



Study Protocol: The Arctic Childhood Study: a Study of Violence and Health in Indigenous Sámi and Non-Sámi Children and Youth in Arctic Norway—a Mixed Methods Cohort Study Design

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Abstract

Our current knowledge about the health status and developmental process and outcome of Indigenous Sámi children and youths in the high north (Northern Norway, 68 degrees latitude) is scarce. The present longitudinal study, labeled the Arctic Childhood Study, aims to fill major knowledge gaps related to this topic with a special focus on the incidence of violence, abuse, and neglect as well as protective factors. The project will be implemented based on the conceptual framework for Indigenous methodology. The study is highly relevant for the Indigenous population of the Arctic and sub-Arctic regions of Norway as rates of violence are higher as compared to the majority population residing in the same area or farther south. The study applies a mixed methods design that include process evaluations of the pilot study, combines qualitative and quantitative data collection methods, and applies Indigenous collective-informed research. Research activities include a scoping review of abuse and neglect among youth in the Arctic, languages translations of the I-Cast questionnaires, piloting of the Norwegian and Sámi questionnaire packages, and use of focus group discussions. The main study uses a longitudinal cohort study design and school-based surveys in order to explore how relationships between child maltreatment, mental and somatic health, resilience and coping, social, family, and school function, and culturally specific experiences. Participants will be recruited from lower and upper secondary schools in the Arctic and sub-Arctic areas of Norway where the majority of the Indigenous Sámi people lives. The planned participants include adolescents ranging from 12 to 19 years and will follow these individuals every 3 years until age 24. Pending written consent and funding, data will be connected to current national registers. Optionally and pending ethical approval, the study will incorporate the use self-administered, non-invasive buccal swabs in order to collect bio-samples from the participants for genetic analyses and examine genetic mediators related to methylation profiles. The design of the study, the strong focus on Indigenous methodology, the involvement of Sámi youth, and non-Sámi

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youth is intended to produce new knowledge about the repercussion of violence for the normal development and health status among Sámi and non-Sámi youth in the high north. The study connects individual characteristics with cultural risk and protective factors in order to provide families, advocacy groups, school professionals, the health sector, administrators, and policymakers a more evidence informed basis for initiating early identification and prevention programs in child and adolescent health sectors in Norway. The hope is that the information will provide a better foundation for formulating culturally sensitive prevention strategies aimed at reducing occurrences of violence in Sámi society, and provide new knowledge about factors and mechanisms that may enable more culturally appropriate and effective interventions for use in the Sámi community.

Keyword Violence · Neglect · Maltreatment · Resilience · Mental health · Youth · Sámi · Indigenous · Arctic · Norway

Background

Indigenous Sámi people in Norway have experienced social, economic, and political disadvantages, including the use of boarding school systems. These policies have seriously weakened the cultural continuity of the Sámi people and have been most pronounced at Sámi coastal areas. Despite a cultural revitalization during the last decades, Sámi youth still experience prejudice and discrimination substantially more frequently than their majority peers (Hansen, 2022). Epidemiological studies show that many children and youth worldwide are victim to abuse or violence and that maltreatment is linked with long-term negative health consequences and significant societal costs (Gilbert et al., 2009). This is problematic as adolescence and early childhood are vulnerable periods with regard to psychological, social, and cognitive development which heighten the impact of adverse life events like violence or abuse (Geoffroy et al., 2018). Arctic and Indigenous people are known to be at higher risk for several adversities, such as racism, violence, and child sexual abuse, compared to non-Indigenous populations (Hansen, 2022; Kvernmo, 2018). The long history of oppression, marginalization, and stigmatization of Indigenous people is associated with violence against women and children/adolescents (Kvernmo, 2018). Despite this historical backdrop, the current differences in socio-economic status, life expectancy, health status, and living conditions between the Sámi and their non-Indigenous counterparts have been reported to be minor. However, difficulties with obtaining valid data for the Sámi people have been noted (Anderson et al., 2016) in part due to inadequate official statistics that include data about ethnicity (Storm Mienna & Axelsson, 2019). One consequence is a lack of studies that address violence, abuse, and maltreatment in Arctic Indigenous children and adolescents, particularly among the Sámi. Studies that compare Sámi children with their Norwegian peers are similarly uncommon. The current understanding of this topic is inadequate and is limited to retrospective reports (Eriksen, 2017; Eriksen et al., 2015; Eriksen et al., 2016; Eriksen et al., 2018). The present study addresses these knowledge gaps

and connect them with measures of risk and protective factors to better understand the precursors of violence.

The number of Norwegian children subjected to violence and abuse every year is considerable (Hafstad & Augusti, 2019) as, according to the UEVO study, one in five 12–16 year old children experienced physical violence, and one in five experienced psychological violence by their parents. Moreover, exposure to sexual abuse by peers escalates significantly during adolescence, particularly among girls (Hafstad & Augusti, 2019). In a national Norwegian study among adolescents between 18 and 19 years, about 20% experienced less severe physical violence during childhood, whereas approximately 6% reported more severe physical violence by at least one parent during adolescence (Mossige & Stefansen, 2007; Mossige & Stefansen, 2016). However, information on Sámi ethnicity was not included in those studies, and no information from these studies is available regarding how the experience of violence compares for Sámi children and youth. More research is therefore needed to estimate the present incidence of violence, abuse, and maltreatment in Indigenous Sámi adolescents, as well as young adults, and how they compare to the majority Norwegian peers in Arctic Norwegian areas.

International data suggest that Indigenous populations are more frequently subjected to violence, abuse, and child maltreatment than their non-Indigenous peers (Bailey et al., 2017; Fallon et al., 2021; Fiolet et al., 2021). In Australia, “the incidence of assault hospitalization during adolescence was over three times higher for Aboriginal children who also had suffered child maltreatment during childhood” (Moore et al., 2022, p. 1). In New Zealand, Indigenous Māori were more than twice as often as Pacific Islander children to suffer child maltreatment and child protection involvement (Rouland et al., 2019). In Greenland, violence and sexual abuse of the Inuit people is recognized as a major problem (Curtis et al., 2002). In The Greenland Health Survey (2014), it was found that 66% of the population had been exposed to Adverse Childhood Experiences such as alcohol abuse, violence, and sexual abuse during their upbringing (Stecher Nielsen, 2020). One qualitative study about “Well-being among Youth in Greenland” showed that young Indigenous people who had attempted suicides reported “violence in family,” “sexual abuse,” or “violence in relationships” as their prime motive (Pedersen & Bjerregaard, 2012). Interpersonal violence is a significant concern in First Nations, Inuit, and Métis populations in Canada (Lancet, 2016). Indigenous girls/women (First Nations, Inuit, and Métis) in Canada are 2.5 times more at risk to be victims of violence than non-Indigenous women (Klingspohn, 2018). In a validation study of Violence Risk in Youth (SAVRY) with Indigenous and Caucasian female and male adolescent on probation in Canada, Indigenous youth scored significantly higher on all violence risk domains than Caucasian youth (Muir et al., 2020). Among Native American and Alaska Native women interpersonal violence are high. “American Indian and Alaska Native women have the second highest prevalence of violence against women among all ethnic groups in the US, and child abuse prevalence rates in American Indian/Alaska Native populations are among the highest” (Sapra et al., 2014, p. 1).

Several studies have given accounts of how the historical impact of colonization, boarding school experiences, and forced assimilation (Hansen, 2022; Reid et al., 2019), and have affected Indigenous Peoples at multiple levels, such as health

(somatic and mental), social, economic, spiritual, traditional, and culture which have led to loss of culture and traditions (Sapra et al., 2014). These external pressures have been noxious for individual as well as family health and cohesion, which in turn contribute to the risk of domestic interpersonal violence, child neglect, and abuse (Pavkov et al., 2010; Sapra et al., 2014). Studies have also pointed out how historical trauma as experienced by the Indigenous people may contribute to violence, abuse, and child neglect through several mechanisms (Gameon & Skewes, 2020).

There have been numerous confirmed cases of sexual abuse against children and youth in Sámi and Norwegian rural communities (e.g., Kautokeino (Saur, 2006), Tysfjord (Berglund et al., 2016; Politidistrikt, 2017). Shared interpersonal violence risk factors between the Sámi and majority population, such as Christian patriarchal values, inadequate access to culturally sensitive services—and distrust of health—and social care services, are probably influenced the Sámi more than majority population, as a result of Indigenous minority status (Eriksen, 2017).

Some interpersonal violence risk causes might be exclusive to the Sámi living in countryside areas. This possibly because the Sámi people being member of social, cultural, or religious neighborhoods lacking transparency, which may weaken the protection of possible victims, for example, the Laestadian church. Laestadianism (a branch of Lutheranism), which has a robust position in certain Sámi areas, can operate as a boundary for Sámi individuals' victims of violence to request help and report abusive behavior to the police. The practice of the congregation to forgive perpetrators for the abuses they have committed makes it almost impossible for the prosecuting authorities to obtain the necessary information to judicially pursue the case as the congregation considers the matter closed once they have forgiven the sinner (NNHRI, 2018). Sámi individuals are more prone to live amongst extended family compared to the non-Sámi. The extended family are important for the Sámi people and that those relations experience strong interdependence and loyalty (Gerharden, 2010; Nystad et al., 2016). This closeness within the extended family network may increase the risk of interpersonal family violence by hampering the willingness to report and stop violent acts (Berglund et al., 2016; Eriksen, 2017; Gerharden, 2010).

Research based on adult self-reports found that Sámi ethnicity is a risk factor for exposure to lifetime interpersonal violence (Eriksen, 2017; Eriksen et al., 2015). Also, adult Sámi females self-reported high prevalence rate of Intimate Partner Violence (IPV) (Eriksen et al., 2021). Furthermore, a consistent association has been found between childhood violence and somatic and mental health problems in adulthood (Eriksen et al., 2016; Eriksen et al., 2018) indicating that childhood violence represents a significant risk factor for poorer health in adulthood.

Additionally, a study found that Sámi people experience language and cultural barriers when seeking help or reporting violence. This research (Øverli et al., 2017) suggests that abused individuals from ethnic minorities may experience special challenges in their dealings and interactions with support services. Studies suggest language barriers and cultural challenges such as taboos about sexuality and lack of Sámi concepts of violence and sexual abuse are also significant for Sámi people (Øverli et al., 2017).

Cultural Determinants

It is argued that some of the social and health problems that the Sámi children, youth and families face originate in the colonization, historical trauma, discrimination, rapid modernization and marginalization of the Sámi identity and culture (Sjolander, 2011). The Sámi people have a long history of experiencing racism that dates back many centuries. Racism, discrimination, and forced assimilation against Sámi people have through Norwegian history taken many different forms; Sámi have lost land and been displaced, been described as biologically inferior, been forced to attend boarding schools, and have had their religion, culture, and language suppressed. The forced assimilation policy towards the Sami in Norway, which was at its most intense from around 1850 until 1980, has affected the Sami for generations (Hansen et al., 2017). Though the situation and the right of the Sámi to self-government have improved to a significant degree, various studies over the last two decades have documented widespread ethnic discrimination, prejudice, and negative stereotypes towards Sámi in contemporary Scandinavia (Hansen, 2008, 2022; Hansen et al., 2017; Heikkilä & Miettunen, 2019; Mannila, 2021; Omma & Petersen, 2015).

Sámi child rearing practices and values sometimes diverge from the majority culture (Balto, 2005; Javo et al., 2004). The loss of culture and identity that ensued following the harsh assimilation process severely disrupted Indigenous values and Indigenous culture, which was particularly harsh for those being separated from their families and placed in boarding school (Hansen, 2018). The historical accounts of these assimilation practices forced upon the Sámi people has been considered a form of collective violence at a social level (Kuokkanen, 2015). The repercussion of these assimilation policies has had multiple levels of impacts, e.g., societal (individual, familial social, cultural, and intergenerational) and on different ethnic strata (e.g., Indigenous vs. non-Indigenous). Culturally directed violence also created tensions between groups of Sámi with different degrees of assimilation into the majority community norms, as well as having a destructive effect on the extended family network. There is limited academic knowledge about how these historical traumas have affected the Sámi people, and to what extent they are still affected through intergenerational transmission. However, a review study revealed a substantially greater burden of PTSD and symptoms of PTS among American Indians and Alaska Natives compared with their White counterparts and who experienced similar experiences with assimilation, during the twentieth century, as did the Sámi people (Bassett et al., 2014).

Decolonization during the last three decades of the Sámi identity and culture has demonstrated that many Sámi families and communities have been able to re-establish and sustain a primary secure base for developing a strong Indigenous identity for Sámi children and youth, and for achieving health and well-being. These positive associations were showed by Nystad et al. (2016) where for Sámi adolescents' the positive impact of attachment to Sámi community members and Sámi culture and language was associated with high levels of identity, resilience, and well-being (Nystad et al., 2016). In contrast, evidence was presented in another study where Sámi youth living in minority positions in Norwegian-dominated communities appeared more vulnerable and impaired (Kvernmo & Heyerdahl, 1999).

Despite the recent revival and revitalization of Sámi culture, language, and identity, the Sámi experience high prevalence of ethnic discrimination (Hansen, 2016). Many Sámi lack confidence in the majority Norwegian system. Thus, many Sámi youth or families who are victims of violence do not seek out help from the Norwegian health and social services, nor from the police (Øverli et al., 2017). Given a fear that one may have to leave the community and, lose one's Sámi identity, those exposed to violence may choose to keep violence and abuse hidden (Øverli et al., 2017).

Health Consequences

A growing body of international research indicates how exposure to adverse childhood experiences (ACEs; occurring during childhood or adolescence) has the potential for increasing the chances for poor health and behavioral health in adulthood (Hughes et al., 2017). Exposure to child maltreatment including neglect, physical maltreatment, sexual abuse, and psychological maltreatment constitute adverse events. According to research findings, up to 80% of young adults who experienced maltreatment were impaired enough to be diagnosed for at least one psychiatric disorder in adulthood. Young adults also exhibited a range of co-occurring issues, such as anxiety, posttraumatic stress disorder, depression, eating disorders, suicidality, and conduct disorders (Silverman et al., 1996). Exposure to chronic maltreatment is also associated with higher risk of memory, learning, and attention, difficulties (Lewis, 2002). In addition, somatic health issues, such as cancer, heart disease, high levels of C-reactive protein, obesity, chronic lung disease, liver disease, high cholesterol, and high blood pressure, are also associated with those exposed to ACEs (Gilbert et al., 2015). Finally, when it comes to healthy adult behavior, children with ACEs exposure particularly to physical abuse and neglect, experience greater risk for engaging in high-risk sexual behaviors, smoking, drug abuse, and alcoholism (Felitti et al., 1998). Meta studies also show that persons with at least four ACEs are more at risk for health outcomes compared to those with no ACEs. Also, multiple ACEs represent ACE risks for the next generation (Hughes et al., 2017).

Sámi Youth's Well-being and Health

To this point, only very minor differences are observed in comparing Sámi and non-Sámi when it comes to suicidal behavior, emotional problems, and alcohol use among youth in Norway (Bals et al., 2010). That said, in comparison to non-Sámi youth, Sámi youth identified more suicide attempts and more concurrent adversities (Reigstad & Kvernmo, 2017). A strong factor tied to suicide attempts by Sámi boys included suicide committed by relatives or friends, in contrast parental mental health problems were among the greatest risk factors for Sámi girls who made suicide attempts (Reigstad & Kvernmo, 2017). In Arctic regions, suicide among Indigenous adolescents has become a major public health concern, with rates in Greenland among the highest in the world (Granheim et al., 2021). Conflicts with parents and lack of family support and involvement were among the other factors related to suicide attempts. Also of note given the focus on Indigenous youth, for Inuit youth

in Nunavut (Canada), Fraser and colleagues (2015) report that sexual abuse and physical violence were associated with suicide struggles.

Protective Factors That Enhance Resilience

Early exposure to child adversities as physical and emotional abuse, neglect, or interpersonal victimizations is severe risk factors for developmental derailments that may act as forerunners for later maladaptation during school and vocational life, not least the increased risk of adult mental and somatic ill health. Despite the high risks associated with enduring adverse life conditions, a remarkable portion of children seems able to adapt reasonably well (Howell & Miller-Graff, 2014). These outcomes, which Masten (2001) describe as ordinary magic, may be come from underlying *resilience factors* residing both within and around the individual (Friborg et al., 2017; Werner, 2013). Genetic protective factors that improves transcriptional efficiency may for example be at play and facilitate adaptability despite maltreatment (Caspi et al., 2003). Following early research on resilience protective factors, three broad categories stand out as central: (a) positive dispositional and temporal attributes, traits or skills; (b) a family climate characterized by cohesion, loyalty, and support; and (c) access to external social resource systems. Access to such resources reinforce functional ways of coping in general, and especially in the face of adversity. Scales for assessing resilience protective resources have become increasingly available, and a most validated one that covers the three over-arching domains as described above are the Resilience Scale for Adolescents (READ) based on the adult version (Friborg et al., 2003; Windle et al., 2011). However, it is not clear if the same resilience factors are effective in protecting against harmful effects of child abuse, neglect, violence, or ethnic discrimination within an Indigenous context. But, previous studies on the Sámi adult population do suggest that individual and family protective resources are as important (if not more) for the Sámi population as it is for majority Norwegians (Friborg et al., 2017). A comparative study between Greenland and Norway also highlights the importance of family cohesion as Sámi and Greenlandic Indigenous youths had more favorable health outcomes if having a close rather than a distant relationship with their parents (Spein et al., 2013). Ethnic pride may also curb negative effects of discrimination, as Sámi adults having a stronger Sámi affiliation due to their confidence in expressing their ethnic belonging evidenced a remarkably strong resilience in the presence of all kinds of discrimination as compared to those reporting a weaker Sami affiliation. This outcome seemed to be synergistic with regard to individual and family factor in combination whereas majority Norwegian was most protective given high individual protection alone (Friborg et al., 2017).

Aim of the Project

The purpose of the Arctic Childhood study project is to create a longitudinal cohort of Sámi Indigenous and non-Sámi adolescents and young adults in sub-Arctic and Arctic Norway to measure their experiences of adverse childhood experiences (ACEs),

violence, neglect, and maltreatment. In the Arctic Childhood Study, we plan to collect data every third year past baseline up to the age of 24 from Indigenous and non-Indigenous adolescents. If external funding is available, our data will be linked to national registries. We also are assessing the possibility of carrying out self-administered, non-invasive cheek swab bio-samples among youth adult participants depending on ethical review. The project will emphasize identifying mediators and modifiers to explain the links between exposure to childhood maltreatment, and violence, and include risk factors leading to exposure, and potential resilience factors that improve longer term outcomes. Outcomes will include somatic, behavioral, mental health, and quality of life outcomes in a comparative context. We anticipate that the results of the study will have implications for children, families, advocacy groups, school professionals, the health and social services sector, administrators, and policymakers responsible for early identification and prevention programs in child and adolescent health in Norway. Taken together these data collection efforts will provide new knowledge with the potential for better focusing appropriate and effective prevention approaches needed for children and youth. Thus, the results of this investigation can be used to design appropriate and maximally beneficial intervention strategies to reduce and prevent violence.

Study Goals

The multi-faceted goal of the study is to fill the gap in knowledge regarding the experience of far northern Indigenous Sámi and non-Sámi youth and young adults with respect to exposure to violence and maltreatment and whether there are differences in exposure between Sámi and Non-Sámi youth. This includes the identification of underlying risk and protective factors with an emphasis on describing potential sources of resilience that may mitigate deleterious outcomes. The study will address cultural factors that may promote resilience particularly among Sámi youth. The longitudinal design will also permit a better understanding of overall and differential outcomes as well as their moderators and mediators associated with the two groups. The expectation is that the study will contribute to the public awareness of how violence and maltreatment impairs the well-being of Sámi and non-Sámi youth and young adults. This information will be foundational in scaffolding better informed development and implementation of interventions and prevention approaches.

Objectives

- I. Develop and test the validity of data collection protocols and self-report instruments in a pilot study that can be used for comparative studies with other Indigenous communities.
- II. Measure the relationship between violence, risk, and protective factors across multiple levels of influence (individual, social/community, cultural, intergenerational, familial, and societal) between subgroups (e.g., Indigenous vs. non-Indigenous and gender) and within subgroups (e.g., Indigenous children in different ethnic contexts).

III. Examine the long-term influence of childhood violence and resilience factors on somatic, behavioral, and psychological health and well-being in Sámi and non-Sámi adolescents.

To collect self-report questionnaire data about the children and adolescents included in the study, we are proposing to use a suite of instruments to measure baseline characteristics, child maltreatment (ISPCAN Child Abuse Screening Tools (ICAST)), mental health, and resilience (see Fig. 1 for a more detailed overview of the design and aims of the study).

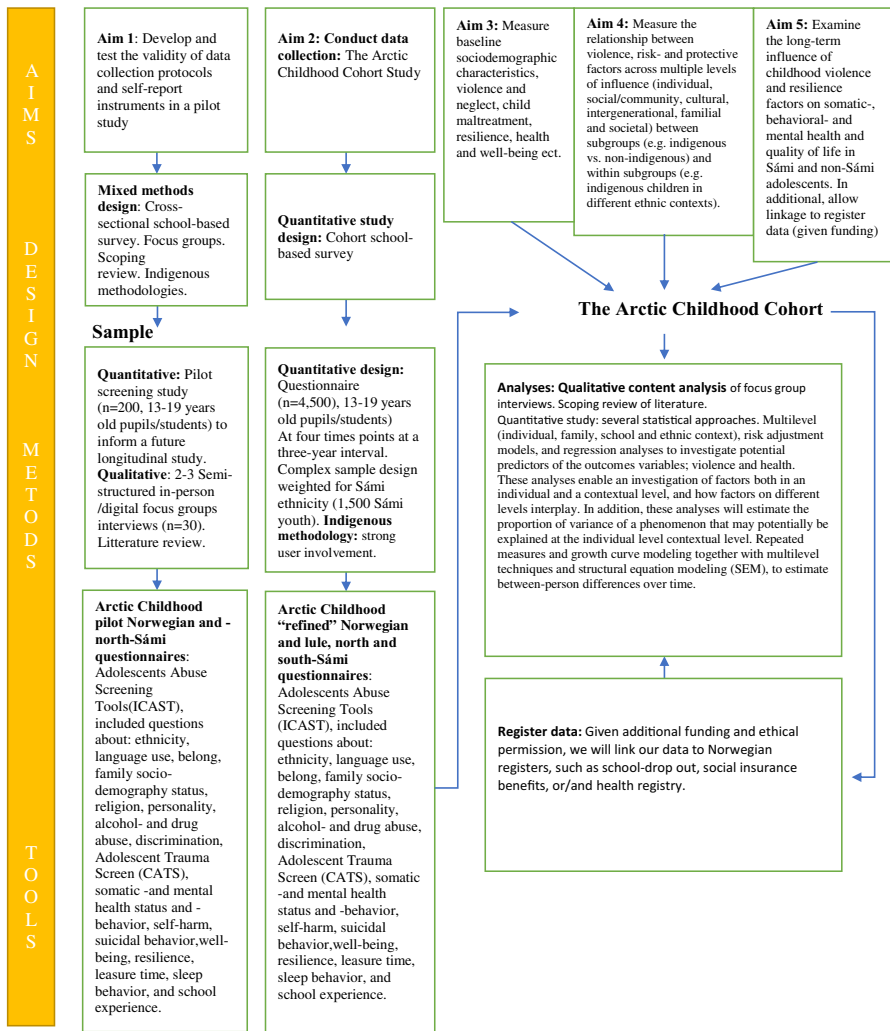


Fig. 1 The Arctic Childhood Study: a prospective cohort study protocol

Methods/Design

The Arctic Childhood Study

The Arctic Childhood Study aims to fill a major gap of knowledge about the experiences of abuse and neglect among Indigenous Sámi children and youth. The proposed study is the first longitudinal research project of its kind in Norway with a particular focus on all forms of violence against Indigenous Sámi and non-Sámi children and youth and in Arctic Norway.

Study Design

The study has a mixed methods design, including process evaluation of pilot study, and combines qualitative and quantitative data. Research activities include languages translation of I-Cast questionnaires, pilot study of Norwegian and Sámi languages questionnaires with focus group discussions, and main study with predominantly longitudinal cohort study design, using questionnaire school-based surveys and home-based survey (after age of 19 years) with long-term follow-up in order to explore a broad range of child maltreatment, mental and somatic health, resilience and coping, social, family, and school function, and culturally specific experiences.

Pilot Studies and Focus Groups Interviews

A pilot study is the first step of the entire research protocol and is planned as a smaller-sized study assisting in planning and modification of the main study. Our pilot studies will be conducted in two municipalities in northern Norway in a total of two/three lower- and upper secondary schools among Sámi and non-Sámi pupils ($N = 200$). The goals of the pilot are to test the questionnaires in Norwegian and Sámi languages (North-, Lule-, and South Sámi languages) (more about the Sámi languages see (Vangsnes, 2022)), appropriateness and effectiveness of the information given orally and in text prior to the data collection, to test the online web-survey, make adjustments to the questions in the questionnaire after feedback from the participants and data analysis in preparation for the main study.

Qualitative Research

A part of the pilot studies will include focus groups interviews with around 60 Sámi and non-Sámi pupils who participate in the pilot questionnaire study. In this assessment of user perspectives, we intend to use an inductive methodological approach, and base our empirical analysis on participants' descriptions of, and reflections on, relevant questions to shed light on the research questions under investigation. The transcribed focus group interviews will be analyzed using qualitative content analysis. The results will have a significant influence on the instrumentation that is

ultimately included in the main study and will also contribute knowledge about how patterns in the answers may be interpreted in order to (i) refine and improve the quantitative instruments, (ii) discuss and present our interpretations of the quantitative results, (iii) assess possible negative or distressing reactions to the data collection process and survey, (iv) consider how best to include participants in ongoing assessments of the process, and (v) organize give-back-events for participants where the results and implications are being presented and discussed.

Main Study

Once the pilot is completed (2022/3) and the instrumentation and protocols refined we plan to initiate the data collection for an Arctic Childhood Cohort. A population cohort of children and adolescents will allow for a comparison of Sámi and non-Sámi youth longitudinally. The main study has a quantitative study design: cohort school-based survey ($N = 4500$). At first wave (the baseline for the prospective cohort), the students will be 12–13, 15–16, and 18–19 years old. We will use a complex sample design weighted for Sámi ethnicity ($n = 1500$ Sámi youth) (more information see chapter about Sami Ethnicity).

Follow-up

Data will be collected from adolescents for up to four time points at 3-year intervals (and up to 5-year interval) (approximately ages 12/13, 15/16, 18/19, and 22–24 years). This means that those who are 12–13 years old at the time Wave will be asked to participate three times in all the follow-up questionnaire administrations, those who are 15/16 years old at first wave will receive two follow-up questionnaires, and those who are 18/19 years old at the first wave time will only be asked to participate in one follow-up questionnaire administration. To contact the adolescents, we will be using the contact information provided at the first Wave survey, for those adolescents who have given written permission for us to contact them again.

Study Setting

The Arctic Childhood Study covers the sub-Arctic and Arctic parts of Norway where the majority of the Indigenous Sámi people live. The population in the Arctic areas of mainland Norway is about 861,700, which makes this the most populated Arctic region in the world (Statistic Norway, 2022). The Indigenous Sámi people number between 60,000 and 110,000 living in Norway, Sweden, Finland, and Russia (Hansen et al., 2016). However, between 40,000 and 60,000 of them reside in Norway. Hence, we can estimate that 25% of the Sámi population are under 20 years old (10,000–12,000), and 14.5% (5800–8700) are between 13 and 24 years old, which is our main target group of Sámi youth (Statistic Norway, 2022). Given an exact estimate of the number of Sámi is very difficult, due to that census data regarding ethnic descent is not available in Norwegian registers

(Pettersen & Magritt, 2015). The estimation is based on Sámi Parliament definition of Sámi ethnicity and Norwegian censuses from 1845 to 1930 and the 1970 census, when Sámi were registered based on Sámi ancestry/descent and Sámi language use, a practice which is no longer followed. In the Norwegian population censuses after World War II, it was deemed inappropriate to include specific questions on ethnicity, such as ancestry/descent, due to its negative association with biological theories of race, and the use of population registers to identify minorities for the purpose of ethnic cleansing during the Nazi occupation of Europe in World War II (Mestad & Dawson, 2020). However, four questions on Sámi ethnicity and languages were asked for residents of 45 select municipalities within the three northernmost counties, on request of the Nordic Sámi Council (Aubert, 1982). According to the Council report “Sámi organizations believed that in order to perform their work they needed better statistical information on the scope and distribution of the Sámi population and data in (sic) their living conditions” (Mestad & Dawson, 2020, p. 51). The 1970 census was the last to collect any Sámi specific data (Aubert, 1982). At present, registering Sámi ethnicity is prohibited for public registers; however, one may register such information in research projects. At this time, the Norwegian Sámi Parliament has decided to explore the opportunities and potential conditions for registering Sami ethnicity in the Norwegian national registry as well as in health registers (Pulk, 2018).

Many Sámi youth live in areas where Sámi identity is a natural part of everyday life, where Sámi language and traditional cultural practitioners are common. Outside these areas, often in Arctic coastal areas, Sámi youth are in a minority position, and Sámi language and culture are not equally present in everyday life. Consequently, many Sámi young people feel pressure to assimilate and many state that they experience racism and ethnic discrimination in these areas at schools, in local communities and online (Hansen, 2008; Hansen & Skaar, 2021). Nevertheless, Sámi youth today assert their Sámi identity with pride in public, and the stigma and historical traumas of being from an Indigenous group may be less prevalent among the youth, compared to what their parents and grandparents felt during the harsher colonization of the Sámi.

Due to previous colonization, assimilation, and boarding schools, not all Sámi families and Sámi youth speak the Sami language today (Minde, 2005). Today Paragraph 108 of the Norwegian Constitution and the Sámi Act formulate the basis for the Government’s to safeguard that the Sámi people can preserve and maintain their language, culture, and well-being (Norwegian Government, 2001). There is a decolonization of Sámi culture and languages among Sámi children and youth (Hansen & Skaar, 2021). In the school year 2020/21, there were 3049 Sámi children and youth who indicated they spoke Sámi as a first or second languages in elementary (6–12 years old), lower (12–16 years old), or upper secondary (16–19 years old) schools in Norway (Sønstebø, 2021; Vangsnes, 2021). There has also been an increase of 8% of students aged 6–16 years who have experienced Sámi language teaching at school in the last 12 years period (Vangsnes, 2021).

User Involvement

This aspect of the study provides a foundation for all the study objectives. The central methodological approach for this package is the *Indigenous methodology* (Tuhiwai Smith, 2012) which demands a democratic approach with strong user involvement in the whole research process (Wilson, 2008). Because of the complexity of the topic and the importance of actually capturing users' experiences related to the overall research questions, a flexible and open-ended research design is employed. This includes for example a *qualitative methodological approach* with focus group interviews, to help evaluate the relevance and utility of the quantitative instruments that we plan to include and modify based on the participants' perspective. The project also has a youth advisory group, consisting of Sámi- and non-Sami youth, aged 13–24 years, which is vital to making sure this research project accurately reflects the needs, experiences, and priorities of young, Sámi, and non-Sámi in Arctic Norway. Members of the Arctic Childhood Youth Advisory Group will provide input and feedback on the research design (focus groups and surveys) and on what we will ask participant about their experiences about violence and abuse, assist with data analysis and help write review reports and publications, advise on ways of translating research findings to youth people, organizations, health, and social services. This input will also inform decisions about how data from the Arctic Childhood Study can best be used.

Recruitment

Study participant recruitment for age cohorts is planned to take place at lower and upper secondary schools and include adolescents in the age range from 12 to 19 years. Schools will be contacted initially through the public authorities for the school administration in municipalities (which have the responsibility for lower secondary schools) and the county governments (which have the responsibility for upper secondary schools) in Arctic areas in Norway for both Sami and non-Sami students. In consultation with municipal and county public authorities, the next step will be to contact the principal of each individual school, to seek permission to carry out the study in their school. Then, students will be recruited at school during school hours. All potential participants will be given an oral presentation at school about the study two weeks prior to initiating data collection, a 3–4 min introductory film about study participation, and age-appropriate written information about project by trained personnel from the research team at the Arctic Childhood Study, including information pertaining to informed consent. Team members will be available for further questions regarding participation. Information about the study is also available from the Arctic Childhood Study webpage.

Data Collection and Instruments

The survey data will be collected digitally, relying on the use of school computers in the classroom settings, with a secure web-based platform, called Nettskjema.no, survey solution developed and hosted by the University of Oslo (nettskjema@usit.uio.no). The pilot study will start in fall 2022 and end in spring 2023. Experiences gained from the pilot of the study will be used as a basis for further developing and refining the study design for the main study. The main study is planned initially to take place in at least 30 municipalities (mostly rural community and some cities) with Sámi and non-Sámi adolescents in Arctic and sub-Arctic Norway. First wave data collection will start fall 2023. To ensure a representative sample with the main emphasis on Sámi youth, we will include schools based on the following criteria: (1) geographical representativeness in Arctic and sub-Arctic Norway; (2) inclusion of South, Lule, and North Sámi Languages areas; (3) inclusion of ethnic majority/minority areas; and (4) inclusion of rural communities and cities. Data will be collected from adolescents at up to four times points at 3-year intervals following their inclusion in the study. Given a response rate of 60%, this could yield 4500 participants of which up to 1500 may be adolescents with a varying degree of Sami background.

To collect self-report questionnaire data about the children and adolescents included in the study we are proposing to use a suite of instruments to measure baseline characteristics, child maltreatment (ISPCAN Child Abuse Screening Tools (ICAST)), self-reported information about mental health and physical health, quality of life, and resilience.

The Data-Gathering Instrument Suite

Baseline Survey Administration Data

Baseline characteristics include age, gender, ethnicity, peers, bullying, discrimination/racism, religion, family socio-economic status, family structure (living with a single or both parents or in foster care), urban/rural location, mobility, alcohol and drug use, tobacco use, suicide attempts, diet, physical activity, BMI, and leisure time activity. In this study, we are measuring gender and non-binary gender identity. Family socio-economic status is measured by occupation status and level of education for parents, living situation, housing, and subjective social status (SSS) experience by the youth with questions such as “I find that my family can mostly afford to buy what we need” and “I had to drop an activity I liked because my parents couldn’t afford it”. Mobility is measured by the question: “How many times have you moved to a new place in childhood?” (WGDS, 2022) We plan to measure child disability, using the Washington Group Short Set on Functions (WG-SS) (WGDS, 2022). We will also measure attachment style (AQS) and aggressive behavior for young adolescents (Muris et al., 2001). We plan to collect data using the Attachment

Questionnaire for Children (AQS): three descriptions concerning participants' feelings about and perception of relationships with other children/youth and ask to choose the description that applies best to them. Youth then classified themselves as either securely, avoidantly, or ambivalently attached (Muris et al., 2001) (see Table 1).

Sami Ethnicity

Since information about Sámi ethnicity is not available in national registers, we include several questions about ethnicity in the questionnaire. The questions probe for family ethnic background, language use at home by the participant and their parents; first and second language used at school; the ability to read, write, understand, and speak Sámi language; and self-perceived ethnicity. These questions have been previously used in other studies that included Sámi adolescents in Norway (Bals et al., 2010; Hansen & Skaar, 2021). We also add the Multigroup Ethnic Identity Measure MEIM-R (Phinney & Ong, 2007) as it assesses two aspects of ethnic identity: *Exploration* (three items) and *Commitments* (three items) (see Table 1). "Ethnic identity refers to one's sense of belonging to an ethnocultural group and is a crucial predictor of psychological adjustment among ethnic minority populations" (Rivas-Drake et al., 2014). Research shows that a strong ethnic identity promotes higher self-esteem, better coping abilities, and increased mastery (Musso et al., 2018; Smith & Silva, 2011). The MEIM-R scale (12 items) has previously been used in a broader sample of Sámi and non-Sámi adolescents in Arctic Norway (Kvernmo & Heyerdahl, 1996). However, the 6-item MEIM-R appears to be a reliable and valid instrument to measure levels of ethnic identity, feasible to early teenagers or in school settings due to respondent burden and constraints of time (Homma et al., 2014), and the reliability (Cronbach α) of MEIM-R has previously been found to be satisfactory (Phinney & Ong, 2007).

Child Violence

The translated and adapted Norwegian and Sámi languages (North, Lule, and South Sámi languages) version of the ICAST-C (3rd version) measures five types of victimization: psychological abuse, physical abuse, sexual abuse, neglect, [exposure to violence](#) (domestic and community), and non-violent discipline (Runyan et al., 2015). It consists of 62 items, where the ICAST-C measures lifetime prevalence and past-year incidence of psychological maltreatment, physical abuse, and sexual violence by any perpetrator, as well as neglect and positive/non-violent parenting, similar to other self-report methods that are consistent with prevalence and incidence instruments used in other European settings" (Nikolaidis et al., 2018; Radford et al., 2013). Forty-one items measuring experience with discipline that have happened at home or in another place like school or foster care. In the original version of ICAST-R V.3.0, the following 4 questions are asked about the perpetrator: adult male, adult female, child/adolescent male, or child/adolescent female. In our version, we ask the following questions about the perpetrator for each of these items: an adult I did not know (0), trainer (1), friend of the family (2), teacher (3), mother (4), father (5),

Table 1 The instruments included in the Arctic Childhood Study

Category:	Instruments and short description:
Child maltreatment	<p>ISPCAN Child Abuse Screening Tool Children's Version (ICAST-C 3rd version), 62 items (12–19 years old). The translated and adapted Norwegian and Sámi languages (North-, Lule-, and South Sámi languages) version of the ICAST-C (3rd version) measures five types of victimization: psychological abuse, physical abuse, sexual abuse, neglect, exposure to violence (domestic and community), and non-violent discipline (Runyan et al., 2015).</p> <p>Measure used before among: Norwegian children/youth [no] Sámi [no]</p> <p>ISPCAN Child Abuse Retrospective Screening Tool (ICAST-R 3rd version) (19–24 years old) 36 questions about physical, emotional, sexual abuse, and neglect (ispcan.org, 2020; Runyan et al., 2015).</p> <p>Measure used before among: Norwegian children/youth [no] Sámi children/youth [no]</p> <p>Measure have been validated for: Norwegian children/youth [no] Sámi children/youth [no]</p>
Mental health and wellness	<p>The Hopkins Symptom Checklist-10 (HSCL-10); psychological distress (12–24 years old); The HSCL-10 assesses symptoms of psychological distress during the last 4 weeks (Bals et al., 2011; Kleppang & Hågquist, 2016; Sørli et al., 2018).</p> <p>Measure used before among: Norwegian children/youth [no] Sámi [no]</p> <p>Measure used before among: Norwegian youth [Yes] Sámi youth [Yes]</p> <p>The Child and Adolescent Trauma Screen (CATS) measuring traumatic incidents and posttraumatic stress symptoms (PTSS) (Borren & Kaiser, 2021; Sachser et al., 2017).</p> <p>Measure used before among: Norwegian youth [yes] Sámi adult [yes]</p>
Resilience	<p>Resilience scale for adolescents (READ): measuring resilience; the capacity to handle adverse experiences and stress. READ is structured in five subscales: social support, social competence family cohesion, personal competence and structured style (Hjemdal et al., 2006; Moksnes & Haugan, 2018).</p> <p>Measure have been validated for: Norwegian children/youth [yes] Sámi [no]</p> <p>Measure used before among: Norwegian [yes] Sámi [no]</p> <p>Measure used before among: Norwegian youth [yes] Sámi adult [no]</p>

Table 1 (continued)

Category:	Instruments and short description:
Somatic health	<p>Self-rated health (SRH), one single-item variable used in many health surveys. Previous study among both Sámi- and Norwegian adolescents have shown revealed a good stability during adolescence (Spein et al., 2013).</p> <p>Measure have been validated for: Norwegian youth [yes] Sámi [no]</p> <p>Well-being Index (WHO-5), The WHO Index of the World Health Organization is a short self-report measure of current mental well-being across five items with scores ranging from 1-all of time to 6-not at all.</p> <p>Measure have been validated for: Norwegian youth [yes] Sámi youth [no]</p> <p>Body image was measured using selected questions from The Multidimensional Body Self-Relations Questionnaire (MBSRQ) by seven-item appearance subscale measuring the overall satisfaction with one's appearance (score range, 12 to 60; Cronbach's alpha, 0.90, and translated onto Norwegian by Loland (Loland, 1989).</p> <p>Measure have been validated for: Norwegian youth [no] Sámi youth [no]</p>
Illness	<p>Illness is assessed by seven questions. The questions that were asked were "Has your doctor told you that you have": "asthma," "diabetes," "serious injury or illness," etc. Previously used in many Norwegian health surveys among adolescents.</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [yes]</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p>
Physical disability	<p>Washington Group Short Set on Functions (WG-SS) Questions: items of vision, hearing and mobility; (Do/ (you): (1) have difficulty seeing, even if wearing glasses, (2) have difficulty hearing, even if using a hearing aid (s)?, and have difficulty walking or climbing steps? (WGDS, 2022)</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>Measure used before among: Norwegian youth [yes] Sámi adult [yes]</p>

Table 1 (continued)

Category:	Instruments and short description:
Pain	<p>Musculoskeletal Pain was based on the Lübeck Pain-Screening Questionnaire (LPQ), which has demonstrated satisfactory content validity and high internal consistency (Cronbach's alpha 0.92) (Grasaas et al., 2020). It is assessed by six questions regarding pain experiences in the last 3 months. "Headaches/migraine," "pain in the jaw," "neck/shoulder pain," "the back," "abdominal pain," and "arms/legs/knees." We have also added two questions to the participants who have experience pain, if that have (1) "Have these pains caused you to be home from school?" or/and (2) "Has the pain led to reduced activity in leisure time?" Similar questions have been used in The Norwegian Arctic Adolescent Health Study among Sámi and non-Sámi adolescent in Arctic Norway (Eckhoff & Kvervmo, 2014).</p> <p>Measure used before among: Norwegian youth [yes] Sámi adult [yes]</p>
Exhausted/tired	<p>Measure have been validated for: Norwegian youth [yes] Sámi youth [no]</p> <p>Exhausted/tired are assessed by three questions. "Do you often feel exhausted/tired (except after exercise)?" "About how much of the time do you feel exhausted/tired?" and "About how long time have you felt exhausted/tired?"</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>
Use of medicine	<p>Use of medicine are assessed by two questions. "How often in recent months have you used non-prescription medications for bodily pain (e.g., headache, abdominal pain, body pain?)" and "How often in recent months have you used non-prescription medicines to sleep?"</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>
Tooth health	<p>Tooth health are assessed by one question. "Do you think you have better or worse teeth than other young people your age?"</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>

Table 1 (continued)

Category:	Instruments and short description:
Bergen Insomnia Scale	<p>Bergen Insomnia Scale (BIS): The BIS is a five-item scale based on the DSM-V diagnostic manual for assessing the number of days a week nocturnal insomnia symptoms (sleep onset, maintenance, and early morning wakening insomnia) and daytime impairments are present (daytime sleepiness affecting school, work or private life, and dissatisfaction with sleep). The BIS may be used to decide if the formal DSM-5 diagnostic inclusion criteria of insomnia are fulfilled given that these symptoms have been present for at least 3 months. In the present study, the counting continuous scores for nocturnal symptoms and daytime impairments are additional used to assess changes in the symptom levels across time (Pallesen et al., 2008).</p> <p>Measure have been validated for: Norwegian youth [yes] Sámi [no]</p>
Help-seeking behavior	<p>Help-seeking behavior are measured with nine questions. We ask the children and youth if they have: "Within the last 12 months at any point felt a need for help with for their problems, feelings, behaviors or emotional troubles. Response categories included: "GP," "school health services," "mental health care," "dentist," "child welfare counsellor," "physiotherapist," "alternative therapies," "adult they trust," and "open questions."</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>
Health behaviors	<p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>Alcohol use, smoking and use of drugs are assessed with six questions. "How often do you usually drink alcohol?," "How many units of alcohol do you usually drink when you drink alcohol?," "Do you smoke daily?," "Do you use snuff daily?," "Have you ever tried drugs?," and "During the last 12 months, how often did you use drugs?"; Same questions have previous been use in several Norwegian populations-based survey. e.g., The Tromsø Study (https://uit.no/research/tromsostudy).</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth/adult [yes]</p>

Table 1 (continued)

Category:	Instruments and short description:
Self-injury, suicide thoughts, and behaviors	<p>Self-injury are assessed by three questions. Suicide thoughts and behaviors are assessed by two questions: “Have you thought about taking your life (suicide)?”, and “Have you tried to take your own life (suicide)?” Previous asked in The Young-Hunt 4 Study in Central Norway among adolescents (age 13–19) (TheHuntStudy, 2019).</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>
Physical activity	<p>Physical activities are assessed by one question. “How often do you practice sports or physical activity so much that you become breathless and/or sweaty?”</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [yes]</p>
Childhood cultural identity	<p>Classification of ethnicity: The questions regarding ethnicity including family background, language skills, first and second language used at school, the ability to read, write, understand and speak Sámi language, and self-perceived ethnicity. The ethnicity questions are previous used in other studies among Sámi adolescents in Norway (Bals et al., 2010; Hansen & Skaar, 2021).</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>The Multigroup Ethnic Identity Measure (MEIM-R). This instrument assesses two aspects of ethnic identity: <i>Exploration</i> (three items) and <i>Commitments</i> (three items).</p> <p>The 6-item MEIM was scored using a 5-point Likert scale ranging from 1 (<i>strong disagree</i>) through 5 (<i>strongly agree</i>), so that higher scores indicated stronger ethnic identity (Phinney & Ong, 2007).</p> <p>Measure have been validated for: Norwegian youth [no] Sámi [no]</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [yes]</p>

Table 1 (continued)

Category:	Instruments and short description:
Personality	<p>Attachment Questionnaire for Children (AQS): three descriptions concerning participants feelings about and perception of relationships with other children/youth and ask to choose the description that applies best to them (Murrís et al., 2001).</p> <p>Measure used before among: Norwegian youth [no] Sámi youth [no]</p>
Discrimination and racism	<p>Perceived Discrimination is assessed with the Discrimination Stress Scale. The Discrimination Stress Scale (Flores et al., 2008) is intended to measure perceived discrimination/racism in the everyday lives of Sámi adolescents' experiences in Norway. It consists of 14 items with response options ranging from 1 (never) to 4 (very often). Cronbach's alpha for this scale was found to be 0.92 (Flores et al., 2008). Previous used among Sámi adolescent 16–30 years in the Mihá study (Hansen & Skaar, 2021).</p> <p>Measure used before among: Norwegian youth [no] Sámi youth [yes]</p>
Bullying	<p>Bullying is being defined in the questionnaire accordance to Olweus (Olweus, 1993). One question measuring bullying were asked: "Have you been bullied?" with response categories from "never," "less than once a week," "more than once a week, to "almost daily." Adolescents that answered that they have experience bullying where asked about type (verbal, physical, or/and psychological) and setting (e.g., cyberbullying) of bullying.</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>
Education and school absence	<p>Teacher and classmate support scale (Torsheim et al., 2000) are assessed with ten questions. The children/youth were asked about school, environment and the relationship between teacher student and homework. This questions have previous been used in The Young-HUNT Study in mid Norway.</p> <p>Measure used before among: Norwegian youth [yes] Sámi youth [no]</p>

Table 1 (continued)

Category:	Instruments and short description:
Use of the internet	<p data-bbox="221 331 315 472">Use of the internet/being online are assessed with three questions. “About how many hours are you online per day on weekdays?,” “About how many hours are you online per day during the holidays?,” and “When you’re online, what do you usually do there?” Questions previous used in the Norwegian youth study on child maltreatment (The UEYO study) (aged 12–16 years) (Hafstad et al., 2020).</p>
Baseline characteristics	<p data-bbox="338 331 362 472">Measure have been validated for:</p> <p data-bbox="362 331 385 472">Norwegian youth [no]</p> <p data-bbox="385 331 409 472">Sámi [no]</p> <p data-bbox="421 331 491 472">Baseline characteristics include questions about; age, gender (including non-binary gender identity), family socio-economic status, family structure (living with a single or both parents or in foster care), living situation, siblings, friends, leisure time, religion, values, spirituality, urban/rural location, and mobility.</p> <p data-bbox="503 331 526 472">Measure have been validated for:</p> <p data-bbox="526 331 550 472">Norwegian youth [no]</p> <p data-bbox="550 331 573 472">Sámi [no]</p>
	<p data-bbox="597 331 620 472">Measure used before among:</p> <p data-bbox="620 331 644 472">Norwegian youth [yes]</p> <p data-bbox="644 331 667 472">Sámi youth [no]</p>
	<p data-bbox="691 331 715 472">Measure used before among:</p> <p data-bbox="715 331 738 472">Norwegian youth [yes]</p> <p data-bbox="738 331 762 472">Sámi adult [yes]</p>

grandmother (6), grandfather (7), siblings (also step siblings) (8), other relative (8), another child/peer (9), and other (10). The next six questions are about parenting/caring in the last year. Perpetrator for these questions are mother (1), father (2), step-mother/foster mother (3), stepfather/foster father (4), or other adult person in your household. The next nine questions are about sexual abuse by adults or performed by peers last year. For these questions, we have asked if perpetrators are adults: an adult I did not know (0), trainer (1), friend of the family (2), teacher (3), mother (4), father (5), grandmother (6), grandfather (6), adult siblings (also step siblings) (7), other relative (8), and other (10) or if perpetrators are peers: someone I am/was in a relationship with (boyfriend) (1), someone my age that I know (2), sibling (also step-sibling) (3), relative my own age (4), leisure leader my own age (5), friend of a sibling (6), unknown person my own age (7), or other (8). And, finally, ICAST-C tool also provided 6 open-ended questions regarding youth's options about the violence questions, and this questions we have put in the end of our questionnaire.

We have translated and adapted the original English version of ICAST-C V 3.0 to Norwegian and Sámi languages and will evaluate the reliability and validity of these translated versions as part of the pilot of the study. ICAST has sound psychometric properties (Meinck et al., 2022), and the measure has previously “shown good internal reliability (Cronbach’s alpha greater than .70) for the physical violence, psychological violence, sexual violence and neglect subscales across countries as diverse as China, Romania, Egypt, India, Russia, Columbia and Iceland in initial validation studies” (Nikolaidis et al., 2018, p. 4). The ICAST-C showed good cross-cultural validity for physical, psychological, and sexual violence, neglect and witnessing violence” (Meinck et al., 2020, p. 3). The ICAST-C and R tools have not been used among Sámi or non-Sámi children or adolescents in Norway before.

The retrospective version ICAST-R V3.0 will be used for young adults (19 and 22–24 years old). The ICAST-R questionnaire has been previously been used for people between 18 and 24 years of age and is designed for retrospective evaluation of measures of violence during childhood. This tool examines indicators of behaviorally specific acts. Initially, lifetime exposure to violence and its types are included and followed by questions about the age when which the event(s) occurred, and both adult and peer aggressors are chosen from a comprehensive list (Simsek et al., 2017). ICAST-R consists of 36 questions about physical, emotional, sexual abuse, and neglect. Maltreatment related items elicit “yes,” “no,” and “cannot remember” responses. In addition, the endorsed maltreatment items are designed to obtain more details through accompanying items that address frequency, duration, and context; ICAST-R has been found to perform well cross-culturally in different languages in seven different countries. Its internal consistency was found to be moderate to high. There also are additional questions about the perpetrators (Simsek et al., 2017).

Mental and Physical Health

Mental health and well-being will be measured by Hopkins Symptom Checklist (HSCL-10) and The Child and Adolescent Trauma Screen (CATS). The HSCL-10 has

become a widely used tool for the screening of psychological distress in adolescents. The HSCL-10 assesses symptoms of psychological distress during the last 4 weeks relating to anxiety (4 items: sudden anxiety, anxiousness, dizziness, and tension/stress) and to depression (6 items: self-blame, sleeplessness, sadness, worthlessness, finding everything burdensome, and hopelessness). Items are rated on a 4-point scale, from 1 “not at all” to 4 “very often.” In accordance with earlier validation studies (Strand et al., 2003), we use the mean HSCL-10 score. The HSCL has been used previously in the Norwegian SAMINOR 2 study (Sámi population) with good support for measurement invariance across the majority Norwegian and the minority Sami groups (Sørli et al., 2018). This implies that both groups interpret and ascribe the same semantic meaning to all questions; hence, the much-used cutoff criteria > 1.85 as indicative of a probable treatment need was comparable (being 1.85, 1.89, 1.94, and 1.92 in the Norwegian, Sami core, Sami affiliation, and Sami background groups, respectively) (Sørli et al., 2018). The Child and Adolescent Trauma Screen (CATS) is a brief, short screening instrument based on the DSM-5 criteria for Posttraumatic Stress Disorder (PTSD). It is a measure of potentially traumatic events and of posttraumatic stress symptoms (PTSS) (Sachser et al., 2017). CATS is divided into two parts: first mapping traumatic events and also measures of symptoms of posttraumatic stress (Borren & Kaiser, 2021). The result from one Norwegian study and one Swedish study indicate sufficient internal consistency for the four scales (Dävelid & S., 2019; Sachser et al., 2017). However, a test–retest score in the relevant study does not exist; neither does a measure for sensitivity to change nor Norwegian norms. The scale has not been used in survey with Sámi children and youth before or translated to Sámi languages up until this study.

Somatic Health

Somatic health will be measured by self-rated health (SRH), one single item, and using a 5-point scale. Previous studies among both Sámi- and Norwegian adolescents have revealed that SRH is quite a stable construct during adolescence (Spein et al., 2013).

Well-being

The WHO Well-being Index from the World Health Organization (WHO-5) is a short self-report measure of current mental well-being across five items with scores ranging from 1—all of time to 6—not at all. Reversing the index score indicates higher well-being. It is found suitable for children aged 9 and above and can be administered in a variety of settings (Topp et al., 2015). It has been translated to 30 languages and is widely used to assess psychological well-being. A systematic review of 213 papers utilizing the WHO-5 indicated high clinical/psychometric validity as an outcome measure of general well-being (Topp et al., 2015). In a study of Sámi and Norwegian adults, the instrument statistically predicted well-being across all ethnic groups; however, the negative relationship was considerably weaker for well-being than for mental distress (Friborg et al., 2017).

Insomnia Sleep Disorder

Symptoms of insomnia sleep disorder will be measured by the Bergen Insomnia Scale (BIS). The BIS is a five-item scale based on the DSM-V diagnostic manual for assessing the number of days a week nocturnal insomnia symptoms (sleep onset, maintenance, and early morning wakening insomnia) and daytime impairments are present (daytime sleepiness affecting school, work or private life, and dissatisfaction with sleep) (Pallesen et al., 2008) (see Table 1).

Musculoskeletal Pain

We will also measure musculoskeletal pain by numbers of pain sites. We now that multisite adolescent pain is associated with both violence (Eriksen et al., 2016) and poor mental health, and that these adolescents are vulnerable of mental illness in young adulthood (Eckhoff et al., 2017).

Resilience

The resilience scale for adolescents (READ) is a self-report questionnaire measuring resilience defined as the ability to handle stress and negative experiences. READ is a 28-item scale with positively formulated items organized in five subscales: personal competence, social competence, social support, family cohesion, and structured style. READ has shown adequate psychometric properties and promising validity when correlated with measures of mental difficulties. The internal consistency is adequate for four of five subscales (Hjemdal et al., 2006).

The questionnaire will be available to participants in Norwegian and Sámi (North, Lule, and South) language versions. However, this is not a complete list of all potential included questionnaires and items in the study. After the pilot study and focus group evaluations, instruments or items could be removed or added to the main questionnaires. Table 1 provides the full battery of study instruments. It is important to note that some instruments are only applicable to certain age groups and that some instruments will not be used in all waves of longitudinal data collection.

Linkage to National Registries (Optional)

The Arctic Childhood Study will also embed confidential identifiers to permit linkage to several national Norwegian registries. When implemented, these linkages will provide a rich source of both antecedents and important outcomes including education (individual level of education and school dropout), health, social insurance benefits, criminal history records, and workforce participation status. To obtain access to the necessary linkages will the study team will apply to the Regional Committees for Medical and Health Research Ethics (REC

north), simultaneously with the ethical application(s) for the Arctic Childhood cohort study (Fig. 1 provides a summary of potential linkages to the registries). Registries include The Medical Birth Registry of Norway (a national health registry containing information about all births in Norway), the National Educational Database (includes individual data/statistics about completed education at all levels, grades and school-drop outs (since 1970)). The FD-Trygd (Norwegian Social Insurance Database (includes all social insurance benefits) where typical register data include type of benefit, degree of compensation, start and end date of benefit reciprocity and medico-legal diagnosis, the National Cause of Death Registry, the Norwegian Prescription Database. Also included will be the Norwegian Patient Registry and the KUHR/KPR database data regarding reimbursement to GPs for the health care service they provided to primary health care service users where each GP provides detailed information about the diagnosis and treatment.

Bio-sample Collection (Optional)

Consistent with the overall protocol, there is a critical need for better dynamic models that consider both risk and protective factors, including genetic and epigenetic factors, which may moderate or mediate the effects of child neglect and promote resilience. Importantly, the identification of mechanisms and protective factors is dependent on models that adequately conceptualize maltreatment in meaningful ways. This is not a simple task given that subtypes of CM often co-occur (HHS, 2021), developmental timing, frequency, and chronicity of CM contribute to differential outcomes (Jaffee & Maikovich-Fong, 2011), and experiences across individuals are highly heterogeneous (Pears et al., 2008). Unfortunately, previous studies of CM often treat maltreatment as a single exposure type (Chang et al., 2012; Cutuli et al., 2017), or analyze subtypes in isolation. We propose to incorporate person-centered analytical approaches, such as latent profile analysis (Masyn, 2013; Petras & Masyn, 2010), that will allow us to incorporate the rich longitudinal behavioral and psychosocial data from the Arctic Childhood Study with genetic risk scores and epigenetic methylation profiles to better understand the predictors and consequences of CM (and subtypes of CM).

To obtain such data the study will incorporate a self-administered, non-invasive cheek swab protocol for collecting bio-samples from participants. The specimen data will be maintained in a secure genetic facility and matched to survey data using QR code technology. Confidentiality will be provided to participants, and procedures described in the consent process.

Project Management

The Arctic Childhood Study project is managed by the Regional Centre for Child and Youth Mental Health and Child Welfare (RKBU Nord) at the Faculty of

Health Sciences, UiT The Arctic University of Norway. It is multi-disciplinary involving researchers with various backgrounds, including psychiatrists, psychologists, epidemiologists, educators, anthropologists, sociologists, nurses, engineer, statistician, and extensive user involvement. Our national and international team includes researchers who are in the forefront worldwide in developing and implementing data on child maltreatment.

Ethics

The Arctic Childhood pilot study protocol ($N = 200$) was approved by the Regional Committee Medical and Health Research Ethics (REC north) (No. 137011), the Norwegian Data Inspectorate (NSD) in accordance with privacy legislation (No. 321558), and The Arctic University of Norway has also conducted and approved a Data Protection Impact Assessment (DPIA). The study has Sámi collective consent from the Ethical Committee for Sámi Health Research in Norway (SMT166-1077399). School authorities in two municipalities in northern Norway have been approved to be pilot schools (lower and upper secondary schools).

If adolescents in the lower and upper secondary schools choose to contribute in the Arctic Childhood (pilot) study, they will be invited to provide an electronic consent. In Norway, youth who are 12 or over can provide an informed consent to participate in studies of maltreatment or other issues independently from their parent's consent (Lovdata.no, 2017; Schonning et al., 2021). Thus, the Arctic Childhood pilot study has been given approval to ask adolescents from 12 years of age without their parents' permission to participate in piloting the assessment and study.

Approval for The Arctic Childhood Cohort Study ($N = 4500$) will be applied (2022/23) for from the Regional Medical Ethical Committee (REC north), the Ethical Committee for Sámi Health research, Norwegian Center for Research Data (NSD), and the school authorities in approximately 30 municipalities, consistent with the pilot study, which has laid the ethical groundwork for a new full approval for the cohort study. In the full study, we also plan to seek approval to ask adolescents from 12 years of age to participate without their parents' permission, and we also plan to ask the participants for approval to link their study data to national registries in Norway. This requires that we identify the participants with their Norwegian Social Security Number in the study and that we separately ask them in the digital invitation letter for approval to link to national registers. All participants are recruited on a voluntary basis and age-appropriate informed consent will be obtained. Data are handled and stored securely in Nettskjema.no, Norway's most secure and most used solution for data collection for research. Data in the Arctic Childhood study are considered sensitive and will be gathered and handled following strict guidelines. All data will be stored in an encrypted database.

Procedures will be put in place to safeguard Sámi and non-Sámi adolescents' health and well-being in the event of reactions to the survey content. We will also develop a cultural safety-specific protocol in the event of identifying risk of self-harm, harm to others, or suicide, to contribute to the safety of both Indigenous Sámi

and non-Sámi adolescent participants. Information will be provided to all parties involved in the network of the child through written information in Sámi and Norwegian languages, and information given by lectures for children at schools, parents/foster parents and teachers, school nurses at schools, at least 14 days before the data collection begins. Children and youth who are interested in participating will then return the signed consent to the project via electronic registration. All written and oral information is given in the children and youth's preferred language (South-Lule, North, or Norwegian languages).

The Arctic Childhood Study is carried out during one school hour (60 min) and is carried out in ordinary classroom setting of approx. 30 pupils/students. The survey is digital and is answered through a high degree of security and privacy online platform to ensure storing sensitive data in survey in Norway (Nettskjema.no). Before the survey starts, the teacher or members of the Arctic Childhood Study team will show a short, animated information film (4–5 min) about how to fill out and participated in the study. To guarantee privacy and confidentiality in the classroom setting, those who do not wish to participate in the survey must sit in the same room and do schoolwork on their personal school computer. All pupils in Norway have their own personal laptop, which they are issued free of charge at the start of lower and upper secondary schools. This is the computer they will use to answer the questionnaire. They will be informed that they do not need to tell others whether they participated in the survey or not. The teacher(s) or other adult person(s) in the classroom have been given the instruction to not walk directly behind the students so that they cannot see what the students are doing on their personal computers. This has clearly been described in the ethical protocol for the Arctic Childhood Study, precisely to ensure privacy and confidentiality in the classroom setting.

Participants will be asked about experience of violence which may be severe, and in some cases, they may be at immediate risk of further violence and/or other acute health difficulties. The Arctic Childhood Study has developed a procedure to address how these potential risks among participants will be handled. In accordance with the ethical assessment for the study, all participants will be offered professional health, legal, and psychosocial support, and we have established a working referral system where the adolescents themselves can ask for help or we provide contact information.

In addition, health and psychosocial support is available locally at each school with professional school nurses and social welfare teachers available for the participants, and also non-participants, to talk with at any point as they respond to the survey or afterwards; at the schools on the day the survey takes place and in the following days. In the information letter for the study, all participants are informed about how they can seek professional health, legal, and psychosocial support or care. Each participant is informed about various healthcare, legal, and psychosocial services. At the end of the survey, all participants will receive information about where they can apply for health care if they want and need it including contact information and telephone numbers for health emergency services in the municipalities, local and national health helplines for young people, and also culturally sensitive Sámi aid agencies, such as the Sámi Norwegian National Advisory Unit for Mental Health and Substance Use.

In addition, we have developed a digital solution, which is not part of the questionnaire, but a separate digital form/survey that appears on the participants' screens, after the answers from the survey have been answered, where the participants can choose whether they wish to be contacted by a social worker, teacher, or school nurse during or after school hours. This includes the potential to talk about the experience of violence or abuse which may be severe, and in some cases, if they are at immediate risk of further violence and/or other acute health difficulties. The project staff in the Arctic childhood study will then convey the desired contact to the right person as soon as possible, and within a week at the latest. This offer will also be given to students who declined to participate, as well as those who withdrew or did not answer the entire questionnaire.

Data collected during the consent process will also facilitate long-term follow-up and contacts data needed to the longitudinal component of the study design. We have also created a separate website portal for the study with information for adolescents, parents/foster parents, and attending schools/community in Norwegian, Sámi and English languages. (<https://uit.no/project/arktiskbarndom/arcticchildhood>).

Statistical Analyses

The quantitative parts of study will apply several statistical approaches. We will use multilevel regression modeling techniques that properly account for data dependencies related to for example the individual (i.e., repeated measures), families, school affiliation, and ethnic contexts (e.g., municipalities). The multilevel approach enables an investigation of contributing factors both on an individual and a contextual level, and to discern their relative contribution to the outcome variable in question (e.g., their intraclass correlation effect), as well as the possibility for cross-level interactions between individual and contextual factors.

The repeated data sampling will be accompanied by growth curve modeling analyses using Mplus (V.8.8), which mimics the multilevel analyses as described above. Growth curve analyses offer additional possibilities for examining the extent to which different latent classes underlie different between-person latent growth trajectories across time, thereby offering a more person-oriented approach to the conventional variable-oriented regression analyses. Compared to conventional repeated measures analytic methods, growth modeling offers some additional advantages such as better statistical power, well-estimated parameters with small biases despite missing data and offers simultaneous modeling parallel growth processes for studying bidirectional relationships across time (Curran et al., 2010). These attributes make growth modeling well suited for validly modeling complex social science processes across time. Some of the participants in pilot study will be invited to comment on how these results may be interpreted, and their comments will be included in the scientific papers.

A limitation with the growth curve modeling approach is that bidirectional relationships between developmental processes of substantive interest are ignored. The crossed-lagged panel model addresses these questions by enabling estimation of both lagged (to what extent previous symptoms of measure X/Y predict future

symptoms of measure X/Y) and cross-lagged effect (to what extent previous symptoms found in the measure X/Y predicts future symptoms of measure Y/X) in order to test if the strength of the cross-lagged effects differ significantly. By extending the model with mediation variables, indirect relationships may be examined as well. Random intercept factors are added in order to account for trait-like stability in the measures, thus decomposing the variance in two components describing stability between-persons (the latent random intercept) and a within-person part describing the within-individual changes over time (the lagged effect). Further constraints may be added in order to test if cross-lagged effects are stable or time varying. The model is specified according to Hamaker et al. (2015).

Statistical Power

The number of recruitable individuals in the targeted 30 municipalities are about 7500 children between the ages of 13 and 19, of which approximately 1/3 may have a Sami cultural background or affiliation. Given a response rate of 60%, this could yield 4500 participants of which up to 1500 may be children with a varying degree of Sami background. Power analyses indicate that such a sample size will, given 80% power and p -value = .05, detect prevalence difference between Sami and non-Sami adolescents as low as .031 (with a base prevalence of .15), odds ratios of 1.09 (covariates R-sq = .10), or standardized beta-weights of as low as $\beta = .04$ (covariates R-sq = .10). The cluster dependency related to the included communities is in general minor and given the very small effect sizes the present study may detect, the statistical power of most analyses should be sufficient.

Discussion

We are proposing a predominantly longitudinal cohort study design, using surveys with long-term follow-up in order to explore a broad range of child maltreatment, mental and physical health, resilience, and culturally specific experiences. Supplementary data is also collected from other relevant national registries. While our study emphasizes a quantitative approach, the design also focuses on assessing implementation concerns regarding cultural sensitivity, community and stakeholder buy-in, ethics, data validation, and other methodological challenges associated with gathering information in communities where respectful dialogue and earning trust through commitment to improving conditions are an integral part of the research process.

The Arctic Childhood Study aims to fill a major gap of knowledge about the experiences of abuse and neglect among Indigenous Sámi children and youth. The proposed study is the first longitudinal research project of its kind in Norway with a particular focus on all forms of violence against Sámi and non-Sámi children and youth in the high north. The study is highly relevant to the Arctic and sub-Arctic

region of Norway and Sami and non-Sami children as violence rates are higher in the north (Schanche, 2016).

In addition to developing a better understanding of violence and its consequences, the proposed study explores cultural risk and protective factors and their relation to abuse and neglect in order to gain knowledge about how to prevent these negative exposures to Arctic and sub-Arctic children and youth. Culturally appropriate and effective prevention and intervention approaches are needed for Indigenous Sámi children and youth (see Fig. 2).

The Arctic Childhood Study will study child maltreatment on an extensive range of health and quality of life outcomes across multiple levels of influence (individual, social/community, cultural, intergenerational, familial, and societal) between subgroups (e.g., Indigenous vs. non-Indigenous) and within subgroups (e.g., Indigenous children in different ethnic contexts). The longitudinal, multi-informant design, and optional linkage to national registries and genetic data enable examination of many research questions serving as an important resource for secondary data analysis.

The proposed study will produce new knowledge about violence and health among Sámi and non-Sámi adolescents in the Arctic and sub-Arctic areas of Norway. As such, the possibilities and the significance of publication of the study



Fig. 2 Beaivváš - Dorvvlaš kultuvrralaš Sámi Bajásšaddandilli (north Sámi language)/Cultural Sensitive Safety Childhood Conceptual Model. The Arctic Childhood Study explores cultural risk and protective factors and their relation to abuse and neglect in order to gain knowledge about how to prevent these negative exposures to Arctic and sub-Arctic Indigenous Sámi and non-Sámi children and youth. Childhood Culturally Identity appropriate and effective prevention and intervention approaches are needed for Indigenous Sámi children and youth

findings in scientific journals and media addressing the public in general are considerable. The results of the study may have implications for children, families, advocacy groups, school professionals, health and social service sectors, administrators, and policymakers responsible for early identification and prevention programs for child and adolescence in Norway. The results of this investigation will be used to design appropriate and maximally beneficial intervention strategies to reduce and prevent violence against minority and majority children and adolescents in the Arctic and sub-Arctic part of Norway.

Strengths and Limitations

Low response rates among participants in self-report studies such as health surveys are common (Schonning et al., 2021) and are potentially compounded when the subject matter is about difficult topics including physical and emotional abuse, child maltreatment, sexual abuse, and/or neglect. Response rate issues may be further exacerbated when subjects include Indigenous children such as Sami (Gerharden, 2010; Hansen & Skaar, 2021; Øverli et al., 2017). The school setting for the Arctic Childhood Study may help to mitigate response rate concerns to some degree because of high enrollment levels among youth in Norway. For example, previous school-based surveys in Norway response rates in the range from 60 to 90% have been achieved at least at the point of initial enrollment (Hafstad et al., 2020). Further contributing to the potential for high response rates is the emphasis by national authorities including the Norwegian National Human Rights Institution (NNHRI, 2018), and the Sámi Parliament (BFD, 2021) currently being placed in developing an understanding of violence among the Sámi population generally.

Another potential limitation is that the survey design incorporates retrospective self-reports of violence, which may be affected by biases such as social desirability and recall, as well as, mistrust, fear of the consequences of disclosure (Øverli et al., 2017), or cultural factors (Nguyen et al., 2019). These concerns may result in self-reported underestimates of violence related experiences by Indigenous Sámi youth; thus, yielding prevalence rates that do not fully reflect the level of violence and child maltreatment (Nguyen et al., 2019). However, if we can implement the optional data registry components of the study to supplement the self-report data with administrative data, it may be possible to assess the need to make adjustments in the estimates by filling in gaps in the longitudinally collected self-report data.

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Declarations

Conflict of Interest The authors declare no competing interests.

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