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Title

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Permalink

Journal

ISSN

Authors

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Publication Date

2023

DOI

Peer reviewed

Analyzing U.S. tweets for stigma against people experiencing homelessness

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Abstract

Rising homelessness in the United States has been a considerable source of concern, with policymakers and community members calling for "solutions." Stigma, as a societal barrier to addressing inequity, is a significant cause of morbidity and mortality for people experiencing homelessness (PEH) and presents a barrier to the proposed solutions. Given that using surveys to study stigma against PEH carries potential social desirability bias, our research team used Twitter, a microblogging platform comprised of 140-character messages (aka, tweets), to get a snapshot of how American Twitter users stigmatize PEH. We conducted a content analysis of 6,400 tweets regarding homelessness collected over 3 months. Our analysis was informed by Erving Goffman's theoretical framework regarding stigma. Consistent with Goffman's work, we illustrate the ways that Twitter users rationalized the situation of PEH by creating a "stigma theory," in which they attribute undesirable characteristics to PEH, highlight the multiple ways in which they "deserve" to be homeless because of their character flaws, and emphasize their devalued "bottom of the heap" status. We describe the ways that this stigma theory of homelessness is expressed in tweets regarding interactions between PEH and housed individuals. Complementing Goffman's work as applied to PEH, we also describe the ways in which Twitter users impute additional stigmatized identities onto PEH and the role that disgust plays in stigma against PEH. Our findings suggest the need for a multi-level response to stigma, including addressing stigma at the individual and structural levels and providing housing to PEH across communities.

Full Text

Over a single night count in 2019, around 568,000 people in the United States were experiencing homelessness (Henry et al., 2020). Homelessness includes a range of experiences and paths, including chronic homelessness, intermittent homelessness, and crisis/transitional homelessness (Kuhn & Culhane, 1998). Because the terms "homeless person/people" and "the homeless" are experienced as stigmatizing, we instead employ the term person/people experiencing homelessness, or PEH, in this article.

Multiple studies over the last 2 decades have conclusively shown that experiencing homelessness is detrimental to one's health and can be fatal (Morrison, 2009). Hypertension, peripheral vascular disease, seizures, and chronic obstructive lung disease are two to twenty times more common among PEH than in the general population (Hwang et al., 2009; Lee et al., 2010). Standardized mortality ratios of PEH relative to housed individuals range from two to eleven (Auerswald et al., 2016; Fazel et al., 2014). Upstream causes such as structural and environmental exposures to lack of housing/exposure to the elements, inadequate nutrition, and unsafe living conditions leading to unsafe health-related behaviors account for a significant proportion of these disparities (Auerswald et al., 2016; Dachner & Tarasuk, 2002; Fazel et al., 2014; Hwang et al., 2009).

Stigma against PEH is an understudied structural determinant of their health, given how overwhelming it is in their daily experience. Researchers on stigma against PEH have been informed by Erving Goffman's seminal work, Stigma: Notes on the Management of Spoiled Identity, as a framework for understanding and analyzing stigma (Goffman, 1963; Meanwell, 2013; Meisenbach, 2010; Phelan et al., 1997). Phelan et al. (1997), in particular, used Goffman's framework in their innovative research with a nationally representative sample of individuals in 1990, showing that Americans stigmatize PEH more than they do poor housed people, although both are equally blamed for their situation.

Goffman (1963) defines stigma as "the situation of the individual who is disqualified from full social acceptance" due to an "attribute that is deeply discrediting" that "spoils" their identity. Goffman's (1963) examples of discrediting identities include being LGBTQ, having a mental illness or a physical disability, and experiencing homelessness. For the sake of his discussion, he defines normals as people who do not have the relevant "undesired differentness" (Goffman, 1963). We also employ this term.

Mixed content interactions, per Goffman (1963), are the interactions between individuals who belong to a stigmatized group and normals. As a sociologist, he was particularly intrigued by these interactions, and how specific interactions reflect particular stigmatizing beliefs. He notes that to account for the stigmatized person's "inferiority," normals create a "stigma theory" (Goffman, 1963). The "stigma theory" rationalizes the sub-human status of the stigmatized individual and, therefore, justifies discrimination against them (Goffman, 1963). As part of the stigma theory, normals and the mainstream society use certain generally highly offensive, coded stigma terms, in daily interactions, such as "bastard," as a way of capturing the stigmatized individual's identity in metaphors/imagery (Goffman, 1963). Third, normals also impute a diverse range of often unrelated, undesirable attributes on the stigmatized individual based on the original, stigmatizing feature (Goffman, 1963). For example, in telephone surveys, Link et al. (1996) found that Americans associated PEH with (a) marginalized racial/ethnic groups, such as being African-American or Latinx, (b) undesirable attributes (e.g., being detrimental to business), and (c) other stigmatized identities (e.g., being mentally ill or having a substance use disorder). Stigma research in the past 5 decades has grown considerably on Goffman's foundational work. Link and Phelan have analyzed structural stigma enforced by institutions to oppress stigmatized groups (2014). Stigma and health researchers have more recently highlighted the importance of "intersectionality," which is how multiple stigmatized

identities can interact to affect the health/life of an individual or group (Crenshaw, 1989; Grollman, 2014; Weisz & Quinn, 2018).

Stigma directly contributes to the disparities in wellbeing that plague PEH, including disparities in experiences of violence, particularly hate crimes, negative mental and physical health outcomes, and access to services. Due to stigma, PEH are at a significantly greater risk of being the victims of hate crimes than the general population. Nationally, according to the United States Department of Justice, 49% of individuals experiencing homelessness state that they have been victims of violence (including harassment and violent injury from police), compared to 2% of the general population (Meinbresse et al., 2014; Truman, 2011).

In addition to an increased risk of violence, stigma has been tied to negative mental health outcomes. Boydell et al. (2000) documented that perception of stigma by PEH was associated with social isolation and a degraded sense of self-worth. A study of adults living with mental illness and experiencing homelessness found that perceived stigma was an important barrier to accessing mental healthcare due to their fear of discrimination and their perception of being labeled as "mentally ill" as a result of seeking psychiatric treatment (Kim et al., 2007). The perception of bias by youth experiencing homelessness was correlated with suicidality, loneliness, and social alienation (Kidd, 2007).

PEH's physical health has also been shown to be impacted by stigma. Weisz and Quinn (2018) studied the link between perceived stigma due to homelessness and physical health (i.e., chronic medical conditions, current symptoms, etc.) in a diverse cohort of 138 adult PEH. They found that, after controlling for gender, race, age, chronic mental illness status, and time spent without stable housing, perceived homelessness stigma significantly predicted poorer physical health (Weisz & Quinn, 2018). Also, Wolitski et al. (2009) found that among PEH living with HIV, overall perceived stigma was associated with aversion to HIV/STD testing, non-adherence to treatment, and increased HIV transmission behaviors.

Stigma from figures of authority and internalized stigma have been shown to discourage PEH from accessing readily available services (Kim et al., 2007). Among youth experiencing homelessness in New York, stigma due to incarceration and homelessness drove them into the dangerous "street" economy, such as drug dealing or sex work (Gwadz et al., 2009). One youth in an SF-based ethnography stated that he would prefer to spend the night in jail than in a homeless shelter, which he perceived as far more stigmatizing (Hickler & Auerswald, 2009).

One current and prevailing theory regarding disgust is that it is the human body's evolved defense mechanism to avoid infectious diseases (Curtis, 2011; Oaten et al., 2011). Both Oaten et al. (2011) and Curtis (2011) point out that, throughout history, disgust has been deployed as a moral weapon to shun certain out-groups (e.g., people living with HIV) and to stigmatize them. Disgust, as a moral and political tool, can be used to maintain power differences and oppress stigmatized groups (e.g., the Hindu caste system; Miller, 1997; Oaten et al., 2011).

In the United States, politicians and communities are increasingly reacting to PEH with disgust/stigma by enacting "Not In My Backyard" (NIMBY) policies and legislation. From

2006–2015, the National Law Center on Homelessness and Poverty tracked municipal codes that punish PEH's life-sustaining behaviors in 197 U.S. cities, finding that 47% of these cities prohibit sitting and lying down in public (Bauman et al., 2017).

The U.S. Department of Housing and Urban Development specifically cites housing for PEH as a common trigger of NIMBY-ism, with communities citing fears of more crime, depreciated property value, and other negative effects of housing PEH (Henry et al., 2017). These NIMBY fears, according to Takahashi (1997), are closely tied to the "spatialization of stigma," which simply means that the very physical environment and the service facilities that stigmatized individuals inhabit and use also become stigmatized and devalued by society (Takahashi, 1997). Takahashi (1997) points out that the increasing NIMBY legislation in the U.S. is simply an institutionalization of spatial stigmatization against PEH. These policies are both expensive and ultimately ineffective at ending homelessness (Bauman et al., 2017; Mcdonald et al., 2016). Moreover, the U.N. Human Rights Committee (2014) has termed U.S. laws criminalizing PEH as "cruel" and urges their abolition.

Given that stigma disproportionately affects PEH and contributes to their disparate health outcomes and barriers to leaving the street, reversing stigma is critical to ending homelessness in the US. To do so, we first need to describe stigmatizing beliefs against PEH in the everyday lives of Americans and to be able to do so on an ongoing basis using readily available data. Such data could help inform U.S. policy, interventions, and communities on how to best approach stigma, and thereby, homelessness. However, using survey tools or qualitative interviews to study stigmatizing attitudes toward PEH carries the potential of social desirability bias.

As a result, our research team turned to Twitter to reach our goal of qualitatively describing the stigmatizing beliefs regarding PEH in the United States. Twitter is a public, microblogging platform that uses 140-character messages (known as tweets) to express the sentiments of its users around the globe. Within health research, Twitter has been used as a means for content analysis, surveillance, intervention, and recruitment (Sinnenberg et al., 2017). Due to Twitter users' openness on such a public platform, researchers have been able to study stigma against specific populations or topics, such as HIV pre-exposure prophylaxis treatment or eating disorders (Arseniev-Koehler et al., 2016; Schwartz & Grimm, 2017). Since Twitter can also provide both a very large sample size and provides qualitative information from across the United States, our research team chose it as the ideal data collection platform for our research purposes.

Twitter had 49 million monthly U.S. users during the second quarter of 2013, the period of our data collection (Clement, 2019). Twitter users were diverse by gender and by socioeconomic and educational status (Duggan et al., 2015). Levels of adoption of Twitter were particularly high among individuals who were African-American or 18–49 years of age (Duggan et al., 2015). Although our data were collected in 2013, stigma against people experiencing homelessness has shown no signs of changing in the interim. Thus, we propose that our data continue to be relevant today.

Our team member Craig Hiller developed a custom Python program to capture U.S. tweets containing the word "homeless," by querying Twitter's public Application Programming Interface (API) from April 1 to June 30, 2013. The API was accessed through Tweepy, a third-party Python library, which provides an intuitive interface. Twitter's free API provides a stream containing a random 1% of all tweets. Therefore, we collected 1% of all tweets employing the word "homeless" in the U.S. during our collection period, yielding 1.75 million tweets. Our team used Amazon Web Services to run the collection program and to store our data. We then de-identified and packaged samples of the tweets into Microsoft Excel spreadsheets for analysis. The University of California, Berkeley Committee for Protection of Human Subjects determined that the project was exempt from IRB review.

Our coding team employed content analysis to code and analyze our data.

Nathan J. Kim, Jessica Lin, and Colette Auerswald first read through the same random sample of 1,000 tweets (out of the total pool of 1.75 million tweets), independently creating an initial codebook of themes. In order to combine these individual codebooks, they compiled the initial themes from the three coders and resolved any disagreements in coding until one preliminary codebook was agreed upon. The preliminary codebook was tested by independently coding a random sample of 250 tweets. Our coding team then compared the coding results and resolved any disagreements, resulting in the final codebook. It became evident early in our coding the ways in which Goffman's work was reflected in the tweets. Thus, our codes included both deductive codes influenced by Goffman's framework and emic or inductive codes derived from the tweets themselves. Our final results reflect both types of codes.

To generate our article's results, a coding team of four individuals (Nathan J. Kim, Jessica Lin, Colette Auerswald, and Chantal Hildebrand) coded a new random sample of 5,400 tweets using the final codebook. We chose 5,400 tweets because it was a large enough sample that we anticipated being able to achieve thematic saturation. We also benchmarked Twitter projects with teams our size and found that they sampled between 4,200–4,600 tweets (Arseniev-Koehler et al., 2016; Lydecker et al., 2016). Tweets coded as "indecipherable" were discussed by the whole team and recoded or deleted based on consensus. An example of a deleted indecipherable tweet was: "Salute homeless red." These discussions ensured that each tweet had at least one thematic code. We reached thematic saturation early on, less than halfway through our 5,400 tweets, through unanimous agreement of the four coders that there were no substantially new themes emerging. Nevertheless, we elected to complete the coding of our entire sample.

After the final coding, all 5,400 tweets were compiled by code. Nathan J. Kim and Colette Auerswald then selected nine primary code categories (Asking, Bottom of the Heap, Deviant, Hygiene, Jaded Statements, Joking, Look, Sexuality, Violence) that described the stigmatizing beliefs in the data. Because our research question was to describe stigmatizing beliefs regarding PEH in the United States employing Twitter, our primary code categories were those that described stigmatizing beliefs. Nevertheless, our codebook included ten additional codes to categorize the remaining content, including relatively positive content (charity, advocacy, sympathy), non-stigmatizing personal thoughts about people experiencing homelessness (sharing experiences), and factual statements (such as statements about public policy). Five secondary

codes (such as retweet, indecipherable, animals, children, veterans) modified primary codes and were not themselves value laden. A copy of the codebook is available upon request from the authors.

Nathan J. Kim and Colette Auerswald read all the tweets in the nine primary code categories relevant to stigma, and, through discussion, reached consensus on the final concepts within each code. These were summarized in memos that were edited to achieve mutual agreement. Our results include tweets from our database. These are edited to remove individual account names (either of the writer of the tweet or the twitter handles to which tweets refer). The tweets are not edited for grammar. The reader is forewarned that many (if not all) of the tweets contain content highly offensive to PEH, to people who advocate for their wellbeing, and many others.

As described in our methods, our analysis integrated codes derived from Goffman's work, as well as insights that complement his work. We thus begin here with a description of the "stigma theory" of homelessness based on tweets that we analyzed. We elaborate on the ways in which this theory rationalizes the sub-human status of PEH, therefore justifying their poor treatment by illustrating the undesirable characteristics attributed them, the multiple stigmatized identities ascribed to PEH, ultimately rationalizing the status based on their inferiority. We conclude our results with a description of the ways in which the stigma theory of homelessness is enacted in mixed content interactions between normals and PEH as illustrated in Twitter.

To be clear, we are not proposing a new theory of stigma overall. The use of the term "stigma theory" refers specifically to the ways in which our Twitter data allow us to expand on Goffman's work proposing that normals in a community share a "stigma theory" to rationalize the mistreatment of members of a marginalized population.

As stated in the introduction, the first role of a "stigma theory" regarding PEH is to attribute undesirable characteristics to them. The Tweets we analyzed were rich with statements attributing undesirable individual character flaws to PEH such as being unhygienic, socially and sexually deviant, and prone to criminal acts, among other undesirable characteristics.

A key attribute that Twitter users in our sample associate with PEH is a general lack of hygiene, undesirable body odor, and/or unhygienic practices. In particular, PEH urinating or defecating in public were the subject of many "jokes." Tweets: "The homeless shelter is for dirty ass People. Fawwwk it doe"; "I really thought this job would have more car chases and explosions and less homeless people dodoing in the grass."

In addition to omitting the fact that PEH have limited options for urination and defecation, these tweets, convey the opinion that PEH are a distinct "other" due to their irrational public behavior. Their dehumanization is further reflected in people's (imaginary) attempts to combat the odor or lack of hygiene of PEH, suggesting that their hygiene is the problem to be solved, rather than their underlying homelessness. Tweets: "I had a dream I went to Chicago and bought like every homeless guy I saw a s[t]ick [o]f deodorant and new socks #WeirdDreams"; "Spraying Febreeze on homeless people … "

A second, undesirable characteristic attributed to PEH is social deviance or scamming. A common belief expressed was that PEH are not actually experiencing homelessness and/or that they do not need to be panhandling. Tweet: "When I see a homeless person I honestly don't know [i]f they're faking or not so they gets nothin from me."

The societal construct of PEH as socially deviant and dirty outcasts is amplified by their portrayal as sexually violent, hypersexual, and potential sexual predators. Tweet: "If you ever get black out drunk. The next morning take your ass to get some plan B because you could've fucked a homeless man." Disgust over socially deviant sexual acts involving PEH in a semi-public space is echoed in tweets about their public sexual or romantic displays. Tweet: "RT @M***: Saw a homeless couple making out. I yelled over "For fuck's sake, get a box!" Perceptions that homeless men are sexually deviant because they are hypersexual are most frequently illustrated by tweets regarding their real or perceived public masturbation, and a resulting fear of contamination. Tweet: "THE STREETS ARE FLOODED WITH THE EJACULATE OF THE HOMELESS AND ALL YOU DO IS CALL THE POLICE?" Finally, concern about the threat of contamination posed by PEH is reiterated in tweets associating PEH with sexually transmitted infections. Tweet: "RT @M***: Why everybody so mad on my TL? Smile, you could be homeless with STDs"

PEH are described as threatening, violent, and engaged in criminal behavior. Stories of aggressive panhandling and of PEH cursing and chasing normals illustrate the perception that PEH are dangerous. Tweet: "Me and @m*** just got chased by a homeless lady calling us bitches for not giving her money." Stories about PEH attacking other people are attributed to the assailant's presumed homelessness, rather than a more probable cause, such as psychiatric illness or substance use. Tweet: "RT @i*** I HEARD THAT! no? ok. RT @n***: Homeless man bites off stranger's ear in Florida supermarket."

In our analysis, we found that sampled Twitter users not only attributed undesirable character flaws to PEH, as suggested by Goffman's work, but also repeatedly attributed membership in multiple additional marginalized identities to them. Such tweets imply that PEH have numerous other devalued identities, such as race, age, sexual orientation, having a substance use disorder or a mental illness, and engagement in sex work. Attributing multiple stigmatized identities to PEH further creates social distance between them and the rest of society, enabling normals to feel protected and separate from people experiencing homelessness.

Tweets about experiencing homelessness were frequently associated with racist statements. This included numerous tweets we have chosen not to quote here referring to PEH with the term "Ni***r" or its variants. Tweets: "This lady is always playing some homeless, angry Black woman role"; "When I see a white homeless people [sic] I cry and start thinking what a waste of white skin." In addition to racist statements, tweets included ageist statements. Tweet: "the terminal stink cause all them homeless oldheads be in dere."

Statements about PEH were often associated with homophobic statements. Tweet: "RT @B*** The Jenners/Kardashians look flawless when they part their hair to the middle and when I do it I look like a homeless lesbian."

Tweets reflected an assumption that all PEH suffer severe mental illness, through disparaging statements linking the two. Tweet: "RT @B***: I'd like to apologize to the schizophrenic rambling half naked homeless guy outside Wendys. Turns out you were right about that"; "Sometimes when I feel like living on the edge I'll walk dangerously close to the crazy homeless guys."

Similarly, Tweets often included a reference to substance use as part of describing PEH, as if it was assumed. This social construct was then used to rationalize not giving money to PEH who are panhandling. Tweets: "silly harry dont you know that homeless men only use money for drugs and beer you make me laugh"; "RT @a***: my look today is a mix between a homeless meth addict who got hit by a bus and 2013 amanda bynes."

Finally, experiencing homelessness was associated with disparaging statements about people who are engaged in sex work. Tweet: "RT @j*** If someone were to see nothing but my nails they would think I'm either (a) a homeless prostitute or (b.) a homeless p[rostitute]."

In addition to attributing undesirable characteristics and additional stigmatized identities to PEH, a "stigma theory" serves to rationalize their status. Tweets rationalized the status of PEH by highlighting their character flaws, their devalued "bottom of the heap" status, and with language that equates homelessness with inferiority.

Tweets assert the belief that PEH deserve to be homeless because they are allegedly lazy and unemployed. Tweets: "I only give homeless people money if they are old or disabled. if u my age u need to get a fuckin job. stores pay people to hold signs"; "You will never meet a successful man who does NOT value his time & you will never meet a homeless person who does." These flaws stand in contrast to the virtues and survival skills that normals identify in themselves that set them apart from PEH, virtues and skills that they posit would allow them to thrive even on the streets. Tweets: "Yes I drink and smoke sometimes, but I'm not going to end up homeless, I have goals and I'm going to accomplish them"; "If I was homeless I would just sneak into Costco everyday #freefood." Framing unhoused individuals as lacking the goal-setting and survival skills of housed individuals creates social distance between housed and unhoused people while further normalizing the social and physical suffering of PEH as unsurprising and deserved.

Tweets reflected the taboo status of PEH in which they are the least valued in society or, as we call it, being at the "bottom of the heap," economically and socially. Twitter users in our sample often expressed their belief that individuals living without homes are (and should be) the poorest of all. Tweet: "RT @S***: Some high-school drop outs become millionaires. Some college graduates become homeless. Don't judge my decisions or do … " Since PEH are supposed to be destitute, these users assume that "authentic" PEH must also lack food or any possessions at all, including pets and cell phones, which serve as lifelines. Tweets: "RT "@r***: I hate homeless people with pets. Sorry if you haven't eaten that dog you're not homeless enough yet"; "Homeless people in Nola got it figured out they actually make $ with their talents. Hard to believe your sign when u have a cell phone."

Besides labeling PEH as economically destitute, Twitter users in our sample also relegated PEH to the lowest level in America's social hierarchy. The belief that PEH are social "lowlifes" is reflected implicitly by tweets where PEH are clustered with others who have socially marginalized identities. Tweet: "@G*** oh great sky wizard, please, please take away all the pedophiles and rapists. the hunger and the homeless … XD Thank you"

PEH are described as being the most sexually undesirable—in jokes or insults. Tweets: "#perksofdatingme i dress like a homeless man so it's not like i'll catch anyone else's attention"; "RT @A***: YOUR MOM SUCKS HOMELESS DICK FOR A PACK OF TROPICAL SKITTLES"; "RT @A***: If I had literally no one than I would invite a homeless person to live with me." PEH's lack of sexual desirability is translated into sexual vulnerability, including the depiction of the bodies of PEH as powerless bodies to be raped or exploited. Tweet: "J*** is a genius. He bagged a homeless girl so he could do whatever he want and she still can't leave him"

In addition to rationalizing homelessness by describing PEH as having a flawed character or as being at the bottom of the heap, tweets in our sample employed the word "homeless" as a metaphor or simile for extreme inferiority. Common examples of this included the use of "homeless" to describe food, physical appearance, and sexual desirability. Low quality food was frequently described as being only fit for PEH or simply directly as "homeless." Tweets: "are and I agree RT @B***: Twizzlers is candy for the homeless"; "@M***@v***Subway bacon is homeless:(." Hundreds of tweets described people's hair and appearance as "homeless," with many tweets referring to a look as "homeless." Tweets: "Its funny how you only really rock the homeless look while you're at home"; "RT @T**: I literally have three hair styles: -straight -wavy -homeless."

Tweets in our sample thus reflect all the components of a "stigma theory" of homelessness, per Goffman, including the attribution of both negative characteristics and membership in marginalized identities to PEH, the rationalization of their inferior status, and the use of stigma terms referring to homelessness. As we will see in the final section of our results, this theory shapes the interactions that normals have with PEH.

As described in the introduction, Goffman defines "mixed content" interactions as instances when normals interface with stigmatized individuals. Tweets regarding interactions between PEH and normals illustrate the ways in which these interactions enact an accepted "stigma theory" of homelessness. Many tweets above describe interactions around panhandling. Other common, mixed content interactions described included expressions of disgust as well as trivializing comments about violence towards PEH.

Expressions of disgust in the presence of a PEH were common examples of mixed content interactions. In many tweets, the mere presence of a PEH is enough to elicit a negative response. Tweet: "I would be the one who has to wait at a long ass stop light three feet away from a homeless person sitting on the ground." In NIMBY-ist (Not In My Backyard) tweets, individuals complain about or express feeling threatened by the presence of PEH near their

homes. Tweet: "There's this crazy homeless guy sitting on our porch … Just in case I die, you all know."

Similarly, normals express frustration and exasperation with the presence of PEH in a certain city or neighborhood, a presence that they perceive as degrading the prestige or value of a destination. Tweet: "I don't know why people like going to Hollywood. The street is littered with homeless drug addicts begging for money."

As in the tweets regarding sexually transmitted infections and PEH, multiple quotes illustrate the fear of contamination or soiling that people feel in the presence of PEH. Tweet: "Got pink eye from having a homeless man fart in my face. #loveditthough." In the following quote, the writer is clearly concerned over being soiled and notably not by the wellbeing of the person with whom he is sharing a subway car. Tweet: "Standing in an empty metro car with a homeless man who is perpetually vomiting and urinating on himself. Wearing my new TOMS [shoes] of course."

Mixed content interactions between unhoused individuals and society were not limited to tweets expressing disgust or about panhandling. Jokes about imagined or actual hate crimes against PEH were common, as well as harsh illustrations of their dehumanization. Tweets: "@C***: Peeing on a homeless man to keep him warm at night. omg I'm laughing so hard, I can't even take this"; "@A***: @1*** i shanked [stabbed] a homeless guy cos he kept stealing my tacos"; "RT @S***: One time my friend told me that the homeless were people too. Then we both laughed and curb stomped a hobo to death in."

To our knowledge, this is the first research study employing Twitter to study stigma-related beliefs regarding PEH. Analyzing tweets from the United States sampled over a 3-month period, we elaborated a "stigma theory" for homelessness that is consistent with Goffman. In addition, our work highlights other aspects of stigma towards PEH that complement contemporary research on stigma, specifically the link between disgust and stigma and the imputed attribution of additional stigmatized identities to PEH. We further contribute to the literature by illustrating the ways in which the "stigma theory" on the interactions between PEH and normals as illustrated in social media. Finally, our approach offers potential methodological advantages to future studies of stigma and PEH, by providing an ongoing "in vivo" source for the study of beliefs outside of a formal study and by largely removing the social desirability bias that can be associated with that formal data collection. It may also add to our tools for studying stigma of other populations and may help inform work to destigmatize PEH.

Our project has several limitations, many of which are inherent to the study of Twitter content. Of the 1.75 million unique geotagged tweets that our team collected, we only analyzed a random sample of 6,400 tweets (1,250 for codebook development and 5,400 for the final analysis). Nevertheless, the number of studied tweets is comparable to other qualitative Twitter studies. Moreover, the number of individual views represented in those tweets is far broader than could be captured by traditional qualitative studies (Arseniev-Koehler et al., 2016; Schwartz & Grimm, 2017). Second, though we know the demographics of Twitter users in the U.S. at the time of data collection, we do not know the exact demographics (or housing status) of the Twitter users in our data. Research shows that the demographics of American Twitter users, who tend to be younger,

Democrat-leaning, and African-American, are not representative of all Americans (Duggan et al., 2015; Mitchell & Hitlin, 2013). Furthermore, the characteristics of people who write stigmatizing tweets about PEH are likely not be the same as the general population of Twitter users nor of the U.S. Because we do not know the lived experience of Twitter users or the context of their tweets so we treated each tweet as an individual expression of a belief about PEH. Third, we did not include positive tweets about people experiencing homelessness as a counterpoint to the negative tweets, intentionally choosing to focus on the nature of the stigmatizing content. Finally, although the tweets we cite are highly offensive, we omitted the most offensive tweets, which may have skewed the results we present to appear less stigmatizing.

Our description of the negative characteristics attributed to PEH, the ways in which tweets illustrate the rationalization of the status of PEH, and the use of "stigma terms" that harness language to equate the word "homeless" with inferiority are consistent with the Goffman's description of a "stigma theory."

In addition to these findings, which neatly fit Goffman's "stigma theory" as applied to PEH, our work highlights certain aspects of stigma toward PEH that complement contemporary research on stigma. These include the imputed attribution of other stigmatized identities to PEH (and the link between disgust and stigma (Link et al., 1996). Importantly, disgust toward PEH on Twitter is centered on a rhetoric of infection and contamination by dangerous, dehumanized PEH whose mere proximity is threatening. This echoes the work of Oaten et al. (2011) on disease avoidance and stigma and Curtis' (2011) theory that disgust evolved as a defense mechanism for avoiding infectious diseases. These theories are in line with Fiske and Harris's fMRI studies in which pictures of PEH activated neural networks consistent with seeing an object rather than a human being, and led to exaggerated activations of neural patterns consistent with both disgust and fear (2006).

Twitter users in our sample assert that PEH as a population not only contaminate but also economically devalue American cities. This finding is consistent with Takahashi's (1997) idea of "spatial stigmatization," which is institutionalized in widespread NIMBY policies targeting PEH. This dynamic recently played out in San Francisco where property owners disputed plans for a city shelter for PEH, arguing that the residents would pose an "environmental threat" to their community (Ho, 2019). Goffman focused on individual-level stigma that exists during social interactions. However, the mirroring of individual stigma in institutional or structural policies in these tweets in particular illustrates Link and Phelan's (2014) emphasis on "structural stigma," that is, regarding how systems of power can weaponize stigma to perpetuate inequity.

Furthermore, our work highlights the role of intersectionality in stigma against PEH. Although Goffman chose to focus on people experiencing one stigma at a time, contemporary stigma and health researchers have embraced "intersectional stigma" to understand how multiple stigmatized identities interact to affect the health/life of a person or group (Crenshaw, 1989; Grollman, 2014; Weisz & Quinn, 2018). In our research, we illustrated how the Twitter users in our sample routinely impute multiple stigmatized identities onto PEH. This effectively obscures their original identities as unhoused individuals with layered identities and places them at risk of overlapping, interacting harms. This multiple imputed stigmatization serves to further

dehumanize PEH and allows normals to rationalize and justify why and how individual PEH found themselves at the bottom of society (e.g., due to their substance use, mental illness, etc.) without acknowledging the root "causes of the causes" of homelessness.

An understanding of the "stigma theory" of homelessness may inform possible approaches to combating stigma. Our findings suggest the need for a multi-level response to stigma informed by an understanding of such a set of shared beliefs (or theory), including broadly challenging common stigmatizing beliefs held by individuals about PEH, addressing dyadic mixed content interactions between housed and unhoused individuals, identifying and breaking down institutional stigma, and through additional structural interventions such as providing housing to PEH and affirming and protecting their human rights.

Stigmatizing beliefs are both held by individuals and introduced or reinforced by an individuals' community. As illustrated in our data, individuals' stigmatizing beliefs may be reflected in behaviors that harm PEH, or perhaps almost as harmful, in a lack of outrage toward these behaviors. Further undermining the prospect of garnering support for PEH in the community, tweets assert that the behaviors attributed to PEH are under their direct control and are the underlying reasons why people do not have (or deserve) housing. Productive habits separate normals from PEH, neatly sidestepping the structural and socioeconomic reasons why many people do not have or cannot maintain housing and employment. Thus, directly confronting stigmatizing beliefs is a core first step to eliminating their effects.

Advocacy and widespread public education campaigns are also warranted to challenge and dispel the disgust widely felt towards PEH. Neurobiological research by Krendl et al. (2013) found that people have greater empathy and willingness to help PEH when they understand that the current condition of PEH may be due to factors beyond their control. Public fora, videos in social media, school curricula, and public television or radio programs may help move social beliefs toward the recognition of the modifiable upstream determinants of homelessness and its consequences outside of PEH's control. Such campaigns can dispel common myths about PEH while replacing these with facts that engender empathy.

Giving a name to the stigma against PEH (e.g., Housism) may facilitate this work. When housism is discredited in the ways that other "-isms" are, discrimination will not disappear, but it may be more possible to "manage" it as a society, to employ Goffman's term (1963). Informed by the lessons derived from efforts to address stigma towards other marginalized populations, such a campaign could, for example, replace the attribution of multiple stigmatized identities to PEH with an understanding of the vastly increased risk of homelessness borne by individuals with intersectional identities.

Along with addressing stigmatizing beliefs head-on, an anti-stigma campaign could directly address the content and tone of mixed content interactions between normals and PEH. Emphasizing that normals can start by simply acknowledging a person's presence is important. Opportunities to meet PEH or people who have experienced homelessness in the past may also improve interactions. Further research including PEH's voices is needed to find effective ways to expand on these steps.

Less challenging to envision, but fraught with different obstacles, is addressing stigma in the formal spaces where it can be "managed." These spaces include physical institutions such as schools, parks, healthcare settings, or with the police. Recent research has documented how stigma from staff in such spaces causes negative effects on the wellbeing of youth and adults experiencing homelessness (Crawley et al., 2013; Della-Piana et al., 2020; Ratliff et al., 2019). These experiences suggest, at the very least, the need to require both guidance and training of staff regarding how to positively interact with PEH without further stigmatizing them.

A multi-level anti-stigma campaign including efforts to address institutional stigma against PEH would repeal legislation that violates their rights while promoting legislation that protects them. As urged by the UN Human Rights Committee and the UN Special Rapporteur on Adequate Housing, reversing U.S. policies and laws that criminalize PEH is a crucial step in fighting stigma (BondGraham, 2018; UN Human Rights Committee, 2014). To uphold PEH's rights, the National Coalition for the Homeless (2018) recommends that every level of government recognize PEH as a protected class, which would make targeting PEH a crime. Ending homelessness requires not only being anti-housist but also anti-racist. Besides being one of the most important human rights struggles of our time, eliminating systemic anti-Black racism in U.S. education, housing, healthcare, law enforcement, and other institutions is paramount to making both racism and homelessness obsolete. Similarly, ending homelessness requires not only anti-racist work, but also work to address other forms of stigma and discrimination, including stigma against Indigenous people and people who identify as members of the LGBTQ community, all of whom are vastly more likely to experience homelessness.

Finally, addressing the root cause of homelessness by providing housing appropriate to the range of needs of PEH that is integrated in all communities (not just in neighborhoods struggling with concentrated poverty) would inclusively acknowledge their humanity while increasing their connection, wellbeing, and their safety.

How our society acts on the issue of homelessness is one that will inevitably dictate how our era will be judged. Homelessness can best be addressed by implementing a menu of evidence-based solutions as well as by eliminating obstacles to inclusion. We hope that our research can be part of a movement to identify and eliminate stigma as a key obstacle to the re-integration of people experiencing homelessness into our communities.

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