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To cite this article: Hanna Blåhed & Miguel San Sebastián (2021) “If the reindeer die, everything dies”: The mental health of a Sámi community exposed to a mining project in Swedish Sápmi, International Journal of Circumpolar Health, 80:1, 1935132, DOI: [10.1080/22423982.2021.1935132](https://doi.org/10.1080/22423982.2021.1935132)

To link to this article: <https://doi.org/10.1080/22423982.2021.1935132>



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Published online: 05 Jul 2021.



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# “If the reindeer die, everything dies”: The mental health of a Sámi community exposed to a mining project in Swedish Sápmi

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## ABSTRACT

In 2006, a British mining company started the process of extracting ore from Gállok/Kallak, in Swedish Sápmi. These grounds are used all year round for reindeer herding by the Sámi community Jáhkkågasska tjiellde. While environmental impact assessments should be conducted by law in any development project in Sweden, the health component included is usually vague. The aim of this study was to understand the experiences and perceptions of the Sámi community regarding the current and potential health effects of the proposed mine. A qualitative study, including six in-depth interviews with members of the community, was conducted in 2020. Interviews were analysed using thematic analysis. Five themes were identified and organised in current and future impacts. Current impacts included “It’s like David’s battle against Goliath”, “It’s a slow process that takes a lot of power and energy”, “It’s a defense ... like, to protect oneself”; with future impacts including: “If the reindeer die, everything dies”, “You would feel that you do not possess any power, [you would feel] overridden, pushed away, not liked”. The fear of losing current and future generations’ livelihoods appeared to be the main mediators of the current and potential worsened mental health experienced by the community.

## ARTICLE HISTORY

Received 16 March 2021  
Revised 21 May 2021  
Accepted 21 May 2021

## KEYWORDS

Sámi; mining; health impact assessment; mental; Sápmi



## Introduction

Sweden’s economy is – to a certain extent – based on the exploitation of its mineral resources [1]. In 2020, Sweden was the 12th most attractive country to invest in, globally [2]. The country holds 60% of Europe’s identified iron ore deposits and is at present responsible for 90% of Europe’s iron ore extraction [3]. Currently, the government has no intention to scale down, and intends rather to expand and strengthen the country’s position as a mining nation [1]. Notably, more than 96% of Sweden’s total ore production comes from the mines in the northern region, known as Norrland [4]. Importantly, the mines in this region (which constitute 10 of the 12 currently active mines in the country) are part of Sápmi, the traditional territory of the Sámi, the only Indigenous people in Sweden and ultimately, Scandinavia [3,5].

The mining industry is seen as essential for job creation, tax revenue, and growth (it constitutes 1.4% of Sweden’s total GDP), particularly to the rural northern region [1,3]. However, these arguments have been questioned in different ways. For instance, while production has increased, the number of people working

in mines has decreased due to automation [6]. In addition, low expropriation fees are set to a mere 0.02% of the market value of minerals (compared to 5–30% in other mining nations), meaning that Sweden is virtually giving resources away to foreign corporations [7–9].

Environmental impact assessment (EIA) is regulated by law and required to be carried out in any infrastructure project in Sweden [10]. Even though most mining projects are planned and executed in Sápmi, they lack any explicit consultation process with the Sámi, making them incapable of taking due account of the Sámi interests [3]. The legal framework in the approval process for mining concessions only stipulates a mere right to information of concerned parties and provides for only indirect consultation opportunities in the planning stage [11]. This lack of Sámi participation in decision-making processes regarding infrastructure projects on their traditional land is therefore inconsistent with Sweden’s international obligations for Indigenous peoples, and in stark contrast to their right to consultation and self-determination which also includes the right to pursue economic development [12].

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The health component of an EIA is a mandatory feature, and it is strongly recommended that the potential physical and mental effects on the health of local communities are assessed [13], preferably using the tool health impact assessment (HIA) [14]. Yet, in Sweden, health impacts related to mining projects are most commonly characterised in terms of physical impacts such as noise, vibrations, and environmental pollution, and proper assessments of the local population health risks are uncommon [15].

In 2006, the British mining company Beowulf Mining plc was granted an exploration licence in Jokkmokk municipality, northern Sweden [16]. The potential mine would be located in Gállok/Kallak, an area used by the Sámi community Jåhkågasska tjiellde for reindeer herding. The reindeers graze there all year round since it is part of their natural migration route. When drillings started in 2013, an anti-mine movement developed consisting of environmental activists and the Sámi community, and demonstrations were held throughout the summer of 2013 [17,18]. Since then, the two decision-making authorities, the local County Administrative Board and the Mining Inspectorate, have not been able to solve amongst themselves the issue of an exploitation concession, and the final decision currently lies in the hands of the government [18].

While an EIA was performed in 2013/2014 as part of exploration permit process, the health aspect was only considered in terms of potential environmental effects, such as consequences caused by dust, noise, and vibrations. No explicit health effects were assessed relating to the mining negotiation process, the disruption of the reindeer routes, or how it could affect the health of the reindeer herders. The report concluded that the potential health impacts on humans as well as on animals were minor [19].

Literature on HIAs of mining projects is limited [20–22], particularly in Indigenous territories. A recent systematic review examining health and well-being associated with mining activity in rural communities of high-income countries revealed evidence of an increased prevalence of chronic disease (mental health and cancer), poor self-reported health status, loss of social connectedness, and decreased access to health services in the mining communities. However, none of the studies reviewed was from a Scandinavian country [23]. Research on Sámi health in Sweden is scarce and outdated. Physical health is thought to be rather equivalent between Sámi and majority population Swedes, with similar mortality rates observed in the period 1961–2000 [24]. However, some differences regarding mental health have been observed [25–27]. Notably, the Sámi youth have reported a higher

prevalence of suicidal expressions (including suicidal ideation, death wishes and life weariness) than non-Sámi youth. The same study showed that ethnic discrimination and its association with mental health was overrepresented among young Sámi reindeer herders [27]. In the same line, another study revealed that young and middle-aged male and female reindeer herders were particularly prone to suicidal expressions compared to majority society [25].

## Objective

The aim of this study was to understand the experiences and perceptions of the Jåhkågasska tjiellde Sámi community regarding the current and potential health effects of the proposed mine in Gállok/Kallak. This specific study was part of a broader health impact assessment (HIA) conducted in the community during 2020 [28].

## Method

### Setting

Gállok/Kallak is a peninsula, situated between the Parkijaur and Skalka lakes, in the valley of the Lesser Lule River, in the municipality of Jokkmokk, northern Sweden. Two non-Sámi villages, Björkholmen and Randijaur, with approximately one hundred inhabitants, constitute the permanent residents of Gállok/Kallak. It is between these two villages that the ore-body has been located. As previously stated, the mine will affect the Sámi community Jåhkågasska tjiellde and their reindeer herding. The community consists of approximately one hundred members, of which around half work directly with reindeer herding [29]. While this is the community primarily affected by the mining proposal, two other neighbouring Sámi communities would also be indirectly affected.

As previously mentioned, this study was part of a broader HIA that followed the classical steps of this methodology [14]. *Sámiid Riikkasearvi* (the Swedish Sámi People's National Association, SSR), as part of a wider participatory research collaboration, presented the case of Gállok/Kallak to researchers of the Department of Epidemiology and Global Health (EpiGH), Umeå University, in the autumn of 2019. SSR is a national Sámi civil society organisation that represents reindeer herders' interests, and as such have broad knowledge of concerns regarding reindeer herding in Sweden. The possibilities to conduct a HIA were discussed, and a prior informed

consent from Jåhkågasska tjiellde community was sought before commencing the first phase of the HIA. In addition, a reference group consisting of two scholars (Sámi and non-Sámi) and representatives from two national Sámi organisations (SSR and *Sáminuorra*, the Sámi youth organisation) was established to support the research team along the process.

### **Study design, study population and data collection**

The principles of community-based participatory research (CBPR) [30] were applied regarding who decided the research question, the methods implemented to gather data and the research dissemination process. All these stages were carried out in constant dialogue between the community leadership and the researchers. Methodologically, the study was however led by the researchers in terms data collection and analysis; while this might not necessary follow certain strict principles of community research participation, it was the way decided by SSR and the community.

This was a qualitative study, consisting of six in-depth interviews among members of the Jåhkågasska tjiellde Sámi community. Recruitment of informants began in January 2020 through the administrative board of the community which distributed an invitation from the research team. The inclusion criteria to participate was being 18 years or older, and a member of the Sámi community in question. The research team was in contact with ten potential informants, of which six (three men and three women) agreed to participate, of which all were connected to reindeer herding either directly or through their families. The rest of contacted persons declined to be interviewed the planned dates for reasons related to their work as reindeer herders. The interviews were conducted using an interview guide containing 17 questions with prompt questions which were added if needed (see Appendix 1). The questions aimed at capturing the current and future health impacts of the mining project. The interview guide was built based on a screening survey conducted among the HIA reference group. The guide was not piloted beforehand, however it was discussed with a Sámi scholar and member of the reference group and the community leadership. The interviews took place in March 2020, in a location at the choice of the participant. The interviews were conducted in Swedish and recorded, having a length of approximately 30 to 60 minutes.

### **Data analysis**

The analytic approach was thematic analysis, a qualitative method that searches for themes or

patterns of meaning. The methodological process followed the six step-by-step guide suggested by Braun and Clarke [31]: (i) becoming familiar with the data, including the transcriptions of verbal data; (ii) generating initial codes; (iii) searching for themes; (iv) reviewing themes; (v) defining and naming themes; and (vi) producing the report. Not all steps of the guide are unique for thematic analysis but keeping to the guide facilitated the analytic process.

Interviews were transcribed using the online transcription service Otranscribe. The interviews were transcribed verbatim and coded using Open Code 4.03. All transcripts were coded by the research team first individually and then shared and discussed jointly. The interpretations of the codes were kept close to the text by using a so-called semantic approach. The process was inductive, an approach which allows for flexibility and interpretation. The whole corpus of data was coded in this way, enabling themes to evolve from the text rather than being based on preconceptions or fixed ideas.

### **Ethics**

An ethical approval was obtained from the Swedish Ethical Review Authority. Furthermore, prior to the interviews, a free and informed consent document following the principles of research collaboration between the Department of Epidemiology and Global Health (EpiGH), Umeå University EpiGH, and the SSR was agreed before the study started.

Permission to use the narratives of the participants was given before the interviews took place as an individual informed consent form was signed at the date of the interview. The informed consent contained information on the aim of the study as well as contact details for a licenced Sámi psychologist, if this kind of support was needed by the participants. As part of member checks, the participants were given the opportunity to provide feedback on the analysis to verify that interpretation of their narratives had been made correctly. This procedure took place mainly through email correspondence. During the annual meeting of the Jåhkågasska tjiellde Sámi community in August 2020, a second member check was held when the results were presented to the community before being made public, thus providing a space for input and discussion.

### **Results**

The interviews revealed both current and potential future health impacts due to the mining project. The results section is therefore divided accordingly, into

“current effects on health and its determinants” and “potential future effects on health and its determinants”. Five themes were identified during the analysis, and a description of each of them is outlined below. Due to confidentiality, the participants are identified as *Interviewee 1*, *Interviewee 2*, *Interviewee 3*, and so on.

## Current effects on health and its determinants

### “It’s like David’s battle against goliath”

The first theme begins by explaining how social processes relating to the mining project have influenced health. “David and Goliath” refers to how the Sámi community, Jåhkågasska tjiellde, has been exposed for a long time to demands and pressure from dominant actors.

The process of approval of the mining permit involved four primary actors in addition to the Sámi community: the Swedish state, the mining company, the Mining Inspectorate, and the County Administrative Board. Continuous negotiations had been carried out between the Jåhkågasska tjiellde community and these actors at different stages of the process, creating a feeling of power imbalance. In addition, the community had to bear the pressure from local promoting institutions and individuals. An interviewee referred to the situation as “David versus Goliath”.

They [the mining companies] never cared about any reindeer herders. Not the Swedish state either, [they] never cared. The only thing that has always been done ... is to enable opportunities for oneself. [The Swedish state] have created legislation, and one has been moved from here and there and ... in this way [the Swedish state] has got ... reindeer herders in Sámi to quit and become settlers.

#### *Interviewee 5*

... you feel a grim hopelessness, you feel, you become depressed, ... [after] you have been to these meetings [with other mine actors] ... and you go to the reindeer forest, and then you see all of that ... then you feel fucking depressed, and you think: ‘am I [going to be] the last generation to do this [reindeer husbandry]?’

#### *Interviewee 6*

Jokkmokk municipality was another relevant actor in the mine process. Several interviewees referred to the unfavourable political situation for the Sámi in Jokkmokk, saying that they had had no support from the municipal leadership. Indeed, there had been great divisions between pro- and anti-miners (which in the beginning of the process generally meant non-Sámi versus Sámi) even though the social climate had got better over the years. The interviewees recalled facing

difficulties at the start of process to obtain a permit; according to participants, verbal harassment became an issue, leaving many Sámi scared for themselves and their children.

The social climate has changed. Then in the beginning ... that was hard, there were discussions when you went to the groceries store ... [also in] the lunchrooms at work, if you were away doing extra work, then directly, it was a lot the whole time ... so then it was a lot of ... a lot of ... well yes, verbal abuse and a lot of ... that sort of stuff.

#### *Interviewee 5*

Their opposition to the establishment of a new mine had led to the Sámi in Jåhkågasska tjiellde being labelled as “nay-sayers”. Many interviewees were aware of the arguments made by the opposing side, from those who saw benefits of a mine in Jokkmokk. It was not opposition to extractivism per se that made the Sámi oppose a mine first and foremost, but the threat against their livelihood that it represented. Several participants highlighted the lack of mutual understanding regarding how the future development of the municipality should look like. As one interviewee mentioned:

It was hard getting that yoke put on you like ‘well but, you anti-miners, you are just egoistic, and the reindeer husbandry does not contribute to society’ and ... those sorts of comments. Like, ‘but you have to understand that for the sake of the future, the sake of Jokkmokk’s future we must have a mine’ but I see it as the opposite: for the sake of Jokkmokk’s future we must *not* have a mine.

#### *Interviewee 3*

### “It’s a slow process that takes a lot of power and energy”

The second theme showed the type of health impacts the community have been (and are) experiencing, due to the uncertainty of the lengthy mine process. The process of obtaining the mine permit started in 2006 and intensified during 2013 and 2014 when test drillings took place. A final decision by the government has been expected since 2019. During this period, there have been ups and down in the intensity of the process creating uncertainties, which have led to negative health consequences; presumably ones that have developed in a cumulative way. Three main types of psychosocial distress were expressed by participants: stress, anxiety and worry.

One has lived with this for so many years. Like, right now, it feels like you have ignored it, because in the beginning, it was very loaded with anxiety, you felt like, oh my God, what is going to happen?

#### *Interviewee 2*

I have felt it [the mine process] in the way that I have been stressed over [it], I have felt uncertainty, over my income (...) for sure I have felt health effects in such a way that I have been stressed.

*Interviewee 2*

Well ... it puts a ... a heavy load on you [the mine process], and it creates feelings of worry, and ... yes. A very strong sense of worry.

*Interviewee 5*

Hopelessness, despair, and anger were other recurrent feelings among the interviewees. Talking about the possible mine was emotional, and it was clearly a topic which generated a lot of sorrow among the interviewees.

Of course, we have, well moments when you feel hopelessness and despair, and you feel inferior, and you feel weak.

*Interviewee 6*

It puts a lot of negative thoughts in circuit when you start thinking about the consequences, if it happens [if the mine is established], but at the same time we must think that it will not happen and work towards that.

*Interviewee 3*

### ***"It's a defense (...) like, to protect oneself"***

The third theme presents the different coping strategies the community has developed in response to the process, and how they were trying to protect themselves against the negative health effects. The interviewees referred to different strategies to cope with and be able to face the previous stressors outlined (powerful actors, uncertainty, and psychosocial distress). Some commented that they did not want to, or could not manage, to think about the possible mine.

There is too much to think of in everyday life. Way too much to think about in everyday life to ... to manage to think about it [the potential mine establishment] as well (...) We would have to move (...) It will affect all of us there. So, I do not think of it.

*Interviewee 1*

Another way of coping with the situation had been through strengthening the community support. Maintaining a united position has helped the community members to keep strong during the mine process.

We have supported each other; we have been able to process this together with each other. And we have felt support between us.

*Interviewee 2*

Other important factors mentioned by the participants were the nature, the reindeers, and family, all of which were sources of strength.

When you are out in the woods, and you see the reindeer, and you see the fire in my children's eyes, then you think 'damn it, I will not give up, hell no'. Then you get that fighting spirit.

*Interviewee 6*

### ***Potential future effects on health and its determinants***

The second section of the results (outlined below) reflects the participants' view of the potential impacts of the establishment of a mine in their land. Here, the potential negative health consequences were not directly linked to environmental impact, but to the disappearance of their traditional livelihood and therefore also to the cultural, social, and economic aspects attached to it.

### ***"If the reindeer die, everything dies"***

One of the most severe consequences of a potential mine in Gáallok/Kallak would be that reindeer herding could not continue. Participants referred to reindeer herding as a lifestyle, a way of living, passed down by generations. The reindeer is central in the Sámi culture, and the well-being of the reindeer affects the herder. As reported during the interviews:

It is a lifestyle. It is a life. It is not a job, it is not nine to five, when you close the door, that you ... no, hell no, it is a life.

*Interviewee 6*

What we love the most is the reindeer. And when we do not have grazing lands, because the mine has possessed it, well, what are we then? Nothing.

*Interviewee 6*

A mine would put economic burden on reindeer husbandry which is already constrained. Most likely, feeding and transportation costs would increase, as the grazing lands in Gáallok/Kallak would be cut in half to accommodate the mine, causing damage to the reindeers' natural migration routes.

I think that we will not be there [referring to Gáallok] anymore, instead we will have to move further east ... and start transporting both ways. It will become very expensive. It [reindeer husbandry] is already expensive. We will endure, and by *endure*, I mean both mentally and economically.

*Interviewee 1*

***You would feel that you do not possess any power, [you would feel] overridden, pushed away, not liked***

It was not easy for participants to identify specific potential health impacts that could occur in the future as a consequence of the mine. However, there was fear of an increase in mental ill-health, alcoholism, drug abuse, as well as families breaking up. Additionally, several participants expressed the view that being forced to observe their lifestyle being erased by outsiders would be hard to endure, and that the establishment of a mine would not just affect their income but might mediate overall worsened mental health. Indeed, it hurt the interviewees to imagine having their livelihood taken away from them and from their future descendants.

What should I think ... ? I mean, if I am to be really honest, I think it could lead to some alcoholism, and substance abuse, and depression ... "

*Interviewee 6*

Everything from feeling that your way of life disappears, to feeling that my job will disappear, my income will disappear, and that ... the possibility of the children working with reindeers if they want to, that goes away, and ... just that connection to the place, the mental pressure too—that entails an anxiety, because the nature will go away.

*Interviewee 2*

Participants also mentioned different dimensions related to psychosocial well-being that could be affected as consequence of the establishment of a mine. Some thought it would have enormous health implications but were not specific about the impacts.

I think there would be a huge health [impact] ... like, it would have a huge impact on health, I think. We would feel, if the mine happens, then we would feel overpowered, and when you feel run over, well then ... well, that is not good, because then you do not feel well, I think.

*Interviewee 2*

Other interviewees expressed sorrow and specific mental health disorders connected to witnessing the damage of nature.

Well, it will produce sorrow. The only thing I will be looking at is a huge wound in the ground. No, there are no positive ... images that appear in my head.

*Interviewee 5*

I think of the general health, of the risk of getting depressed, and that you would not want to live—that

it [the potential establishment of a mine], would produce such consequences.

*Interviewee 3*

In the same vein, some interviewees reflected on extreme health scenarios, such as losing the meaning of their lives due to the potential loss of their livelihood.

It would feel so very hard because it would mean that what I do in my life is pointless.

*Interviewee 2*

**Discussion**

The results of this study have revealed both present and potential future health impacts as experienced by members of the Jåhkågasska tjiellde. The study has shown that extractivist projects, like the one in Gállok/Kallak, do not need a direct environmental impact in order to produce adverse social and health consequences for local communities. The findings also highlight the limited scope of the current EIA to capture the health dimension of affected communities.

***Current health effects***

The current health impacts revealed how different power inequalities and a lack of understanding of the Sámi livelihood made the members of the Jåhkågasska tjiellde feel marginalised, framing them as opponents to development, as well as being responsible for the local social tensions. Persson et al. [17] have studied power inequalities specifically in relation to the mine process in Gállok/Kallak, and recognised that the conflicts go beyond access to natural resources – they also include issues of Sámi rights and culture. Using this mining conflict as a case study, the authors highlighted how the Sámi community became subordinated to more dominant actors such as the government, the mining company, and media, who have “more” power or “different” kinds of power “over” others. This form of power asymmetry has created a space where actors with more power and more dominant discourses – focusing on economic growth as the only way of development – can overrule the Sámi values and traditional way of life based on a sustainable development approach.

Disputes over land for mining have stirred opposition and resilience among many Indigenous communities globally, often at the cost of their own health [32]. A case with similar, (though more violent) features to Gállok/Kallak, concerns the Indigenous Mam people in Guatemala. Caxaj et al. [33] described the community health of mining-affected villages, due to

a Canadian gold mine operation. The origins of current health effects among the Mam were reported as a construction of past and present political decisions and colonial traumas, which were amplified by the establishment of a foreign mine. The divisions created by the mine resulted in the dissolution of a once united community, as well as feelings of powerlessness and despair among those against it. Similarly, among Indigenous groups in India, the fear of displacement due to new mining operations created anxiety, stress, and fear of losing traditions among the settlers. The risk of severe and potential long-term mental health harms were deemed as the most prominent health effects [34]. Ultimately, the situation for the Sámi community in Jokkmokk is not unique but shares with others the existing power asymmetry and health consequences to the disadvantage of the Indigenous communities.

### **Potential future health effects**

Potential future severe mental health effects were related to the fear of losing a culture through a potential mine's impact on reindeer herding. The link between several social determinants of health such as work environment, community connectedness and land occupation or degradation impacted by mining projects and the mental health of Indigenous communities is evident in the literature [35]. Additionally, the concerns of not being able to preserve traditional lifestyles for coming generations can be shared with other Indigenous communities, such as the Takla First Nation community in British Columbia who, as powerless actors, have had to witness the spread of mining activities on their traditional land [21]. The environmental philosopher G. A. Albrecht has coined the term "*solastalgia*", meaning "*the lived experience of distressing, negative environmental change*" [36]. In Australia, research connected to solastalgia has investigated the lived experiences of residents living near existing and encroaching open-pit mines. For some, solastalgia manifested as anxiety, insomnia, psychosomatic illness, as well as feelings of hopelessness and powerlessness. In others, the pain of watching a loved landscape desolated by large scale mining activities motivated them to avoid the affected landscape altogether [37]. In another study, which focused on the experiences of elder women of Torres Strait (Australia) concerning climate change, specific emotions, feelings, and mental health implications were reported by these women [38].

In the case of Gállok/Kallak however, the Sámi community will not "only" experience the destruction of the

environment and the loss of land but also the extinction of a particular way of life for them and their children.

### **Methodological considerations**

The two authors were non-Sámi researchers which could have hinder to obtain an insider perspective or trust with the participants. One of the researchers had however vast experience in Indigenous health research in other settings and was the health research leader of Várdduo-Center for Sámi Research at Umeå University. The fact that the proponent of the study was the national reindeer herders' association, Sámiid Riikkasearvi, which commissioned the work to the Department of Epidemiology and Global Health contributed to overcome some of these barriers. The Department has also signed a participatory research agreement with Sámiid Riikkasearvi with guiding principles on how to conduct research among Sámi reindeer herders in Sweden. Additionally, and in line with the CBPR approach taken, a reference group (which was part of the larger HIA), represented by the Sámi civil organisations (Sámiid Riikkasearvi and Sáminourra), as well as researchers in the fields of Sámi health and mining conflicts, was involved in the research process. To further strengthen trustworthiness, credibility (i.e. how well findings captured the reality being explored) was enhanced through recurring meetings and email correspondences with Sámiid Riikkasearvi and Jáhkågasska tjiellde, to ensure that we had correctly captured the situation. As mentioned, member-checks were another important feature of the process of guaranteeing credibility. The reference group also had an influential role in reviewing the process. Regarding transferability, i.e. analytic generalisability, we believe that the HIA methodology used for this study can be applied on other cases suffering similar impacts. The ability of participants to contribute to the study question and the effort to contextualise the results further enhanced transferability. For dependability (the reliability of research) we searched involvement of other actors (Sámiid Riikkasearvi, Jáhkågasska tjiellde, the reference group and other knowledge-holders) throughout the process. An extern fellow researcher at the Department also reviewed the analytical process. Finally, we cannot claim to be neutrally positioned as researchers. From the moment we selected the research question, the methods, and the approach, we were already orienting the results. We regarded positioning as necessary to be able to understand and capture the situation for the Sámi. However, to enhance neutrality, we tried to put our preunderstanding into "brackets"



and to detail the methodology to the readers could follow our arguments. Additionally, we recognised our position as researchers, not as neutral observers but as exploring the results from a right to health perspective.

Health is not often discussed in terms of mining in Sweden, and Sámi communities are seldom approached with questions regarding mental and physical health impacts due to mining activities. It is therefore possible to think that the mere acknowledgement of the objective of the study could have influenced the community's perception of the health risk resulting from the intervention. However, participation was voluntary and anonymous (the community did not know who participated), but still the similarity of the narratives in terms of health impacts contributed to the conclusion that the interviews reflected the real view and experience of the participants.

Given the logistics of the project, the study focused on one specific Sámi community directly affected by the mining project. It would have been interesting however, to collect further experiences of other Sámi communities and Swedish local residents affected by the plans for the mine. Similarly, due to time constraints and reasons of credibility in front of the community, mining and state representatives were not included, although it would have been attractive to capture their perspective.

### Conclusions and recommendations

The community of Jåhkågasska tjiellde is already experiencing a series of symptoms related to psychosocial distress (anxiety, stress, worry) that seem to be mediated by the long process of uncertainty regarding the establishment of the mine and the potential loss of their livelihood.

The Sámi community also identified several potential psychosocial distresses related to the possible setting up of a mine in Gállok/Kallak. These were linked to the direct impact of the mine on their traditional way of life, threatening for many of them the total disappearance of their traditional way of living and thus, their own identity.

An HIA conducted at the beginning of any development project process, either as a significant part of an EIA or independently, is strongly recommended. The health component of the current EIAs is insufficient to capture the impact on the social determinants of health and its consequences. Therefore, an HIA should become a praxis, regulated by law and performed in a systematic, participatory, and transparent way, to properly assess community health in any infrastructure project in the country.

### Acknowledgments

The authors are grateful to the Jåhkågasska tjiellde Sámi community for participating in this study.

### Disclosure Statement

No potential conflict of interest was reported by the author(s).

### Funding

The fieldwork of this study was partly funded by Várdduo (the Centre for Sámi Research, Umeå University) and Arcum (the Arctic Research Centre, Umeå University). The writing of the manuscript was supported by the Partnership Grant MinErAL funded by the Social Sciences and Humanities Research Council (SSHRC; grant # 895-2016-1015).

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## Appendix

### Interview guide

The interview guide used in the in-depth interviews with members of the Jåhkågasska tjiellde Sámi community. Translated from Swedish to English.

Name of the study

Health impact assessment in Sápmi: a tool for decision-making

The study objective

The aim of the study is to explore potential mental and/or physical effects on health among the members of Jåhkågasska tjiellde, in case a mine is established in the area of Gáλλok/Kallak.

#### Background

*Questions posed to get to know you, your background and who you are.*

Tell us about yourself and your family, what is your role in Jåhkågasska tjiellde?

Do you or your family have reindeers in Gáλλok?

Does Gáλλok (as a physical place) have any meaning to you?

#### Knowledge about the potential mine establishment in Gáλλok

*Questions posed to obtain your perspective on the mine permit process.*

What are your thoughts on the potential mine establishment in Gáλλok?

Do you think that the mining company/the local administrative board/the Mining Inspectorate have involved Jåhkågasska tjiellde in the mine permit process? If yes/no, why so?

Do the stakeholders involved understand each other? If no, do you think that the stakeholders *try* to understand each other?

What do you think will happen if the reindeers' grazing ground in Gáλλok are replaced by a mine?

How will that affect you and your family?

#### Determinants effecting health

*Questions that aim to establish the mine process' effect on health, and life in general, for you and the members of Jåhkågasska tjiellde.*

What effects do you think a mine in Gáλλok could have on health?

What would be the reasons for that?

Thus far, have you noticed any health-related effects from the Gáλλok-process?

How have they been produced?

Have you felt need, or have had need, to get help or support, e.g. professional help or care, regarding what you have experienced and are experiencing in relation to the mine process?

If the mine becomes reality, what are your thoughts on the future, for yourself and generations to come?

#### Closure

*Closing remarks and conclusions.*

Is there anything that you would like to add or share with us? Anything that you think we have not touched upon that you think is important for the research question?

What do you think has been the most important finding of this conversation?