Embodiment of discrimination: a cross-sectional study of threats, humiliating treatment and ethnic discrimination in relation to somatic health complaints among Sámi in Sweden

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ABSTRACT

Background Ethnic discrimination is acknowledged as a social determinant of health for Indigenous populations worldwide. This study aimed to investigate embodiment of perceived ethnic discrimination among the Sámi population in Sweden.

Methods A population-based health study was conducted among the Sámi population aged 18–84 years in 2021. Perceived discrimination was assessed by three variables: exposure to threat, humiliation treatment and ethnic discrimination. To capture current physical health, complaints of headache, back pain, stomach pain, sleeping problems, dizziness and tiredness were used. An overall somatic complaints score was created by summing up the six individual symptoms. The magnitude of the association between the independent variables and the outcomes was summarised with the β coefficients and prevalence ratios using 95% credible intervals (95% CrI) for inferential purposes.

Results Overall, 4.3% reported to have been exposed to threat, 26.1% to humiliation and 11.2% and 32.3% to ethnic discrimination in the last 12 months and beyond 12 months, respectively. After mutual adjustment, threat (β = 1.25; 95% CrI: 0.88 to 1.60), humiliation (β = 1.29; 95% CrI: 1.14 to 1.44) and the two categories of discrimination (β = 0.92; 95% CrI: 0.64 to 1.21 in the last 12 months and β = 0.68; 95% CrI: 0.54 to 0.83 beyond) remained significantly associated with the overall somatic complaints score. Similar results were found for individual complaints.

Conclusions This study has shown a strong relationship between different expressions of perceived ethnic discrimination and a series of somatic complaints among the Sámi in Sweden. Efforts to alleviate interpersonal and institutional discrimination against the Sámi would contribute to improve their health.

BACKGROUND

Ethnic discrimination is acknowledged as a social determinant of health for Indigenous populations and other minority groups throughout the world. Ethnic discrimination (sometimes also called perceived racial discrimination) can be broadly defined as the types of behaviours, practices, beliefs and prejudices that underlie avoidable and unfair inequalities across social groups based on ethnicity. It, thus, includes the multitude of experiences that ethnic minority groups are uniquely or disproportionally exposed to, including, for example, harassment, racist attacks, ethnic prejudices or everyday hassles. Perceived racial or ethnic discrimination is one aspect of racism that is increasingly receiving empirical attention as a class of stressors that could have consequences for health and for understanding disparities in health. Ethnic discrimination can be understood as a pathway of embodiment, which describes how population patterns of health are generated and upheld the literal and biological incorporation the world we live in, through complex processes structured by the societal arrangements of power, privilege and prejudice.

Internationally, an increasing body of epidemiological evidence from high-income countries shows strong associations between ethnic discrimination and poor adult health outcomes among different minority groups. Systematic reviews have reported links between ethnic discrimination and poor mental health (including depression, anxiety and psychological distress), poor physical health (including hypertension and chronic health conditions) and increased substance use. Most research on the health consequences of ethnic discrimination, however, concerns ethnic minorities in the USA, while less is known about the Indigenous populations elsewhere.
The Sámi are an ethnic minority and the only Indigenous people in the European Union. Sápmi, the traditional Sámi homeland, stretches from mid-Sweden and Norway through northern Finland and into north-western Russia. The Sámi demography is largely unknown as Nordic countries do not register ethnicity, but estimates vary between 50,000 and 100,000 Sámi individuals in total, of whom 20,000–40,000 reside in Sweden. Research investigating the impact of ethnic discrimination on the health and well-being of the Sámi population is scarce. A study conducted in junior high schools in northern Norway in 2003–2005 found a positive association between perceived discrimination and internalising symptoms. Another Norwegian study showed that for Sámi living in municipalities where they constitute a minority of residents, self-reported ethnic discrimination was associated with several chronic disease outcomes such as cardiovascular diseases and diabetes. However, evidence from the Norwegian SAMINOR population-based study suggests that the link between Sámi identity, ethnic discrimination and health is not clear-cut. For example, even though a general association between reporting exposure to ethnic discrimination and mental health distress has been found, the group that reported most exposure to ethnic discrimination (Sámi women with strong Sámi identity) did not report worse mental health.

In Sweden, Omma et al found, more than 10 years ago, that Sámi youth reported more mental health problems and suicidality than non-Sámi peers. In particular, young Sámi exposed to ethnic discrimination were most likely to report suicide plans, feelings of sadness and depression. A recent study by our research group found a strong association between different forms of discrimination and mental health outcomes (psychological distress, anxiety and depression), particularly among women, in the total Sámi population.

This study aimed to investigate embodiment of perceived ethnic discrimination among the Sámi population in Sweden by assessing the relationships between experiences of threat, humiliating treatment and ethnic discrimination with a range of somatic complaints.

METHODS

Study participants
This study used data from the SámiHET survey, a population-based health study conducted among the Sámi population in Sweden during February–May 2021. The Sámi population was defined with the help of three registers: the Sámi electoral roll (identifying individuals with the right to vote in the Sámi parliament elections), the reindeer mark register (identifying individuals owning a reindeer mark, enabling them to own reindeer) as well as the register of ‘labour statistics based on administrative sources’, to identify those reporting reindeer herding as a source of income. In total, 9249 individuals aged 18–84 years included in any of the three registers were identified. Statistics Sweden sent an invitation to participate in the survey to all of them, among whom 3779 answered the survey (participation rate of 40.9%). A subset (n=121) did not unequivocally confirm being Sámi and were thus excluded from the analysis. In total, 3658 individuals constituted the analytical sample of this study. More information about the study design and data collection can be found elsewhere.

Questionnaire
The 2021 SámiHET questionnaire included items enquiring about Sámi identity, language, discrimination, sociodemographic characteristics and numerous questions related to lifestyle behaviours and self-reported health. Individual questionnaires were linked to register data through the personal identity number by Statistics Sweden to include information about age, civil status, education and income.

Outcome
Six outcomes were used to capture different aspects of the population’s physical health using the following question: ‘Do you have any of the following complaints or symptoms?’ (a) headache or migraine?; (b) back pain, hip pain or sciatica?; (c) recurrent stomach or intestinal problems?; (d) sleeping problems?; (e) dizziness? and (f) tiredness?. The participants could choose between three different answers: ‘no’ (=0), ‘yes, slight discomfort’ (=1) and ‘yes, severe discomfort’ (=2). The last two answers were joined to indicate the presence of somatic problems.

In addition, the six individual symptoms scores (0, 1, 2) were summed up to form an overall somatic complaints score (theoretical range 0–12). Due to the low sample size in the three highest scores, they were included in the 9th score, comprising the final sample score a range from 0 to 9.

Exposure
Three variables capturing different expressions of discrimination were selected from the questionnaire. Threat was defined by the question: ‘In the past 12 months, have you been exposed to threats or threats of violence so that you became afraid?’ with a ‘yes/no’ alternative answer. Humiliating treatment was identified with the question: ‘Have you ever experienced discrimination or racism because of you being Sámi?’ with three possible answers: ‘yes, in the last 12 months’, ‘yes, more than 12 months ago’ and ‘no’.

Covariates
Throughout the analyses sex, age, education and income were used as covariates: (a) sex was classified as men and women; (b) age was coded into four groups (18–29, 30–44, 45–64 and 65–84 years); (c) the level of education was divided into compulsory, medium and postgraduate as characterised by Statistics Sweden and (d) the economic level was assessed by the individual disposable income. All these variables were obtained from population registries and linked to the survey participants.

Statistical analysis
Frequencies and percentages to present the descriptive characteristics of the population as well as a table including the co-occurrence of the different somatic complaints (online supplemental appendix 1) were first calculated. The moderate overlapping between complaints that was observed supported the need for the two regression models included. The prevalence of the six individual outcomes was also computed and then bivariate linear and Poisson regression models were run for the overall somatic complaint score and for the six different health outcomes, respectively. Subsequent adjusted regression models (one per exposure and outcome) including all covariates were then estimated.

Models were estimated using Bayesian inference. Coefficients (β) for the continuous overall score and prevalence ratios (PR) for the specific somatic complaints were used as measures of effect. To provide inference, 95% credible intervals (95% CrI) were obtained; in this way, uncertainty could be expressed as...
the 95% probability that the true (unknown) estimate would lie within the interval, given the evidence provided by the observed data.

The variance inflation factor (VIF) was used to assess multicollinearity among the independent variables. Since the VIF was below 1.6 for all variables, the correlations were considered acceptable. Sampling weighting was applied in all analyses which were conducted with the R software (rstanarm package). The priors used in the models were based on normal distribution, which were conducted with the R software (rstanarm package). The priors used in the models were based on normal distribution defined by default by the package (see online supplemental appendix 2).19

RESULTS

Table 1 shows the population characteristics of the sample regarding the exposure variables and the covariates. Out of the respondents, 4.3% reported to be exposed to threat in the last 12 months, 26.1% to humiliation in the last 3 months and 40.8% to discrimination (8.2% in the last 12 months and 32.6% beyond 12 months). Women (50.9%), those in the age group 45–64 (37.7%) and those with medium education (61.8%) were the largest demographic groups that participated in the survey.

Regarding the overall somatic complaints, a significantly higher score was found among those suffering threat, humiliation or discrimination in the corresponding crude models. When adjusted for the covariates, threat ($\beta$=1.25; 95% CrI=0.88–1.60), humiliation ($\beta$=1.29; 95% CrI: 1.14 to 1.44) and the two categories of discrimination ($\beta$=0.92; 95% CrI: 0.64 to 1.21 and $\beta$=0.68; 95% CrI: 0.54 to 0.83) remained significantly associated to the outcome (table 2).

All the three exposures were statistically significant associated to the six selected outcomes in the crude analyses. Figure 1 shows the adjusted regression models of the association between the three exposures and the specific somatic complaints; the table with the estimates of the crude and adjusted models can be found in online supplemental appendix 3.

After adjustment, exposure to threat in the last 12 months remained statistically significant associated to headache (PR=1.44; 95% CrI: 1.33 to 1.56), back pain (PR=1.24; 95% CrI: 1.16 to 1.33), stomach pain (PR=1.44; 95% CrI: 1.33 to 1.56), sleeping problems (PR=1.44; 95% CrI: 1.44 to 1.90), dizziness (PR=1.68; 95% CrI: 1.38 to 2.04) and tiredness (PR=1.33; 95% CrI: 1.17 to 1.51).

To be exposed to humiliation in the last 3 months was associated to all six outcomes: headache (PR=1.42; 95% CrI: 1.06 to 1.78), back pain (PR=1.14 to 1.33), stomach pain (PR=1.44; 95% CrI: 1.33 to 1.56), sleeping problems (PR=1.47 to 1.72), dizziness (PR=1.70; 95% CrI: 1.52 to 1.91) and tiredness (PR=1.48; 95% CrI: 1.39 to 1.58).

Similar findings were obtained for exposure to discrimination, with a higher prevalence in recent compared with long-term exposure in the case of headache (PR=1.39 vs 1.24), back pain (PR=1.15 vs 1.10), sleeping problems (PR=1.48 vs 1.38) and dizziness (PR=1.57 vs 1.36), the opposite in the case of stomach pain (PR=1.21 vs 1.31) and similar in tiredness (PR=1.21 vs 1.19).

DISCUSSION

Ethnic discrimination and racism against Sámi people in Sweden are well-documented phenomena,20 particularly in the media.21 22 However, the only investigation on the extent of the various manifestations of ethnic discrimination against Sámi in Sweden was conducted almost 25 years ago.23 Different forms of discrimination, from assimilation policies implemented in the 19th and 20th centuries to land and resource expropriations to marginalisation of language are examples of common forms of discrimination experienced by the Sámi.24 Increased threats and hot expressions have also been experienced recently in the Sámi society after the so-called Girjas verdict, where Girjas, a Sámi reindeer herding community, took the Swedish state to court in 2009 over a dispute over land use of hunting and fishing and the High Court decided in 2020 that Girjas had the sole right to administer hunting and fishing rights based on ‘prescription from time’.25

In a population-based study from Norway conducted in 2012, half of the Sámi participants (50.8%) reported having been ever discriminated with 16.5% reporting over the past 2 years,26 which is in line with the findings of this study. Regarding
exposure to humiliating treatment in the last 3 months and threat of violence in the last 12 months, the Sámi in Sweden have also reported higher levels than the general Swedish population (26.2% vs 18.1% and 4.3% vs 3.9%), respectively.27

Prevalence of somatic complaints
Studies on Sámi health in Sweden have also described a higher prevalence of somatic complaints such as neck, back, joints and headache when compared with the Swedish population27 though no ethnic differences were found among the Norwegian Sámi youth.28 Musculoskeletal symptoms are common among the reindeer herders where exposure to cold, extensive use of snowmobiles and motorcycles, high physical workload and psychological demands have been associated with those symptoms.29,30 Higher levels of body pain have also been reported from Indigenous groups in different countries when compared with the general population.31

Discrimination and physical health
While the adverse impact of discrimination on mental health outcomes is widely supported,6-7,32 the evidence for the relationship between discrimination and physical health is less established. A systematic review found a strong relationship between discrimination and mental and physical health,7 but the included studies on physical health were mainly related to cardiovascular diseases and health behaviours (smoking, alcohol, lack of physical exercise) and not to somatic complaints as the presented in our study.

A certain pattern was found in our study where most of the selected outcomes (except backache) were associated to the three types of perceived discrimination; specifically, associations with dizziness and sleeping problems were strongest in all discrimination exposures.

In a study exploring the relationship between ethnic discrimination and physical health outcomes among Sámi in Norway, significant associations were found between exposure to discrimination and a number of health indicators such as self-reported CVD, chronic muscular pain, diabetes and physically and laboratory measured obesity and metabolic syndrome.13 It has been challenging to find studies linking discrimination to somatic complaints as the ones used in this study, except in the case of sleeping problems where the connections are well established.33,34

It is difficult to specifically point out pathways for the diverse somatic complaints of this study. Two main routes have been described in the literature; through stress responses, both physiological and psychological, and/or through engaging in health risk behaviours.7,35 Further research would be needed to elucidate them in the Sámi case. Additionally, the results of this study support the notion of embodiment developed by Krieger, where the exposure to social determinants of health, such as discrimination, can generate biological expressions ('get under our skin') in our bodies.36

Figure 1  Adjusted regression models of the association between the three exposures and the six somatic complaints; bullet points indicate the estimated prevalence ratio and the bars the 95% CrI; SámiHET 2021. CrI, credible interval.
Methodological considerations
Several issues should be considered when interpreting the results of this study. As with any population-based survey, both exposures and outcomes were self-reported which could lead to some reporting or even recall bias. Since the outcomes referred to contemporaneous symptoms, recall might not have been so relevant. However, any of the outcomes can be experienced differently based on subjective appraisal and/or previous exposure to diverse psychosocial and occupational factors not included in this study. In addition, the self-reported nature of the outcomes made it not possible to discern if they reflected an underlying pathology. While different proxies of discrimination exposure, previously used in population-based studies in Sweden and among the Sámi in Norway, were applied in this study, a certain recall bias could be operating due to the periods referred to in the specific items. In addition, and similar to the outcomes case, psychosocial factors and subjective appraisals may have influenced the experience of discrimination. However, the extent or impact of these biases on the results is difficult to assess. Furthermore, the discrimination variables were dichotomised due to the low sample in some of the categories impedig to capture the relationship between the temporality of the discrimination experience and the outcomes. The population included in this study could be said to represent Sámi with a rather strong Sámi identity, based on having registered to vote in the Sámi parliament election or their connection with traditional reindeer husbandry, largely living as a minority population within their traditional homeland. While the minority position will be similar for all Sámi in Sweden other circumstances may differ, potentially rendering the findings in this study non-representative for those groups.
Finally, despite the cross-sectional design makes it difficult to draw conclusions about causal relationships, it is interesting to note the fairly consistent relationship pattern between different measures of perceived discrimination and the wide range of somatic complaints.

CONCLUSION
This study has found a strong relationship between the exposure to different types of perceived discrimination and somatic complaints. The pervasive effects of discrimination seem to be affecting several physical symptoms, a finding rarely explored in the literature. These complaints can also be mediators of the path between discrimination and severe forms of mental ill health. Alleviating interpersonal and institutional discrimination against the Sámi would contribute to improve the health of this Indigenous population. To direct such actions, new research is needed regarding the specific forms and extent of discrimination and racism experienced by the Sámi in Sweden.

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Contributors
MSS formulated the research question, analysed and interpreted the data, drafted the manuscript and is responsible for the overall content as the guarantor. JPAS and MSS conceived the original SámiHET study and collected the data. PEG and JPAS contributed to the interpretation of the findings and commented on the article draft. All authors approved the final version of article.

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Competing interests
None declared.

Patient consent for publication
Not applicable.

Ethics approval
The study was approved by the Swedish Ethical Review Authority (Dnr 2020-04803 and O 070-2020:3.1). Furthermore, the Ethical Guidelines for Sámi Health Research were also followed and the board of the Sámi parliament in Sweden approved the SámiHET research project. The purpose of the study and the implications of participation in the study were explained in the letter of invitation which was available in Swedish as well as in North, Lule and South Sámi languages. The participants were also asked to consent to their participation before the start of the survey.

Provenance and peer review
Not commissioned; externally peer reviewed.

Data availability statement
Data are available on reasonable request. The data that supports the findings of this study includes sensitive personal information and is therefore not publicly available according to privacy and ethical restrictions. For further inquiries, please contact the corresponding author.

Supplemental material
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