

**Resilience to Discrimination among Indigenous Sami and Non-Sami Populations in
Norway: the SAMINOR2 Study**

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Abstract

Discrimination is generally negative for mental health and wellbeing; however, few studies have examined protective effects of resilience factors, especially among minority indigenous people. Here, we validated a short version of the Resilience Scale for Adults (RSA) and examined its protective effects against discrimination among Norwegian indigenous Sami and non-Sami populations. Data comes from a large population-based survey of health and living conditions in multiethnic areas among indigenous Sami and non-Sami population (the SAMINOR2 study). The information was collected in 2011-12 from 11,600 participants (18-69 years old). The main outcome measures were mental health (or distress) as measured with the Hopkins Symptom Check List (HSCL-10) and wellbeing as measured with the WHO-5 index by the World Health Organization. A 10-item short version of the original RSA (33 items) showed good model fit in all ethnic strata as well as factorial invariance, thus indicating cross-cultural validity. Being exposed to discrimination in general was more negative for the main outcome measures than exposure to ethnic discrimination alone; however, high scores on the RSA-10 almost canceled this negative effect completely. Minority participants with a *strong Sami* identity ($N=1,270$) were least negatively influenced by discrimination, whereas majority ethnic Norwegians ($N=5,233$) were most negatively affected. The *strong Sami* subgroup thus showed a remarkably resilience despite considerable exposure to discrimination. Members of this group were synergetically protected by individual (*personal strength*) and family (*cohesion*) resilience factors.

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Populations: the SAMINOR2 Study

Ethnic minorities face challenges that western people are largely spared, such as human rights violations, racism, discrimination or unfair treatment in general. The societal and individual consequences are wide-ranging, such as stigmatization and exclusion (Ferdinand, Paradies, & Kelaher, 2015), social socioeconomic disadvantages (Anderson et al., 2016; Pettersen & Brustad, 2013) or poorer opportunities for social mobility (House & Williams, 2000). Their general health status is worse (Williams, Yan, Jackson, & Anderson, 1997), their mental health may in particular be at stake (Paradies et al., 2015; Wallace, Nazroo, & Bécarea, 2016), and their life expectancy is shorter (Anderson et al., 2016).

The Sami population is estimated to be between 60,000 to 100,000 individuals mainly inhabiting the arctic regions of Norway, Sweden, Finland as well as Russia's Kola Peninsula (Young, Rawat, & Dallmann, 2012), of which 70% live in Norway. Here, the Sami people has status as indigenous people and their human rights are protected both constitutionally and internationally by convention (ILO, 1989). Although the traditional Sami lifestyle and culture include occupations related to hunting, farming, fishing or reindeer husbandry, more than one third has migrated to urban areas (Sørli & Broderstad, 2011). Despite good living conditions and relatively equal opportunities for higher education and labor market entry, the Sami people experience ethnic discrimination significantly more often than the majority population (Bals, Turi, Skre, & Kvernmo, 2010; Hansen, Melhus, Høgmo, & Lund, 2008). Ethnic discrimination is more strongly negatively related to mental health of

the Sami people that for example socio-demography or ethnic subgroup belonging (Hansen & Sørлие, 2012).

A limitation with previous studies has been the sole focus on ethnic discrimination, whereas the Sami people may be more prone than the majority population to experience all forms of discrimination. This distinction has not previously been studied, and hence the current study examined associations between ethnic discrimination and other facets of discrimination (i.e., frequency, reasons for it happening, number of perpetrators and places), and whether these associations were markedly stronger in the Sami compared to the non-Sami groups. Since the negative relationship between discrimination and health is well documented (Douglass, Mirpuri, English, & Yip, 2016; Hansen, 2015; Hansen, Melhus, & Lund, 2010; Wallace et al., 2016), accumulation of discrimination experiences may add significantly to the burden of the Sami population. But even though the Sami people experience ethnic discrimination 10 times more often than Norwegians (Hansen et al., 2008), their mental health status is not 10 times worse. In fact, several studies indicate negligible differences in the mental health status between Sami and Norwegian inhabitants (Bals et al., 2010; Hansen & Sørлие, 2012). This is highly interesting given the enduring or chronic quality discrimination may represent, as well as how strongly negatively it is experienced (Douglass et al., 2016). We therefore examined this further by adding a resilience perspective.

Positive adaptation - resilience

A popular myth is that exposure to adversity or chronic life stressors, which racism or discrimination are good examples of, inevitably cause adaptational or

health problems. The extensive search for risk factors in the medical literature is a testimony of this orientation. Instead, most people cope remarkably well despite considerable stressful or even traumatic life events (Bonanno, 2004; Werner & Smith, 2001), a phenomenon termed as *resilience* (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003; Luthar, 2006; Rutter, 1985). *Resilience* represents an ability to sustain relatively normal functioning despite significant adversity or risks (Fletcher & Sarkar, 2013). However, it is the underpinning factors that make such outcomes possible that is of real interest, and three large domains of protective factors have emerged: 1) strong personal beliefs, traits or skills, 2) a family climate characterized by cohesion and support, and 3) available external support systems (e.g., support from wider family, friends, schools or even public institutions). These protective factors reinforce functional ways of coping with life strains (Cederblad, 1996; Werner, 1993; Werner & Smith, 1992), and hence one may expect them to protect also against discrimination.

The *Resilience Scale for Adults* (RSA) (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005; Friborg et al., 2003) is a multifactorial scale assessing the domains as described above. It measures four individual factors (personal strength, social competence, future planning and structured style), one family cohesion factor and a final social resources factor. A brief version adapted for the SAMINOR2 epidemiological study included three factors: personal strength, social competence and family cohesion.

A higher RSA score facilitates adaptation to psychosocial adversities in western cultures (Friborg & Hjemdal, 2004; Friborg et al., 2003), and dampens the negative impact of stressful life events on mental health (Hjemdal, Aune, Reinfjell,

Stiles, & Friborg, 2007). A high RSA score hence offers extra protection when faced with stressors by providing a buffering effect evident as a statistical interaction with a stressor variable. In the current study, we examined the cross-cultural validity of a short-version of the RSA prepared for the current epidemiological study, and examined if similar protective effects against discrimination are evident in the ethnic Sami groups. Moreover, since the Sami population is quite heterogeneous, factorial invariance of the RSA was additionally examined across all Sami subgroups to ascertain whether they read and understand the items similarly.

Aim and hypothesis

- 1) We examined the factorial invariance of the RSA between the ethnic groups, which if supported, confirms the cross-cultural validity of the RSA as all ethnic groups interpret the meaning of the RSA items comparably.
- 2) We expected that more discrimination predicted poorer mental health and lower wellbeing.
- 3) Conversely, we expected that individuals reporting more resilience resources had better mental health and wellbeing, and furthermore, that such resources buffer (or dampen) the negative effects of discrimination.

Methods

The SAMINOR study

This population-based study on health and living conditions among inhabitants settled in areas of mixed Sami and Norwegian culture, the SAMINOR 2 study, is a cross-sectional epidemiological study. The study included a health survey questionnaire, which is thoroughly described with regard to the target population,

study variables and data collection procedures by Brustad, Hansen, Broderstad, Hansen, and Melhus (2014).

The sample

All residents aged 18-69 years were invited by mail (N=44,669). Since 1,424 invitations were returned unopened, 43,245 persons were eligible. Among these, 11,600 persons consented by returning the questionnaire (27% participation rate). Participants dropped out of the analyses due to completely missing data about ethnicity (95 cases), discrimination (515 participants), resilience (181 participants), or background information (744 participants lacking covariate information), leaving 10,065 participants available for analysis.

Outcome variables

The information and questionnaire material were presented in Norwegian and three Sami languages (i.e., Northern, Lule and Southern) (Brustad et al., 2014). Most Sami participants used the Norwegian version as practically all Sami individuals speak and understand Norwegian well.

The Hopkins Symptom Checklist. The HSCL is a 10-item short version of the 90-item Symptom Check List (SCL-90) that rates symptoms of mental distress, i.e., depression (six items) and anxiety (four items). It uses a four-point scale with higher mean scores (1-not at all, to 4-very much) indicating more distress. The scale is commonly used to detect mental distress in population studies (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), and has proven highly reliable in Norwegian samples (Lavik, Laake, Hauff, & Solberg, 1998). A cutoff mean item score > 1.85 in

Norwegian populations may be used to indicate a potential mental disorder (Strand, Dalgard, Tambs, & Rognerud, 2003).

Wellbeing. The Wellbeing index (WHO-5) of the World Health Organization has been translated to 30 languages and is widely used to assess psychological well-being. A systematic review (Topp, Østergaard, Søndergaard, & Bech, 2015) of 213 papers utilizing the WHO-5 indicated high clinical/psychometric validity as an outcome measure of general wellbeing. Participants rate their wellbeing across five items with scores ranging from 1-all of time to 6-not at all. Reversing the index score indicates higher wellbeing.

Stratification on ethnicity

The statistical analyses were stratified on ethnicity in order to present descriptive and inferential statistics separately for the ethnic strata. Three types of questions were used to decide the ethnicity of the participants: 1) language spoken at home (Norwegian, Sami, Kven or other language either by the person, the parents or the grandparents), 2) ethnic self-identification either as Norwegian, Sami, Kven or Other, and 3) ethnic background either as Norwegian, Sami, Kven or Other. Based on these questions, the following five ethnic subgroups were created: 1) "Norwegian" if only Norwegian markers were endorsed ($N=5,608$), 2) "Norwegian KO" if a *Kven* or an *Other* ethnicity marker were additionally endorsed, hence representing a mixed ethnic category ($N=1,969$: among these $n=1,389$ endorsed at least one *Other* marker, while $n=700$ endorsed at least one *Kven* marker, and $n=120$ endorsed a combination of *Other* and *Kven* markers), 3) "Sami background" ($N=1,097$) if identifying oneself as Norwegian but additionally reports Sami ancestry (parents/grandparents speaking

Sami, or having parents with a Sami background), 4) “Sami affiliation” ($N=1,459$) if reporting one or two Sami markers (the person speaks Sami, self-identify as Sami, or reports Sami ethnic background), and 5) “Strong sami” ($N=1,372$) if a participant endorsed all three Sami markers.

The Kven group immigrated from Northern Finland and Northern Sweden due to poverty and famine in their native countries, which peaked during the 18th and 19th centuries. Their language was recognized as a minority language in 2005 (Hyltestam & Milano, 2003), and they share a common history of strong linguistic and cultural assimilation (Eriksen & Niemi, 1995).

Predictor variables

Discrimination. Exposure to any kind of discrimination was coded as 1 (yes) if participants responded positively to the question ‘Have you ever been discriminated against?’ either by ticking ‘Yes, during last two years’ or ‘Yes, previously’. Those scoring ‘No’ or ‘I don’t know’ was coded 0. Participants responding positively received additional questions about: (i) Frequency of discrimination (0-not at all, 1-seldom, 2-sometimes and 3-very often). (ii) Number of assumed reasons (range: 0-11) for being discriminated (i.e., physical disabilities, sexual orientation, learning difficulties, gender, religion, nationality, ethnic background, geographical affiliation, age, illness or other factors). Ethnic discrimination was coded as 1 (yes) if participants ticked off ‘ethnic background’, or as 0 (no) if omitted. Majority Norwegians could also tick off this option. (iii) Number of places (range: 0-13) where discrimination took place (i.e., internet, at school, at work, applying for a job, at voluntary work/in organizations, in contact with government agencies, within

family/relatives, when renting/buying apartment/house, applying for bank loan, accessing medical treatment, in shops/restaurants, in the local community, or other places). (iv) Number of perpetrators (range 0-8) inflicting the discrimination (i.e., public employees, strangers, work colleagues, members of the same ethnic group, members of other ethnic group, fellow students, teachers/employees, or other people). The score distribution of the three last count variables was highly negatively skewed with a long tail flattening out at scores above 4, which were truncated to 4 (new range: 0-4).

Short form of the Resilience Scale for Adults (RSA). The RSA measures protective factors associated with resilience (Friborg et al., 2005; Friborg et al., 2003). The original RSA consists of 33 items assessing three overarching protective domains: a) intrapersonal traits and characteristics (measured by four factors: personal strength, social competence, positive future and personal structure), b) family cohesion and c) social resource. A range of studies confirm the validity of these six RSA factors (Hjemdal, 2007; Windle, Bennett, & Noyes, 2011), as well as cross-cultural validity (Hjemdal et al., 2011; Hjemdal, Roazzi, Dias, & Friborg, 2015; Jowkar, Friborg, & Hjemdal, 2010). A short version (12 items) was prepared for the current epidemiological SAMINOR2 study by selecting four of the highest loadings items from each of the three factors *personal strength*, *social competence* and *family cohesion*.

Covariates

The following socioeconomic variables were included for the purpose of adjustment of mean scores or beta coefficients: gender (0-female, 1-male), age (continuous range), education (years of schooling), full-time work (0-no, 1-yes), and

household annual income (0<150,000 NOK, 1<300,000 NOK, 2<450,000 NOK, 3<600,000 NOK, 4<750,000, 5<900,000 NOK and 6>900,000 NOK). In addition, variables associated with the outcome variables used in the present study (i.e., mental distress and wellbeing) were adjusted for: previous and current smoking, use of alcohol, physical activity and BMI (plus BMI squared).

Statistical analyses

Missing data. The RSA subscales each consisted of four items, and hence cases with 2+ missing data within any of the three subscale, were removed ($n=461$). The remaining missing data were imputed using the expected-maximization method in PRELIS 2.0.

Psychometric analyses. Structural equation modeling software was used to assess the fit of the RSA measurement model, i.e., Mplus version 7.11 by Muthén and Muthén (2016). The robust ML (maximum likelihood) estimator was preferred to accommodate non-normal item distributions. As the chi-square statistic is sensitive to large sample sizes (Bentler, 1990), as was the case here, the root-mean-square error of approximation (RMSEA) and the non-normed fit index (NNFI) were additionally consulted. RMSEA values $< .06$ are preferable (Marsh, Wen, & Hau, 2004), while values for NNFI should minimally pass $> .90$ (Browne & Cudeck, 1993) or preferably $> .95$ (Hu & Bentler, 1999). Presence of invariance in the factor loadings between the ethnic subgroups is an important cross-cultural validation test. If supported, it implies that the same change in the observed sum score reflects an equal degree of change in the underlying trait. This is supported if a model with free loadings does not fit the population data significantly better according to a non-significant chi-

square difference test (Satorra & Bentler, 2001) than a model with all loadings constrained equal.

Hierarchical regression analyses.

The mean and regression analyses were conducted in SPSS version 21. All coefficients were bootstrapped using 1,000 resamplings in order to produce confidence intervals and significance tests less biased by non-normally distributed scores. Due to the number of statistical tests, p values below $< .01$ were considered as significant.

Regression analyses. The regression models were conducted in steps. Continuous variables were grand centered, and dichotomous variables were dummy coded (0 versus 1). Here, we first examined the role of discrimination on mental distress and wellbeing. In the second and third step, the resilience variables and their interaction terms (resilience \times Dcrim) were included. In the final fourth step, the covariates were added to adjust the preceding coefficients that were of primary interest.

Mean score analyses. These analyses were conducted separately for participants that reported and did not report discrimination. To produce adjusted mean estimates, variables were regressed on HSCL-10 and wellbeing in steps. Continuous variables were group centered due to the two separate analyses. In the first step, ethnicity was entered to give crude mean estimates for the five ethnic groups separately. In the second step (named *Adj 1 model*) all covariates were included to adjust the mean scores, hence making all groups equal on the covariate data. In the third step, an final adjustment (*Adj 2 model*) for the level of discrimination was included.

Results

Confirmatory factor analyses (CFA) of the short form of the Resilience Scale for Adults (RSA)

A multi-group CFA of the 12 RSA items selected for this epidemiological study indicated a mediocre fit for the three factor measurement model ($\chi^2_{303} = 3692.6, p < .001, RMSEA = .072, NNFI = .912$). Inspecting the modification indices identified two items related to misfit. The items SC4 and FC3 had significant cross-loadings with other factors, thus being ambiguous indicators. Removing the SC4 item (*social competence*) improved fit significantly ($\chi^2_{249} = 2445, p < .001$), but not terribly well ($RMSEA = .064, NNFI = .935$). Removing the FC3 item (*family cohesion*) again improved fit significantly ($\chi^2_{200} = 1383, p < .001$), this time more sufficiently ($RMSEA = .053, NNFI = .959$). The factor loadings for the resulting 10-item RSA are presented in Table 1, along with subscale reliability estimates (Cronbach's alpha) for the different ethnic groups. This three-factor model (10 items) fitted the data acceptably well within each ethnic subgroup.

--- Insert Table 1 about here ---

Test of metric invariance: The differences in the RSA factor loadings were minor between the ethnic subgroups. A test of metric invariance by specifying a model with all loadings equal across the ethnic groups did not show significantly worse fit than the free loading model ($MLR \text{ diff } \chi^2_{28} = 21.60, p = .80$). Hence, simple

sum scores of the three RSA subscales thus measure underlying changes in resilience equally well across all ethnic subgroups.

Analyses of correlations between ethnic discrimination and facets of discrimination, and their relationships with mental health status and wellbeing

Ethnic discrimination correlated positively with all facets of discrimination as shown in Table 2. Moreover, these correlations were markedly stronger in the two Sami groups, the *Sami affiliation* and in particular the *Sami strong* group, compared to the other groups. The wellbeing and mental health were worse among participants experiencing any facet (or kind) of discrimination. The size of these coefficients were largely comparable across the facets and across ethnic subgroups; hence, no specific discrimination facet seemed particularly negatively related with mental health or wellbeing. Since the correlation coefficients between the four facets (frequency, reasons, perpetrators and places) were high in general, we subjected these categorical scores to an exploratory factor analysis in Mplus using the robust weighted least square estimator. The EFA yielded a first eigenvalue of 3.70 ($R^2 = .93$), clearly supporting the creation of a single total discrimination index that we named *Dcrim*. The factor loadings were .90 (frequency), .93 (reasons), .98 (perpetrators) and .98 (places).

The *Dcrim* index was significantly more powerful (higher correlations) in accounting for individual differences in mental health and wellbeing than any of the discrimination facet scores, as well as the ethnic discrimination variable.

--- Insert Table 2 about here ---

Buffering effects of resilience (regression models)

The Dcrim, the resilience factors, the interaction variables and the covariates were entered in the first, second, third and fourth step, respectively. Interaction terms (i.e., Dcrim × RSA-10 factor) were excluded if not contributing significantly.

HSCL-10. Dcrim was positively related with mental distress across all ethnic groups. The quadratic Dcrim term was additionally significant in the *Norw KO* and *Sami affil* groups, indicating accelerating effects at higher levels. Among the resilience factors, personal strength was the most important predictor of less mental distress across all groups, whereas the predictive power of social competence and family cohesion were small. As hypothesized, resilience moderated the association between discrimination and mental distress significantly. Higher scores on the RSA personal strength factor dampened the association significantly in all ethnic groups, but marginally in the Sami affiliation group ($p = .019$). According to Figure 1, it almost canceled the effect completely. In the *strong Sami* group, the protective effect was strongest if combined with a high degree of RSA family cohesion, whereas this factor did not add protection for the other groups.

Covariates: Among the covariates, mental health was significantly associated with gender (men better), age (younger better), fulltime work (yes better), income (higher better), daily smoking (no better), previous smoking (no better) and physical activity (higher better) across all ethnic groups. The coefficients were in general small ($\beta < .12$).

--- Insert Table 3 about here ---

Wellbeing. Discrimination significantly predicted wellbeing across all ethnic groups, however the negative relationship was considerably weaker for wellbeing

(weighted mean $R^2 = 2.9\%$) than for mental distress (weighted mean $R^2 = 8.8\%$). The nonlinear squared Dcrim index did not contribute additionally. Among the resilience factors, personal strength was again the most important predictor for better wellbeing across all groups; however, the positive role of social competence was now more prominent and even more important than family cohesion. A further protective effect of the resilience factors emerged only in the *strong Sami* group. Sami scoring high on both RSA personal strength and RSA family cohesion maintained their wellbeing very well despite discrimination (see Figure 1, panel f). Similar protective effects were not observed in the other ethnic groups.

Covariates: The coefficients were by and large comparable with the coefficients for the mental distress analysis. A single exception was physical activity, which showed a larger association with wellbeing ($mean \beta = .23$) than with mental distress ($mean \beta = .11$).

--- Insert Table 4 about here ---

Mean score analyses of mental distress and wellbeing between the ethnic groups

The proportion of participants reporting any kind of discrimination, and the associated mental health status and wellbeing are presented in Table 5 separately for the ethnic groups. Comparable data for those not experiencing discrimination are reported in the upper part of the table for comparison. The proportion of individuals reporting discrimination in the Norwegian group was 8.7%, but significantly higher (significant AR values) in the other ethnic groups, and particularly in the strong Sami group where 44.6% reported any discrimination.

Mental health and wellbeing when not discriminated. The adjusted mean scores showed no differences in mental distress between the ethnic groups, and the level of

distress was in general low. Also, the adjusted proportions of individuals having mental health problems (HSCL-10 > 1.85) were comparable across the ethnic groups. Wellbeing was reported highest in the *strong Sami* group, followed by lower scores in the *Norwegian* and the remaining groups. The difference in terms of effect sizes was however small; e.g., *Strong Sami* vs. *Norwegian* (Cohen's $d = .12$) and *Strong Sami* vs. *Sami background* ($d = .26$).

Mental health and wellbeing among participants experiencing discrimination.

Overall, mental distress (HSCL-10) was significantly higher among those reporting discrimination compared to those not reporting discrimination (*Student t*=19.99; *M diff* = .22; $d = .49$). Likewise, the overall proportion of individuals reporting mental health problems (HSCL-10 > 1.85) was more pronounced (22.4%) compared to the no discrimination group (8.3%). The overall drop in wellbeing associated with discrimination was also significant ($t=7.96$; *M diff* = .21; $d = .19$), but smaller as compared to mental distress.

Both the crude and the adjusted models showed that Norwegians reported most mental distress associated with discrimination. The degree of mental distress in the other groups was lower, but only significantly lower in the *strong Sami* group. The proportion of mental health problems (HSCL-10 > 1.85) was notably lower in this group (15.4%) compared to the other non-Norwegian groups (21.5% - 23.2%) and almost half of that observed in the Norwegian group (27.5%). The level of wellbeing was comparable in all groups, except the *strong Sami* group which again scored significantly higher than the other groups (e.g., *Norwegian* vs *strong Sami*, $d = .26$). These ethnic differences were not moderated by gender in any of the analyses as the gender × ethnicity interaction term was not significant.

--- Insert Table 5 about here ---

Discussion

The novelty of the present population study was the inclusion of resilience variables in the analysis of the relationships between discrimination (both ethnic and any kind), mental health (as measured by symptoms of depression and anxiety) and wellbeing (as measured by the World Health Organization index, WHO-5).

Our first aim was to validate a short version of the original *Resilience Scale for Adults* (RSA) suitable for epidemiological use. Twelve items from the original RSA (having 33 items) were selected from three resilience protective factors: personal strength, social competence and family cohesion. Two of the 12 RSA items had to be discarded to satisfy model fit criteria. The remaining 10 items (RSA-10) fit the population data well. Moreover, it was culturally invariant as all ethnic groups read and semantically interpreted the items similarly. Good support of cross-cultural validation in the present study thus converges well with similar international studies of the full RSA (Hjemdal et al., 2011; Hjemdal et al., 2015; Jowkar et al., 2010). Hence, the RSA-10 may be recommended for use in epidemiological research examining protective factors across indigenous Sami and non-Sami subjects in Norway.

The second aim was to examine relationships between the various facets of discrimination and mental health/wellbeing. As expected, mental health was worse off among those reporting any kind of discrimination than those not reporting it, thus echoing previous SAMINOR study findings specific for ethnic discrimination (Hansen & Sørli, 2012) and the extant literature on discrimination and health (e.g., Williams, Neighbors, & Jackson, 2003). All facets of discrimination (i.e., frequency, reasons,

perpetrators and places) contributed negatively to health and wellbeing, and substantially more so than ethnic discrimination alone. A partial correlation analysis between ethnic discrimination and health/wellbeing, controlling for the frequency of discrimination, rendered all non-significant or trivially small. The associated context of ethnic discrimination thus seems to be more important for health and wellbeing (how often, why and where it happens, who do it etc.) than whether it happens or not. Accordingly, the total burden index of discrimination was more important for health and wellbeing compared to any of the underpinning facets, or ethnic discrimination alone. This finding converges well with two review papers indicating a clear dose-response relationship between discrimination and health (Harris et al., 2006; Paradies, 2006). Yet, since individuals that are discriminated for ethnic reasons also are more likely to suffer more frequent and additional kinds of discrimination, ethnic discrimination increases the risk of an accumulation of discriminative experiences that cannot be understated.

The third aim was to study if the resilience factors (as measured with the RSA-10) contributed more substantially than the total burden of discrimination to mental health and wellbeing, and to compare these relationships between the ethnic groups. Of the three factors assessed by the RSA-10, the most important factor for mental health was the *personal strength* factor (i.e., having self-confidence, faith in personal abilities to overcome hard times, ability to accept things impossible to change, and ability to thrive despite adversity). The same was true for wellbeing, except now the *family cohesion* factor and, in particular, the *social competence* factor contributed additionally. Hence, wellbeing seems to be more influenced by social competence and family cohesion than are mental distress. Furthermore, these three resilience factors,

notably *personal strength*, played a significant buffering role by decreasing and almost canceling the negative associations between discrimination and mental health/wellbeing. This moderation was notably different in the *strong Sami* group as a comparable canceling effect was only achieved if accompanied by a high degree of *family cohesion* together with *personal strength*. This finding fits well with studies in Sami societies emphasizing the important role of family structures (Balto, 1997; Jávo, 2010; Javo, Rønning, & Heyerdahl, 2004; Nergård, 2011). The Sami generally values family traditions and family relationships that are more interdependent compared to ethnic Norwegians; hence, the familial self has a more prominent place (Sørli & Nergård, 2005). A uniform protective role of the RSA-10 was not evident in the wellbeing data except in the *strong Sami* group, which showed a similar protective effect as above that again underscores the protective role of *family cohesion* among Sami individuals. The lack of a uniform interaction effect in the remaining groups (for wellbeing) may relate to the fact that discrimination in general affect negative mental health states more strongly than positive constructs like wellbeing (Paradies et al., 2015).

Mean score differences in mental health and wellbeing between the ethnic groups

The adjusted prevalence estimates of mental health problems (HSCL-10 score > 1.85) (Strand et al., 2003) among those not exposed to any discrimination ranged between 7.3% and 9.4% across the five ethnic groups. This is quite close to the most comparable population study also conducted within the Arctic circle, the Tromsø 6 study (7.4%) (Johnsen, Wynn, & Bratlid, 2012). These prevalence rates matches the 12-month prevalence of depression in Norway (7.3%) well (Kringlen, Torgersen, &

Cramer, 2001), and furthermore, indicates that the level of mental health problems in Norwegian and Sami non-discriminated populations are relatively similar.

Among those suffering discrimination, the mental health status and wellbeing in the *strong Sami* group were less negatively affected than in majority *Norwegians*. In fact, the prevalence of mental health problems (HSCL-10 > 1.85) in this group was two times lower than in the *Norwegian* group (15.4% vs. 27.5%). At the same time, the *strong Sami* group reported the highest degree of wellbeing compared to the other groups, both among discriminated and non-discriminated individuals. Given the fact that this group also experience 5 times more often any kind of discrimination, and 10 times more often ethnic discrimination than majority Norwegians (Hansen & Sørli, 2012), this group stands out as especially resistant (or, protected). Since discrimination related to race may be considered as particularly hurtful, arousing and compromising of mental health (Paradies, 2006; Paradies et al., 2015), the resilience observed in the *strong Sami* group is remarkable.

The current epidemiological study was not designed to reveal underlying causes of the observed resilience of the Sami. The long history of colonization, systematic discrimination and forced assimilation aimed at distinguishing Sami language and culture is well-known (Minde, 2005). Prejudice and negative attitudes toward the Sami permeated almost all parts of society (Bals et al., 2010). Although considerable ethnic and cultural revival during the last three decades has taken place (Hansen, 2011), discrimination against the Sami is widespread. Why is their health and wellbeing still better than majority Norwegians? First, Sami people are not naïve as history have learned them what to expect of the Norwegian society from time to time. Hence, they may interpret the discrimination directed at them as happening on

a group level and not because of personal flaws. Since this is a shared experience among the Sami, validation and support from fellow group members are perhaps more readily available than among majority Norwegians? Second, the Sami people may have learned important skills and strategies already from their upbringing (Javo, Alapack, Heyerdahl, & Rønning, 2003; Javo, Rønning, & Heyerdahl, 2004; Javo, Rønning, Heyerdahl, & Rudmin, 2004), serving them well when faced with discrimination later on. In Sami child rearing practice, emphasis is put on fostering inner strength, hardiness and autonomy within a context of closeness and love (Javo et al., 2003). Hardiness here means maintaining good self-control when faced with personal provocation or bullying in order to avoid further victimization; hence, protecting oneself better. The “narrideapimi” rearing practice (*i.e.*, use of good-humored teasing of the child) is one example aimed at learning the child to regulate negative emotions and respond appropriately. Such experiences may create a sense of mastery (Werner, 1993; Werner & Smith, 2001). Autonomy is fostered by exercising few rules or regulations in daily life, hence much freedom is granted to explore the environment independently in order to learn how to self-manage well (“iesbirgejupmi”) (Bongo, 2012). Such parental practices may represent a cultural competence that help sustain ethnic identity and even pride (Javo et al., 2003; Whitehead, Ainsworth, Wittig, & Gadino, 2009). A strong ethnic identity is generally found to buffer against harmful effects of discrimination (Yip, Gee, & Takeuchi, 2008). These cultural family traditions may be more preserved in the *strong Sami* compared to the other groups.

Limitation and strengths of the current study

The strengths of the study were its epidemiological design, its broad coverage of communities included in the study, and its rigorous measurement of ethnicity. Despite the large sample size and subsequent statistical power, the low participation rate (~27%) may bias the results. The declining interest to participate in health surveys during the last decades is a general problem in epidemiological research. We nevertheless expected the most important analyses in the current study, i.e., the regression analyses, to be less biased than the mean-score analyses. In a unique study examining biases related to non-participation, Stormark, Heiervang, Heimann, Lundervold, and Gillberg (2008) found that non-response introduces larger biases for mean or prevalence estimates, but smaller biases for the correlation or regression coefficients. Despite the low participation rate calls for caution, the results were in the expected directions.

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Table 1. Resilience Scale for Adults (RSA-10): Standardized Factor Loadings and Model Fit Data Across the Ethnic Groups

	Norw <i>n</i> = 5,233	Norw KO backgr <i>n</i> = 1,817	Norw Sami backgr <i>n</i> = 1,028	Sami affiliation <i>n</i> = 1,362	Strong Sami affiliation <i>n</i> = 1,270	Women <i>n</i> = 5,976	Men <i>n</i> = 4,756
RSA description of items							
PC1 <i>trust own judgements/decisions</i>	.67	.63	.61	.65	.71	.62	.69
PC2 <i>faith in my self</i>	.79	.76	.75	.79	.81	.78	.78
PC3 <i>able to grow despite difficulties</i>	.81	.80	.79	.78	.82	.81	.80
PC4 <i>accept things impossible to change</i>	.68	.63	.66	.61	.69	.66	.66
SC1 <i>most comfortable around others</i>	.48	.48	.49	.46	.47	.45	.51
SC2 <i>gets new friends easily</i>	.90	.88	.87	.86	.90	.89	.89
SC3 <i>gets easily in touch with others</i>	.87	.84	.85	.83	.82	.84	.86
* SC4 <i>finds things to talk about easily</i>							
FC1 <i>very comfortable in own family</i>	.78	.79	.77	.77	.81	.77	.80
FC2 <i>family members close to each other</i>	.88	.88	.87	.90	.86	.88	.87
* FC3 <i>family has a positive outlook</i>							
FC4 <i>family loyalty</i>	.82	.83	.82	.82	.81	.81	.82
Factor correlations							
RSA ps – RSA sc	.67	.67	.63	.65	.66	.62	.69
RSA ps – RSA fc	.59	.60	.51	.49	.66	.53	.64
RSA sc – RSA fc	.44	.43	.45	.36	.49	.38	.49

Model fit							
<i>MLR</i> χ^2	490.4	175.4	160.2	215.7	121.4	589.8	489.1
<i>d.f.</i>	32	32	32	32	32	32	32
<i>RMSEA</i>	.052	.050	.062	.065	.047	.054	.055
<i>NNFI</i>	.960	.959	.940	.937	.967	.954	.955
Reliability (Cronbach)							
α RSA ps	.82	.79	.80	.80	.84	.81	.82
α RSA sc	.78	.77	.75	.75	.77	.76	.78
α RSA fc	.86	.86	.86	.86	.87	.86	.87

Notes. RSA ps/sc/fc = RSA personal strength/social competence/family cohesion. * Item removed due to misfit. *MLR* χ^2 = robust chi-square, *d.f.* = degrees of freedom, *RMSEA* = root mean square error of approximation, *NNFI* = non-normed fit index.

Table 2. Correlations Between Ethnic Discrimination, the Different Facets of Discrimination, Total Burden of Discrimination (Dcrim), Mental Health Status and Wellbeing.

	Norwegian <i>n</i> = 5,608	Norw KO backgr <i>n</i> = 1,969	Norw Sami backgr <i>n</i> = 1,097	Sami affiliation <i>n</i> = 1,459	Strong Sami affiliation <i>n</i> = 1,372
	<i>r</i> CI .99	<i>r</i> CI .99	<i>r</i> CI .99	<i>r</i> CI .99	<i>r</i> CI .99
Ethnic discrim	<i>n</i> = 96 1.7 %	<i>n</i> = 106 5.4 %	<i>n</i> = 39 3.6 %	<i>n</i> = 235 16.1 %	<i>n</i> = 446 32.5 %
Frequency	.31 ^a .23 .38	.47 ^a .38 .55	.38 ^a .26 .49	.63 ^a .56 .69	.73 ^a .69 .78
Reasons ¹	.21 ^a .12 .30	.29 ^a .20 .39	.17 ^a .05 .29	.19 ^a .11 .27	.21 ^a .13 .28
Perpetrators	.36 ^a .29 .42	.47 ^a .39 .54	.32 ^a .20 .44	.57 ^a .50 .64	.62 ^a .57 .68
Places	.36 ^a .29 .43	.46 ^a .37 .54	.31 ^a .19 .42	.56 ^a .49 .62	.62 ^a .57 .67
Dcrim ¹	.35 ^a .29 .41	.48 ^a .39 .54	.34 ^a .24 .44	.60 ^a .54 .66	.69 ^a .64 .73
HSCL-10					
Frequency	.26 ^a .21 .32	.27 ^a .18 .35	.26 ^a .15 .38	.17 ^a .08 .25	.17 ^a .09 .24
Reasons ¹	.27 ^a .21 .34	.29 ^a .21 .38	.24 ^a .12 .36	.25 ^a .17 .34	.22 ^a .14 .30
Perpetrators	.28 ^a .22 .34	.33 ^a .24 .43	.28 ^a .17 .41	.28 ^a .19 .36	.22 ^a .14 .29
Places	.29 ^a .23 .35	.34 ^a .26 .44	.28 ^a .16 .40	.28 ^a .20 .36	.23 ^a .14 .31
Ethnic discrim	.03 -.01 .07	.13 ^a .05 .23	.12 -.01 .25	.10 ^a .03 .18	.11 ^a .04 .18
Ethnic discrim ²	-.06 ^a -.11 -.01	.01 -.07 .11	.03 -.09 .16	-.01 -.10 .09	-.03 -.10 .05
Dcrim ¹	.31 ^a .24 .36	.34 ^a .26 .43	.30 ^a .18 .41	.28 ^a .20 .36	.24 ^a .17 .31
Wellbeing					
Frequency	-.15 ^a -.20 -.12	-.17 ^a -.24 -.11	-.14 ^a -.23 -.06	-.07 -.15 .01	-.12 ^a -.20 -.05
Reasons ¹	-.16 ^a -.19 -.12	-.20 ^a -.27 -.14	-.11 ^a -.19 -.03	-.16 ^a -.22 -.09	-.15 ^a -.21 -.08
Perpetrators	-.15 ^a -.19 -.12	-.22 ^a -.28 -.16	-.15 ^a -.24 -.06	-.14 ^a -.20 -.07	-.14 ^a -.22 -.08
Places	-.16 ^a -.21 -.12	-.23 ^a -.29 -.16	-.14 ^a -.24 -.06	-.14 ^a -.20 -.07	-.16 ^a -.23 -.08
Ethnic discrim	-.04 ^b -.07 -.01	-.08 ^a -.15 -.01	-.05 -.14 .03	-.03 -.09 .04	-.09 ^a -.16 -.03
Ethnic discrim ²	.01 -.03 .05	.01 -.06 .07	.00 -.09 .08	.01 -.06 .09	.01 -.07 .08
Dcrim ¹	-.17 ^a -.21 -.13	-.23 ^a -.29 -.16	-.15 ^a -.24 -.07	-.14 ^a -.21 -.08	-.17 ^a -.24 -.09

Notes. ¹ Ethnic discrimination not included. ² Partial correlation controlling for frequency. ^a $p < .001$, ^b $p < .01$. CI .99 = Bootstrapped 99% confidence intervals. HSCL-10 = Hopkin's Symptom Check List (10 items). The correlation coefficients involving the variable *Ethnic discrim* are point-biserial, otherwise Pearson.

Table 3. Buffering Effects of Resilience Against Discrimination with Mental Distress (HSCL-10) as Dependent Variable.

Steps Variables	Norwegian <i>n</i> = 5,233		Norw KO backgr <i>n</i> = 1,817		Norw Sami backgr <i>n</i> = 1,028		Sami affiliation <i>n</i> = 1,362		Strong Sami affiliation <i>n</i> = 1,270	
	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>
<i>Discrimination</i>	.085^a		.126^a		.084^a		.087^a		.049^a	
Dcrim index		.17^a .13 .20		.11 ^c .00 .23		.15^b .07 .24		.05 ^c -.06 .16		.23^a .16 .28
Dcrim index sq.				.14 ^c .00 .27				.14 ^c .01 .28		
<i>Resilience</i>	.197^a		.212^a		.254^a		.252^a		.165^a	
RSA ps		-.35^a -.40 -.31		-.32^a -.37 -.25		-.31^a -.39 -.24		-.35^a -.42 -.27		-.26^a -.35 -.16
RSA sc		-.05^b -.08 -.01		-.09^b -.14 -.03		-.04 -.11 .04		-.04 -.10 .02		-.06 -.13 .02
RSA fc		-.06^b -.10 -.03		-.07^c -.13 .00		-.13^b -.21 -.06		-.09^c -.16 -.02		-.09^c -.20 -.01
<i>Interactions</i>	.014^a		.006^b		.015 ^b		.007 ^c		.027^a	
Dcrim × pc		-.12^a -.17 -.07		-.08^b -.14 -.02		-.13^b -.21 -.03		-.10^c -.18 -.01		-.08 -.17 .01
Dcrim × pc × fc										-.18^a -.26 -.09
<i>Covariates</i> ¹	.052^a		.035^a		.081^a		.056^a		.062^a	
<i>Total R²</i>	.346^a		.373^a		.423^a		.394^a		.292	

Notes. ^a = $p < .001$, ^b = $p < .01$, ^c = $p < .05$. Adj β = Final adjusted standardized beta coefficient. *CI* .95 = Confidence intervals based on bootstrapped standard errors. ΔR^2 = Change in R-square for the step. Total R^2 = R-square for the whole model. If a cell is empty, the parameter was not statistically significant. ¹ Covariates included: Gender, age, education, household income, work status, smoking, alcohol usage, psychical activity and BMI (included BMI²). RSA ps/sc/fc = Resilience Scale for Adults personal strength/social competence/family cohesion.

Table 4. Buffering Effects of Resilience Against Discrimination with Wellbeing (WHO-5) as Dependent Variable.

Steps Variables	Norwegian <i>n</i> = 5,233		Norw KO backgr <i>n</i> = 1,817		Norw Sami backgr <i>n</i> = 1,028		Sami affiliation <i>n</i> = 1,362		Strong Sami affiliation <i>n</i> = 1,270	
	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>	ΔR^2	Adj β <small>CI .95</small>
<i>Discrimination</i>	.027^a		.045^a		.023^a		.021^a		.028^a	
DCrim index		-.07^a <small>-.10 -.05</small>		-.12^a <small>-.17 -.08</small>		-.05 <small>-.10 .01</small>		-.05 <small>-.09 .00</small>		-.16^a <small>-.21 -.11</small>
DCrim index sq.										
<i>Resilience</i>	.255^a		.250^a		.298^a		.281^a		.195^a	
RSA ps		.34^a <small>.30 .37</small>		.27^a <small>.21 .32</small>		.30^a <small>.24 .36</small>		.32^a <small>.25 .39</small>		.27^a <small>.19 .37</small>
RSA sc		.12^a <small>.09 .15</small>		.17^a <small>.11 .21</small>		.16^a <small>.09 .23</small>		.10^a <small>.05 .16</small>		.14^a <small>.07 .20</small>
RSA fc		.04^c <small>.01 .08</small>		.10^a <small>.05 .15</small>		.12^a <small>.05 .18</small>		.12^a <small>.06 .18</small>		.05 <small>-.03 .13</small>
<i>Interactions</i>									.019^a	
Dcrim × pc										.06 <small>-.02 .12</small>
Dcrim × pc × fc										.14^a <small>.04 .21</small>
<i>Covariates</i> ¹	.082^a		.057^a		.086^a		.087^a		.052^a	
<i>Total R²</i>	.365^a		.346^a		.397^a		.380^a		.284^a	

Notes. ^a = $p < .001$, ^b = $p < .01$, ^c = $p < .05$. Adj β = Final adjusted standardized beta coefficient. *CI* _{.95} = Confidence intervals based on bootstrapped standard errors. ΔR^2 = Change in R-square for the step. Total R^2 = R-square for the whole model. Cells that are empty are not statistically significant. ¹ Covariates included: Gender, age, education, household income, work status, smoking, alcohol usage, psychical activity and BMI (included BMI²). RSA ps/sc/fc = Resilience Scale for Adults personal strength/social competence/family cohesion.

Table 5. Proportions of Subjects Being Discriminated for any Reason and Associated Health Status and Wellbeing.

<i>Experience of discrimination</i>	<i>Norwegian</i>	<i>Norw KO background</i>	<i>Norw Sami background</i>	<i>Sami affiliation</i>	<i>Strong Sami affiliation</i>	<i>post-hoc</i>
No: n (%)	5,122 (91.3%)	1,622 (82.4%)	928 (84.6%)	1,044 (71.6%)	760 (55.4%)	
Mental distress						
Crude <i>M CI .99</i>	1.26 _{1.24 - 1.27}	1.29 _{1.26 - 1.32}	1.31 _{1.27 - 1.34}	1.32 _{1.29 - 1.35}	1.28 _{1.24 - 1.32}	1<3 ^h 1<4 ^a
Adj 1 <i>M CI .99</i>	1.30 _{1.28 - 1.32}	1.32 _{1.29 - 1.35}	1.34 _{1.30 - 1.38}	1.34 _{1.30 - 1.37}	1.31 _{1.27 - 1.35}	
> 1.85 crude	7.4% _{6.5% - 8.4%}	9.1% _{7.4% - 11.1%}	9.6% _{7.2% - 12.7%}	10.3% _{8.2% - 13.0%}	9.2% _{7.0% - 11.9%}	
> 1.85 adj 1	7.3% _{6.1% - 8.7%}	8.0% _{6.1% - 10.3%}	9.4% _{6.7% - 13.0%}	8.8% _{6.6% - 11.7%}	8.3% _{6.1% - 11.2%}	
Wellbeing						
Crude <i>M CI .99</i>						1>2 ^a 1>3 ^a 1>4 ^a
Adj 1 <i>M CI .99</i>	4.28 _{4.24 - 4.32}	4.12 _{4.05 - 4.19}	4.13 _{4.04 - 4.22}	4.12 _{4.03 - 4.21}	4.42 _{4.32 - 4.52}	1<5 ^b 2<5 ^a 3<5 ^a 4<5 ^a
Adj 2 <i>M CI .99</i>	4.17 _{4.12 - 4.22}	4.06 _{3.99 - 4.13}	4.03 _{3.94 - 4.12}	4.08 _{3.99 - 4.17}	4.33 _{4.23 - 4.43}	1>2 ^b 1>3 ^b
Yes: n (%)	486 (8.7%)	347 (17.6%)	169 (15.4%)	415 (28.4%)	612 (44.6%)	1<5 ^a 2<5 ^a 3<5 ^a 4<5 ^a
AR	-24.62 ^a	-0.02	-2.04 ^c	11.59 ^a	27.93 ^a	
Mental distress						
Crude <i>M CI .99</i>	1.65 _{1.58 - 1.73}	1.62 _{1.53 - 1.71}	1.61 _{1.48 - 1.73}	1.57 _{1.49 - 1.65}	1.44 _{1.37 - 1.51}	1>5 ^a 2>5 ^a
Adj 1 <i>M CI .99</i>	1.68 _{1.60 - 1.76}	1.63 _{1.54 - 1.72}	1.59 _{1.46 - 1.71}	1.61 _{1.52 - 1.69}	1.51 _{1.43 - 1.58}	1>5 ^a
Adj 2 <i>M CI .99</i>	1.70 _{1.62 - 1.78}	1.62 _{1.53 - 1.71}	1.59 _{1.47 - 1.71}	1.61 _{1.53 - 1.70}	1.48 _{1.41 - 1.55}	1>5 ^a 2>5 ^b 4>5 ^b
> 1.85 crude	27.8% _{22.9% - 33.3%}	25.1% _{19.6% - 31.5%}	26.0% _{18.3% - 35.6%}	23.9% _{18.9% - 29.7%}	17.3% _{13.7% - 21.6%}	na
> 1.85 adj 1	26.9% _{20.9% - 33.9%}	23.4% _{17.1% - 31.2%}	21.7% _{14.0% - 32.2%}	23.1% _{17.1% - 30.6%}	17.4% _{12.9% - 23.1%}	na
> 1.85 adj 2	27.5% _{21.2% - 34.7%}	21.5% _{15.4% - 29.2%}	21.5% _{13.7% - 32.1%}	23.2% _{17.1% - 30.7%}	15.4% _{11.1% - 20.9%}	na
Wellbeing						
Crude <i>M CI .99</i>	3.69 _{3.56 - 3.83}	3.65 _{3.49 - 3.81}	3.74 _{3.51 - 3.97}	3.87 _{3.72 - 4.01}	4.19 _{4.07 - 4.31}	1<5 ^a 2<5 ^a 3<5 ^a 4<5 ^a
Adj 1 <i>M CI .99</i>	3.65 _{3.51 - 3.80}	3.61 _{3.45 - 3.77}	3.73 _{3.50 - 3.95}	3.79 _{3.64 - 3.94}	4.06 _{3.93 - 4.19}	1<5 ^a 2<5 ^a 3<5 ^a 4<5 ^a
Adj 2 <i>M CI .99</i>	3.63 _{3.49 - 3.77}	3.63 _{3.47 - 3.78}	3.72 _{3.50 - 3.94}	3.78 _{3.63 - 3.93}	4.09 _{3.96 - 4.22}	1<5 ^a 2<5 ^a 3<5 ^a 4<5 ^a

Notes. ^a $p < .001$, ^c $p < .05$. n = Sample size, Post-hoc = Least significant difference tests for mean differences between ethnic subgroups. M = Mean, $CI .99$ = 99% confidence interval. AR= Adjusted standardized (Z) chi-square residuals. Z scores > 1.96 are significant at $p < .05$. na = post-

hoc tests not available for binary logistic model, use confidence intervals instead. Adj 1 = model equalizes all groups equal with regard to gender, age, education, household income, work status, smoking, alcohol usage, psychical activity and BMI (included BMI²). Adj 2 = model additionally equalizes the groups with regard to discrimination scores (Dcrim).

Figure 1. Illustration of the Moderating Role of Resilience on the Association Between Discrimination Psychological Distress/Wellbeing. The Horizontal Line at HSCL-10 = 1.85 is Cutoff for Mental Health Problems. The Low and High Lines Represent -1.5 and +1.5 SD.

