	1.2
Polyamorous	.43 / 76	3.60 / 55	1.64 / 40	2.02 / 38	5.65 / 3	1.41 / 31	5	45	4.4
Psoriasis Current Avg. Severity	2.70 / 24	3.36 / 65	1.39 / 50	2.46 / 29	.84 / 66	1.64 / 29	5	26	2.5
Schizophrenia Remitted	1.10 / 48	4.05 / 43	2.05 / 30	1.84 / 42	1.28 / 60	2.51 / 17	5	5	.5
Smoking Cigarettes Daily	2.44 / 26	3.41 / 63	1.49 / 44	2.77 / 24	5.32 / 14	2.51 / 18	5	244	23.8

Stigma	Visibility [a]	Persistent Course	Disrupt	Unappeal-ing Aesthetics	Controll-able Origin	Peril	Cluster	n	%
Transgender	1.89 / 32	5.06 / 18	2.17 / 26	2.87 / 20	3.28 / 45	1.23 / 34	5	12	1.2
Undocumented Immigrant	.71 / 62	3.78 / 51	1.98 / 33	2.38 / 32	4.80 / 22	2.27 / 9	5	5	.5
Urinary Incontinence	.89 / 54	3.66 / 54	1.96 / 34	2.97 / 17	.73 / 69	.66 / 54	5	45	4.4

[a]Mean dimensional score / rank order of each stigmatized status.

Note. Cluster 1 = Awkward; Cluster 2 = Threatening; Cluster 3 = Sociodemographic; Cluster 4 = Innocuous Persistent; Cluster 5 = Unappealing Persistent

Table 3

Mean (SD) Dimensional and Social Distance Ratings and Qualitative Descriptions of Stigma Clusters

Dimension	Cluster 1: Awkward	Cluster 2: Threatening	Cluster 3: Sociodemo-graphic	Cluster 4: Innocuous Persistent	Cluster 5: Unappealing Persistent
Visibility	4.33 (0.90)	1.02 (0.67)	4.26 (0.69)	0.73 (0.51)	1.64 (1.28)
Persistent Course	4.73 (0.63)	3.84 (0.82)	5.59 (0.10)	3.82 (0.92)	3.57 (0.63)
Disruptiveness	3.13 (0.95)	2.57 (0.79)	1.30 (0.37)	0.91 (0.37)	1.76 (0.51)
Unappealing Aesthetics	2.31 (0.75)	3.58 (0.66)	0.83 (0.56)	1.06 (0.51)	2.29 (0.73)
Controllable Origin	0.76 (0.47)	4.94 (0.58)	0.19 (0.04)	2.56 (1.75)	3.99 (1.72)
Peril	0.96 (1.07)	3.70 (0.65)	1.04 (0.71)	0.61 (0.31)	1.47 (0.59)

Dimension	Cluster 1: Awkward	Cluster 2: Threatening	Cluster 3: Sociodemo-graphic	Cluster 4: Innocuous Persistent	Cluster 5: Unappealing Persistent
Visibility	High	Low	High	Low	Low
Persistent Course	High	Medium	High	Medium	Medium
Disruptiveness	High	Medium	Low	Low	Low
Unappealing Aesthetics	Low	High	Low	Low	Medium
Controllable Origin	Low	High	Low	Medium	Medium
Peril	Low	High	Low	Low	Low

Social Distance	Cluster 1: Awkward	Cluster 2: Threatening	Cluster 3: Sociodemo-graphic	Cluster 4: Innocuous Persistent	Cluster 5: Unappealing Persistent
Social Distance	1.04 (.52)	2.17 (0.59)	0.56 (.18)	0.51 (0.23)	1.14 (0.41)

Table 4

Demographic Characteristics of the Sample (N = 1,025)

	n	*%*
Gender		
Female	466	45.5
Male	550	53.7
Transgender / gender non-conforming	9	0.9
Race		
Black	56	5.5
White	815	79.5
Asian/Native Hawaiian / Pacific Islander	108	10.5
Other/Multiracial	37	3.6
Ethnicity		
Hispanic	83	8.1
Non-Hispanic	942	91.9
Income		
< $30,000	542	52.9
$30,000	483	47.1
Sexual Orientation		
Gay, lesbian, queer, or homosexual	50	4.9
Bisexual	64	6.2
Heterosexual / straight	911	88.9
Employment Status		
Full-time	600	31.6
Part-time	241	23.5
On disability	26	2.6
Student	66	6.4
Unemployed	132	12.9
Highest Educational Attainment		
Some high school	10	1.0
High school diploma or GED	129	12.6
Some college or Associate's degree	371	36.2
Bachelor's or other 4-year degree	408	39.8
Graduate degree	107	10.5
Relationship Status		
Single	391	38.2
Partnered	634	61.8
	M	*SD*
Age (Range: 18 – 74; Median = 36.00)	39.59	11.28

Table 5

Standardized Regression Coefficients of the Association Between Stigma Dimensions and Health and Mechanisms for Participants' Most Impactful Stigma (N = 979)

	Visibility	Persistent Course	Disruptiveness	Unappealing Aesthetics	Controllable Origin	Peril
	β	β	β	β	β	β
Health Impairment	-.01	-.10 **	.41 ***	-.04	-.02	-.07 ‡
Stigma Importance	.00	.14 ***	.32 ***	-.10 ‡	.15 **	-.09 **
Stigma Perception	.07	-.01	.14 **	.13 *	-.06	.16 ***
Emotion Regulation Difficulties	-.06	-.03	.32 ***	-.03	-.06	-.07 ‡
Stress Adjustment Resources	.02	.10 **	-.35 ***	.03	.07	.09 *

Note.

‡
p .10,

*
p .05,

**
p .01,

***
p .001.

Coefficients represent bivariate associations, not controlling for other dimensions.

Table 6

Standardized Regression Coefficients of the Association Between Stigma Dimensions and Health and Mechanisms Across All of Participants' Stigmas (N = 979)

	Visibility	Persistent Course	Disruptiveness	Unappealing Aesthetics	Controllable Origin	Peril
	β	B	β	β	β	β
Health Impairment	−.09 ǂ	−.09 *	.31 ***	−.01	−.09 ǂ	.01
Stigma Importance	.07	.02	.07	−.02	.04	.07
Stigma Perception	.07	−.09 *	.08	.07	−.10 *	.16 ***
Emotion Regulation Difficulties	−.13 *	.06	.31 ***	−.02	−.09 ǂ	−.02
Stress Adjustment Resources	.08	.07	−.30 ***	.03	.07	.07 ǂ

Note.

ǂ
p .10,

*
p .05,

**
p .01,

***
p .001.

Coefficients represent bivariate associations, not controlling for other dimensions.

Table 7

Cluster Comparisons Across Mechanisms and Health for Participants' Most Impactful Stigma (N = 979)

	Cluster				
	1 (Awkward)	2 (Threatening)	3 (Sociodemo-graphic)	4 (Innocuous Persistent)	5 (Unappealing Persistent)
	n = 77	n = 34	n = 158	n = 379	n = 331
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Health Impairment	.47 (1.13) [3 4] Higher	.47 (1.16) [3 4] Higher	−.30 (0.78) [1 2 5] Lower	−.17 (0.84) [1 2 5] Lower	.23 (1.13) [3 4] Middle
Stigma Importance	.10 (1.05) Middle	−.33 (1.03) Middle	−.04 (0.91) Middle	−.07 (1.06) Middle	.11 (0.94) Middle
Stigma Perception	.26 (0.99) [2 4] Middle	.88 (1.10) [1 3 4 5] Higher	−.07 (0.98) [2 5] Lower	−.28 (0.93) [1 2 5] Lower	.21 (0.97) [2 3 4] Middle
Emotion Regulation Difficulties	.26 (1.02) [4] Higher	.11 (1.12) Middle	−.12 (1.01) [5] Lower	−.14 (0.88) [1 5] Lower	.16 (1.09) [3 4] Higher
Stress Adjustment Resources	−.35 (1.02) [3 4] Lower	−.19 (1.06) Middle	.16 (1.07) [1 5] Higher	.14 (0.94) [1 5] Higher	−.16 (1.07) [3 4] Lower

Note. Superscripts indicate those clusters from which a particular cluster differs on the row's variable (Bonferroni, $p < 0.05$).

Table 8

Standardized Regression Weights of the Association Between Stigma-Related and General Psychosocial Mechanisms and Health Impairment, By Cluster (N = 979)

	Cluster					Model Comparison (χ^2)
	1 (Awkward)	2 (Threatening)	3 (Sociodemo-graphic)	4 (Innocuous Persistent)	5 (Unappealing Persistent)	
	n = 77	*n* = 34	*n* = 158	*n* = 379	*n* = 331	
Stigma Importance	.44 [4] [5]	.51 [4]	.02 [1] [2] [4] [5]	.24 [3] [5]	.47 [1] [3] [4]	31.75 ***
Stigma Perception	.72 [3] [4]	.47	.49 [1] [5]	.55 [1]	.51 [3]	18.50 **
Emotion Regulation Difficulties	.66	.87 [3]	.74 [2] [5]	.71 [5]	.80 [3] [4]	28.14 ***
Stress Adjustment Resources	−.82	−.83	−.76 [5]	−.78 [5]	−.81 [3] [4]	21.24 ***

Note. Superscripts indicate those clusters from which a particular cluster differs on the row's variable (Bonferroni, *p* < 0.05).