

How does perceived discrimination impact mental health?

INTRODUCTION

Sweden is a highly multi-cultural country, having experienced several waves of immigration since World War II (Gilliver et al 2014). Alongside the historical arrival of economic migrants from Finland and of refugees from Iraq, Afghanistan, and Yugoslavia, Sweden has recently seen large numbers of European migrants seeking employment in its favorable economy. Additionally, the recent wave of asylum-seekers from the Middle East lead Sweden to have one of the highest percentages of foreign-born individuals in Europe (Gilliver et al 2014; United Nations 2013).

Annually, the Public Health Agency of Sweden publishes a report aimed at delivering a faithful picture of the country's health status. It has consistently informed us, in recent years, that a disproportionate number of foreign-born individuals suffer from mental ill-health, compared with natives (National Public Health Report 2016; National Public Health Report 2017; National Public Health Report 2018). As the phenomenon of ethnic and racial health inequality has been observed worldwide, research departments from across the globe have brought up several explanations for the disparity. The most popular argument is that foreign-born individuals generally hold a lower socioeconomic position (SEP) in society, making absolute poverty and relative deprivation the root cause of stress, anxiety, and depression, leading eventually to suffering from a mental illness (House and Williams 2000; Link and Phelan 2001; Schnittker and McLeod 2005). However, research by Braveman et al (2010) observes that racial and ethnic health inequality persists at all levels of socioeconomic status (SES), indicating that economic inequality and poverty poorly explain this phenomenon. Differently, some propose that

migration is per se a stressful experience, let alone asylum-seeking, and that social isolation alongside language barriers leads to disparate levels of health between natives and foreigners (Bhugra 2004). Other common explanations are based on cultural differences between ill individuals and the majority group, that can impact help-seeking, treatment and diagnosis, mental stigma and social connectedness (Lutfey and Freese 2004; Giles et al. 1995). There is, however, a growing body of research focusing on assessing the link between experiences of discrimination, perceived prejudice and mental ill-health (Krieger and Sidney 1996; Krieger et al. 1997; Williams et al. 1997; Rumbaut 1994). Williams and Collins (1995) propose that racism and discrimination affect health through three complementary pathways, including structural and institutional racism, cultural prejudice and individual discrimination. The increasingly favorable view of minorities as an economical or cultural threat that comes at the cost of native's quality of life and identity has brought a surge in hostility towards minorities, both in Sweden and across the globe. Research should, therefore, shed light on the role discrimination and prejudice have in fostering mental ill-health in foreign-born populations. The aim of this paper is to extend this novel stream of research, by analyzing the causal impact of self-perceived discrimination on mental health in Sweden.

DATA

This paper sets itself to assess the potentially significant association between perceived discrimination and mental ill-health, ensuring that all possible confounding factors are controlled for. To analyze the link between discrimination and mental ill-health, this cross-sectional study avails of the *Health on Equal Terms* survey, the Swedish national public health survey which is published yearly by the Public Health Agency of Sweden, gathered by the governmental agency Statistics Sweden in collaboration with county councils across the country. The HET survey of 2013, which is the latest one that to the researcher's knowledge is available for requesting access to, included a randomly drawn sample from the Statistics Sweden's population register, totaling 20000 people between 16-84 years. The answer rate of the survey was 9745, totaling 48.8% of the random sample. The dataset totals 87 entries for each individual, aimed at providing an overview of the respondent's physical and mental health, usage of

medication and healthcare services, living habits, financial and employment status and social connectedness (Boström and Nyqvist 2010). The data collected is then merged with population register data, education register data, and data from the income and taxation register. Importantly, the survey includes questions regarding offensive treatment and feeling wronged, which provide the base for this analysis's main predictor.

STUDY VARIABLES

Dependent or outcome variable – *Mental well-being* is measured in the HET survey through the survey instrument GHQ12 (General Health Questionnaire), developed by Goldberg (1972) and validated in McDowell's (1996) *Measuring Health*. The GHQ12 is comprised of twelve questions and it is designed in such a way that it should highlight whether individuals are experiencing struggles with coping with normal functions or whether they are facing episodes of a distressing nature (Boström and Nyqvist 2010). A summation index is then calculated from the answers, where, out of the four possible choices, two options return a 0 and the other two return a 1. The total of the answers should, therefore, be a number between 0-12, where 12 indicates the poorest mental health and 0 the best one.

Main independent or predictor variable – *Perceived discrimination* is measured in the survey under the title of "Offensive Treatment". The three questions that measure perceptions of discriminatory behavior were appositely created for the HET survey in consultation with various medical services and ombudsmen: HomO, HO, JämO and DO (Boström and Nyqvist 2010). The questions provide information on whether individuals have recently been victim of discriminatory events (i.e. "yes", "no"), who perpetrated the episodes (i.e. medical, employment or social services, the police or legal system, unknown person in a public place), and the basis for the discrimination (e.g. skin color, gender, sexual disposition, ethnical affiliation).

Covariates

Country of birth/origin – a dummy variable, coded 0 if Sweden and 1 if Other.

Age – a variable divided into five intervals 18–34, 35–44, 45–54, 55–64, and 65–80 years.

Gender – a variable comprised of “female”, “male”, “other”.

Long-term illness / Disability – coded as 0 if none was present and 1 if the respondent had any

Education – a variable comprised of three groups: “no schooling”, “high school”, “university”.

Lifestyle habits – following Wamala et al (2006), comprised of six categories, all translated into dummy variables: Daily smoking, Daily snuffing, Dietary habits (Yes if vegetables and fruit are eaten less than three times a week), High alcohol consumption (Yes if alcohol is consumed beyond nationally recommended levels), Physical inactivity (Yes if sedentary), non-usage of healthcare services, coded 0 is No and 1 if Yes.

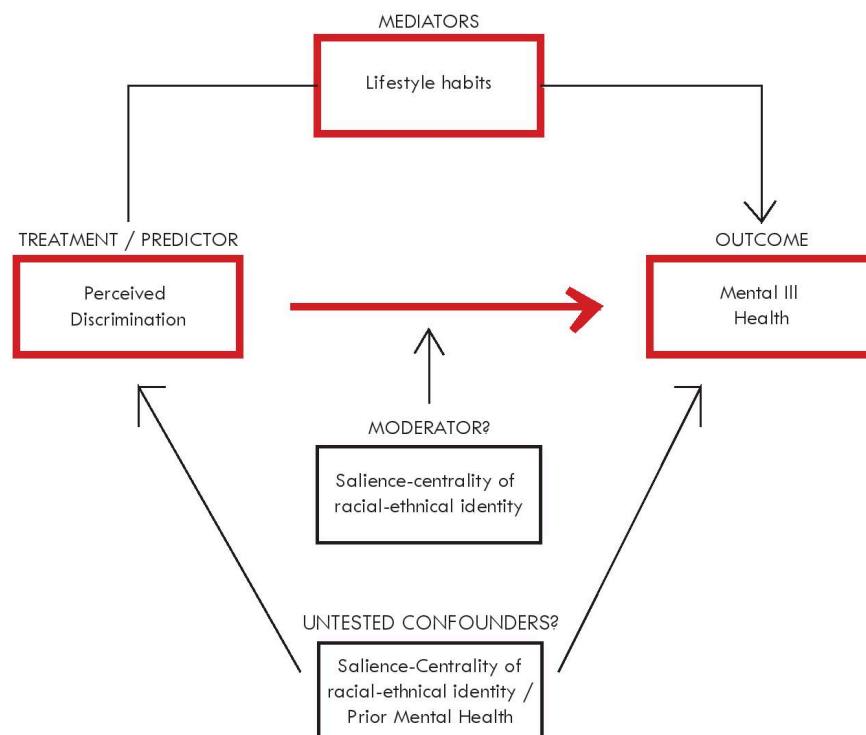
Socio-Economic Disadvantage – as per Wamala et al (2006), divided into "none", "mild", "severe" depending on four indicators of economic disadvantage that appeared in the survey: being a recipient of social welfare, unemployment, financially struggling, lack of savings.

METHOD

In light of racial and ethnical differences in mental health rates, plenty of studies have provided knowledge of minorities' disadvantage over natives (House and Williams 2000; Link and Phelan 2001; Schnittker and McLeod 2005; Bhugra 2004; Lutfey and Freese 2004; Giles et al. 1995; Krieger and Sidney 1996; Krieger et al. 1997; Williams et al. 1997; Rumbaut 1994). The range of explanations varies from structural constraints to cultural barriers and socio-economic position, all equally proved to be more challenging for minorities. However, the theoretical notion of discrimination formulated by Williams and Collins (1995) as a multi-level structure that affects health through structural and institutional racism, cultural prejudice and individual discrimination, is a powerful indicator that discrimination could be a confounder in those other explanations. For instance, institutional discrimination (e.g. segregation) and cultural prejudice (e.g. stereotypes, stigma and biases), as well as historical racism, can put minorities at a socio-economical disadvantage, higher their incarceration rates

or lower their education, housing, and employment opportunities, all then capable of fostering mental illness through repeated experiences of stress (Williams and Collins 1995). More directly, individual discrimination perpetrated by natives can lead to emotional and behavioral responses that can eventually generate mental ill health and the unwillingness to seek help. As this study relies on reporting perceived discrimination, I will focus on the individual dimension. It is reasonable to state that perceiving discrimination could foster mental ill health either directly, or through the mediation of treatment-seeking, as discrimination could have an impact on individuals' willingness to seek treatment, therefore directly or indirectly contributing to the development of mental illness.

The hypothesized pathway through which racial and ethnical mental health inequality is formed in Sweden is presented below:



Where the sections in red are tested in this analysis (treatment-seeking is here described as lifestyle habits to be in line with the variable description above), whereas the presence of moderators and untested confounders is discussed in the limitation section below. To infer causality about perceived

discrimination, our treatment, on mental ill-health, our outcome, the following formula is proposed for a regression analysis:

$$Mental\ Health_i = \beta_0 + \beta_1 demographic\ variables_i + \beta_2 discrimination_i + \beta_3 lifestyle_i + \beta_4 economic\ disadvantage_i + \varepsilon_i$$

where country of birth, age, education, and gender constitute demographics, discrimination constitutes perceived discrimination, lifestyle constitutes long-term illness and lifestyle habits and economic disadvantage is constituted by the above-mentioned four factors describing economic disadvantage.

The analysis is composed of three stages. The first step is a multiple regression analysis that adjusts for the covariates to examine the impact of discrimination on mental health. Concerning the fulfillment of assumptions for ordinary least-squares methods (OLS), considerations about multicollinearity have been made, and to the researcher's knowledge all variables, whilst to some degree related, are not highly linearly related, therefore the individual predictors' results should be precise.

Due to the potential presence of several mediators in the proposed model, six models are proposed. The first one, M1, is a simple linear regression to observe the direct effect of the main independent variable on mental wellbeing. The second one, M2, adds demographic variables, lifestyle habits, and socio-economic disadvantage. In M3, since discrimination is experienced in our sample by both minorities and natives, an interaction term between foreign-born status and discrimination is included, to assess whether there is a difference in its impact on mental health across the two groups. Concerning the mediators, M4 is a simple regression where perceived discrimination is used to predict our mediator. Likewise, M5 is a simple regression where our mediator predicts mental wellbeing. Finally, M6 is a multiple regression analysis including both perceived discrimination and the mediators as predictors of mental wellbeing. The purpose of M4 and M5 is to test the mediators. If one or more of the models return insignificant results, the mediation is not considered to hold (Baron & Kenny 1986). Finally, in M6, if results are significant in M4 and M5, mediation is confirmed when the mediator's effect on mental wellbeing is still significant despite controlling for the main predictor (perceived discrimination). Similarly, if perceived discrimination was to be no longer significant after controlling

for the mediators, then we would support full mediation, whereas a significant result would confirm partial mediation (Baron & Kenny 1986).

Overall, however, one of the assumptions of OLS is that treatment must be random, which cannot be easily said in the event of discrimination. For example, more women, ethnic minorities, or even poorer individuals might be more likely to be a victim of discriminatory events. As a standard OLS estimates an average effect that it applies to the sample and uses it to infer conclusions on the entire population, running a regression model with a non-random treatment assignment in the sample would likely return biased estimates.

One of the key issues in proving causality is that the variable of interest is only observed either in the treatment or control group, but never in both (Dehejia and Wahba 2002). To strengthen our analysis, I implement propensity score matching (PSM), a technique that reduces the potential bias caused by confounders in treatment assignment by matching one individual in the treatment group to one in the control group based on their similarity in terms of observable covariates. This process mimics the randomization of the treatment assignment and ultimately fulfills the ignorability assumption, which is the requirement that potential confounders concerning belonging to either the treatment or the control group are controlled for. Propensity score matching does so by creating pairs of individuals, based on a score calculated for everyone in the sample, indicating the likelihood that they would be given the treatment. In our case, that is the probability that they would have reported being discriminated against, based on the covariates of the treatment group. Pairs are created by matching one member of the treatment group to its most similar neighbor in the control group, and all those who remained unmatched are discarded and excluded from the analysis. In observational studies, unlike in randomized experiments, attention has to be given to the fact that the Average Treatment Effect (ATE), that is the expected causal effect of the treatment on the entire sample, could substantially differ from the Average Treatment Effect on Treated (ATT), which is the causal effect of the treatment for those in the treatment group. The formula that returns the conditional probability of perceiving discrimination is, following Rosenbaum and Rubin (1983):

$$Pr(\text{perceiving discrimination})_i = Pr(T_i = 1|X_i)$$

where, following Massoglia (2008), $T_i = 1$ if individual i has perceived discrimination, and X_i is a vector of covariates for individual i that predict perceiving discrimination or could otherwise constitute a confounding factor in the relationship between discrimination and mental health.

After matching we should be able to observe a balanced sample across the treated and the untreated. Ultimately, PSM should return us a coefficient indicating the effect of perceived discrimination on mental ill-health, whilst controlling for all those factors that could make the assignment of treatment non-random.

LIMITATIONS

Unfortunately, the structure of the dataset did not provide an opportunity to control for the salience and centrality of the racial or ethnic identity in relation to episodes of discrimination and ill mental health. As Noh et al (1999) found, the interaction effect between strong ethnic affiliation and self-reported discrimination increased the degree of relationship between discrimination and mental ill-health. In this regard, the centrality of the ethnical identity could be constituting a significant confounder, if not a moderator. As a moderator, it can be said that more important your racial identity is to you, the more likely you are, when perceiving being discriminated, to be affected by it. Additionally, the survey's response rate is not too elevated, and non-respondents could be significantly belonging to lower SES groups or minority groups, therefore undermining the heterogeneity of the sample. Another limitation lies with PSM – the method allows us to match individuals based on observable characteristics, however, there could be other factors dictating assignment of the treatment (e.g. in the case of discrimination, this could include emotional states and prior mental health). Furthermore, PSM can substantially shrink the sample size. This leads us to another substantial weakness of this study – the cross-sectional nature of the dataset hides from us a lagged measure of mental health (i.e. how the mental health of an individual changed over time, whether it was already negatively affected before the experience of discrimination). A longitudinal setting or the usage of methods that account for time-variance, such as Fixed Effects or Difference-in-Differences, could have proven to be better suited for

this study given an appropriate dataset. Additionally, whilst being discriminated is most certainly a non-random event as certain sections of society are prejudiced more than others, perceiving discrimination might equally be a non-random event due to a subjective propensity to feeling wronged as a result of personality traits or the psycho-social history of the individual. Our dataset, unfortunately, does not allow us to cater to this.

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