

Impacts of Parental Locus of Control on Indigenous Sami and Non-Sami Children's Mental Health and Well-being in Norway

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To situate myself within this research, it is important to acknowledge my positionality as a non-Indigenous Canadian in an unearned position of privilege. As a first-generation Canadian of Tamil heritage, I was born and raised on Indigenous land, and have had the privilege of completing my master's degree at McMaster University, an institution located on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the “Dish with One Spoon” wampum agreement. Acknowledging my positionality in relation to this research has brought my awareness to my limitations as a researcher in understanding the feelings and experiences of Indigenous Peoples to their entirety. This awareness was essential to informing my approach to my master's research, as it instilled in me the value of maintaining meaningful and continuous engagement with Indigenous Sami scholars throughout the research process, to develop valuable research outcomes for Sami communities across the Circumpolar North.

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## ABSTRACT

**Background:** Existing research overemphasizes issues of substance use and suicide in Indigenous populations, failing to address the key factors influencing Indigenous child mental health and well-being within the household. This study seeks to examine the impacts of parental locus of control (PLOC) on child mental health and well-being among Sami and non-Sami children in Norway.

**Methodology:** Analyses of data from the Norwegian Mother and Child Cohort Study were conducted in three phases: 1) a cross-tabulation analysis examining the differences in PLOC between Sami and non-Sami parents, with a consideration for the child's sex assigned at birth; 2) a multiple linear regression investigating how demographic, psychosocial, and cultural factors influence PLOC; and 3) a multiple linear regression assessing how PLOC affects mental health and well-being among Sami and non-Sami children in Norway, with a consideration for the child's cultural context and sex assigned at birth.

**Results:** Although both groups leaned more towards internal PLOC overall, Sami mothers remained closer to external PLOC than non-Sami mothers. One of four items measuring maternal depression and three of four items measuring maternal self-esteem were statistically significant predictors of PLOC. PLOC was found to be a statistically significant indicator of children's emotionality at 3 and 5 years, and sociability at 3 years. Children's sex assigned at birth was a statistically significant predictor of shyness at 3 years, with boys experiencing higher levels of shyness than girls.

**Conclusion:** Cultural distinctions, sex and gender, and maternal self-esteem play a crucial role in the child-rearing approaches employed and their effectiveness in promoting children's social and emotional development in Norway. Research examining the association between maternal mental

health and child-rearing approaches, as well as the impacts of PLOC on other aspects of children's mental health and well-being, is necessary to inform mental health and social supports for Sami communities.



## TABLE OF CONTENTS

|  |     |
|--|-----|
| ACKNOWLEDGEMENTS .....   | iii |
| ABSTRACT .....   | vi  |
| INTRODUCTION .....   | 1   |
| Development and Well-being in Early Childhood.....                               | 1   |
| Indigenous Child Health and Well-being in the Circumpolar North .....            | 2   |
| Sami Child and Youth Mental Health in Norway.....                                | 4   |
| Child Development and Child-rearing Practices in Sami Communities.....           | 5   |
| Parental Locus of Control .....  | 7   |
| Impacts of Parental Locus of Control on Child Well-being in Norway.....          | 8   |
| Study Purpose and Research Questions .....                                       | 9   |
| METHODS .....  | 10  |
| Methodology .....  | 10  |
| I.    Background on Methodology.....   | 10  |
| II.   Research Design.....   | 12  |
| III.  Philosophical Orientation.....   | 12  |
| IV.  Participants.....   | 13  |
| Measures .....   | 13  |
| I.    Child’s Ethnicity .....  | 13  |
| II.   Parental Locus of Control .....  | 14  |
| III.  Child’s Mental Health and Well-being .....                                 | 15  |
| IV.  Child’s Sex Assigned at Birth.....  | 16  |
| V.    Other Demographic, Psychosocial, and Cultural Variables.....               | 16  |
| Statistical Analyses .....   | 17  |
| I.    Differences in PLOC Between Sami and Non-Sami Populations.....             | 18  |
| II.   Influence of Demographic, Psychosocial, and Cultural Factors on PLOC ..... | 18  |
| III.  Impacts of PLOC on Child Mental Health and Well-being .....                | 19  |
| Ethical Considerations .....   | 19  |
| RESULTS .....  | 21  |
| Difference in PLOC Between Sami and Non-Sami Populations .....                   | 21  |
| Influence of Demographic, Psychosocial, and Cultural Factors on PLOC.....        | 27  |
| I.    Demographic Factors .....  | 28  |

|      |  |    |
|------|--|----|
| II.  | Psychosocial Factors .....   | 29 |
| III. | Cultural Factors.....  | 30 |
|      | Impacts of PLOC on Child Mental Health and Well-being.....             | 30 |
| I.   | Emotionality at 3 Years of Age.....                                    | 30 |
| II.  | Sociability at 3 Years of Age .....                                    | 31 |
| III. | Shyness at 3 Years of Age .....  | 32 |
| IV.  | Emotionality at 5 Years of Age.....                                    | 33 |
| V.   | Sociability at 5 Years of Age .....                                    | 34 |
| VI.  | Shyness at 5 Years of Age .....  | 35 |
|      | DISCUSSION.....  | 36 |
|      | PLOC in Sami and Non-Sami Populations in Norway .....                  | 37 |
|      | Demographic, Psychosocial, and Cultural Factors Influencing PLOC ..... | 40 |
|      | Impacts of PLOC on Child Mental Health and Well-being.....             | 43 |
|      | Limitations .....  | 45 |
|      | Global Implications.....   | 46 |
|      | CONCLUSION.....  | 47 |
|      | REFERENCES .....   | 49 |

## INTRODUCTION

### **Development and Well-being in Early Childhood**

The first years of a child's life present a critical window of opportunity to positively influence their health and developmental trajectories. Early childhood development involves the growth of an individual from the point of preconception to the age of approximately six years (Likhar et al., 2022). Research has demonstrated the connections of early childhood development with health, well-being, and social outcomes in later life. According to Tierney & Nelson (2009), the first few years of a child's life are the most critical in ensuring optimal developmental trajectories. This is due to the sensitivity and vulnerability of early brain development during this period (Tierney & Nelson, 2009). Early childhood is a crucial period for parents, caregivers, and other pertinent stakeholders in the child's life to identify their developmental needs and implement interventions that adequately enhance their health and well-being (Maggi et al., 2010).

As a child's first teacher, parents and caregivers play a pivotal role in shaping their child's health and well-being outcomes. During their formative years, children spend most of their time under the care of parents and caregivers. Hence, their actions and parenting approaches used during this period yield an unparalleled impact on their child's development and well-being. Parental expression of affection and physical closeness and warmth in the parent-child relationship has been shown to be a determining factor of children's mental health (Javo et al., 2004a). However, parental values and approaches to enhance children's mental health can vary across cultural groups. This is particularly true for Indigenous communities across the Circumpolar North, such as the Sami, whose cultural child-rearing practices and approaches to well-being differ distinctly from Western societies.

## **Indigenous Child Health and Well-being in the Circumpolar North**

The Circumpolar North is home to several Indigenous groups, including Sami, Inuit, Dene, Aleut, Evenk, and many more (Young & Rawat, 2012). Indigenous Peoples across the Circumpolar North hold deep connections with the land, which often involves cultural practices such as hunting, fishing, and herding for both their community's survival and expression of cultural identity. The passing down of these cultural practices through generations has allowed Indigenous communities to thrive in challenging climates and conditions. Through the ongoing effects of colonialism, Indigenous Peoples have and continue to endure a prolonged history of neglect and abuse, involving the endeavoured erasure of their cultural heritage and identity. Like many Indigenous communities across the world, Indigenous Peoples of the Circumpolar North have experienced the impacts of colonialism, including forced assimilation to rid of their cultural beliefs and practices, displacement from their homes, and loss of land and resources (Young and Rawat, 2012). Indigenous communities continue to work against societal pressures to preserve their practices, culture, and language. These injustices have also posed lasting repercussions on Indigenous communities' relationships with health systems, affecting Indigenous cultural conceptions of health and well-being, and often fostering a deep-rooted mistrust in Western-oriented health systems (Hill, 2009). Recognizing the experiences of Indigenous Peoples who have been forced to engage in Western-oriented services within healthcare is pivotal to seeking an awareness of their worldviews of child health and well-being.

Child health and well-being approaches utilized among Indigenous communities differ distinctly from non-Indigenous groups. While most non-Indigenous, Westernized groups employ an individualistic approach to well-being, many Indigenous communities use a more holistic model (Hill, 2009). This model seeks to ensure balance between all physical, emotional, social, and

spiritual elements of life (Hill, 2009). According to Inuit scholars, Inuit well-being in Nunatsiavut, which is the Inuit homeland on the Labrador coast of Canada, encompasses various aspects of the social determinants of health, particularly the environment, culture, and language (Inuit Tapiriit Kanatami, 2014). The practice of cultural activities, such as being on the land, engaging with Inuit culture, building relationships with family and friends, and fostering strong, supportive communities serve as protective factors for enhancing wellness among Inuit communities (Dion et al., 2021). Thus, historical and cultural factors play a significant role in shaping Indigenous children's nature of early development, as well as their mental health and well-being (Bronfenbrenner, 1979; Moloney et al., 2012).

This is particularly pertinent to Sami communities, Indigenous to present day Norway, as well as Sweden, Finland, and Russia (Mienna & Axelsson, 2019). Learning one's ancestral language has been shown to contribute to enhanced self-esteem, connectedness to culture and heritage, and overall quality of life among Indigenous communities (McIvor, 2005). Within Sami adolescent groups, the learning and practice of ancestral language and culture has been demonstrated to be one of strongest factors in fostering cultural continuity, which is a key determinant of Indigenous well-being in later life (Bals et al., 2011). However, the historical and ongoing experiences of trauma faced by Indigenous communities across the Circumpolar North have challenged their capacity to openly express their cultural identity. There is a need for the contextualization of research within a decolonization and self-determination model, to ensure ongoing learning from historical injustices and restoration of Indigenous cultural practices within future research and policy (Hill, 2009).

## **Sami Child and Youth Mental Health in Norway**

Existing research demonstrates the disparity in mental health between Indigenous and majority non-Indigenous populations. According to Anderson et al. (2016), the life expectancy of Sami children in Norway is estimated to be significantly lower than the Norwegian national average. In Norway, there is an Indigenous Sami population of approximately 50,000 to 65,000 people, most of whom are living above the Arctic Circle (SANKS, 2017). However, Sami populations in the Norwegian Arctic have faced an ongoing history of disproportionate suicide rates. ‘Suicide clusters,’ common among Sami populations, refer to the occurrences of several disconnected deaths by suicide within a short time span among a specific demographic (SANKS, 2017). In the mid-1980s, a drastic suicide cluster occurred among young Sami men in Northern Norway (Jeffries, 2017). Despite the end of the suicide cluster, suicide mortality rates continued to increase among young Sami men in the 1990s. In a study examining suicide mortality among Sami populations in Arctic Norway between 1970 and 1998, the findings demonstrated that there was a moderate increase in suicide among Sami, both male and female (Silviken et al., 2006). Highlighted in the study results was a particularly significant increase in suicide mortality among Sami adolescents aged 15 to 24 within Norwegian Arctic populations (Silviken et al., 2006). Suicide mortality continues to impact Sami populations at a higher rate than non-Sami populations (Young et al., 2015). Yet, research on the factors influencing Sami mental health and well-being in Norwegian Arctic populations remains scarce.

According to Kvernmo (2004), Sami adolescents raised in Sami-marginal areas have weaker bicultural identification, less engagement in Sami cultural practice, and reduced mental health outcomes compared to Sami adolescents raised in Sami-dominant areas. Sami adolescents living in assimilated ethnic communities, have been shown to experience increased behaviour problems

relative to non-Sami adolescents, especially among girls (Kvernmo & Heyerdahl, 1998). Other cultural factors such as alcohol intoxication, single-parent households, and paternal overprotection were significantly associated with suicide attempts among Sami adolescents (Silviken & Kvernmo, 2007). This emphasizes the impact of cultural, psychosocial, and demographic factors on the mental health and behaviour of Sami youth. To our current knowledge, there is no research directly identifying the determinants of Sami child mental health and well-being. This gap in knowledge exacerbates the barriers faced by Sami populations in obtaining early access to culturally appropriate mental health interventions within Arctic communities.

### **Child Development and Child-rearing Practices in Sami Communities**

Sami child health and development is shaped by several factors contributing to their environments, at the levels of family, community, and the societal systems and structures that surround them. In a study by Javo et al. (2003), involving qualitative interviews with parents living in the Sami core region of the northernmost county of Norway, Sami parents described the core contextual values grounding Sami child and youth development within their communities. These contextual values included the preservation of Sami language, the transmission of traditional skills such as engaging with nature, reindeer herding, and hunting, and living with their extended family members, all of which are pivotal to fostering a child's cultural identity from a young age (Javo et al., 2003). Due to the colonial history of assimilation and displacement that Sami communities have and continue to face, Sami children often experience a loss of language and connectedness to culture (Javo et al., 2003). While children and youth may be aware of their ethnic background, they may not be able to speak their ethnic Sami language, nor identify themselves as Sami. This leads to an increased sense of confusion among children regarding their cultural identity, which is a key predictor of Indigenous health and well-being (Javo et al., 2003; Bals et al., 2011). Hence, the

historical and ongoing pressures to conform to majority societies holds lasting impacts on the health and development of Sami children, furthering existing disparities in health between Sami and non-Sami majority populations.

Indigenous child-rearing approaches offer a culturally rooted perspective to nurturing and raising children. There are seven key constituents of Sami child-rearing: 1) independence; 2) hardiness; 3) autonomy; 4) closeness/love; 5) Sami language; 6) Sami traditions; and 7) extended family (Javo et al., 2003). Indigenous hunting and gathering societies, including Sami communities, employ child-rearing practices that cultivate assertiveness, autonomy, achievement, and self-resilience (Javo et al., 2003; Javo et al., 2004a; Barry et al., 1959). These child-rearing practices allow Sami children to grow into independent, adaptable, adventurous, and self-sufficient members of society, making active contributions towards the growth and development of their community (Javo et al., 2003; Javo et al., 2004a). In a study by Javo et al. (2004a), Sami parents were found to be more lenient and permissive in their child-rearing approach in comparison to non-Sami parents in Norway. Sami parents enforced fewer rules in the household, practiced co-sleeping, and were lenient with unscheduled feeding and sleeping for their children (Javo et al., 2004a). Although physical punishment was apparent more frequently among Sami parents, children's temper tantrums and displays of jealousy towards others were also less permissible among Sami parents than among non-Sami parents (Javo et al., 2004a). However, both groups conveyed differing levels of parental permissiveness between their sons and daughters, with sons experiencing a higher degree of permissiveness compared to daughters (Javo et al., 2004a). Among Sami children, boys in particular, a more disciplinary parenting approach was often employed, aiming to strengthen them for survival in harsh environments (Javo et al., 2004a). Although Sami parents promoted a considerable sense of autonomy and leniency with their children, fostering



additional hardiness in Sami boys was believed to increase their self-discipline and confidence, preparing them to engage in cultural practices such as reindeer herding (Javo et al., 2003). These findings shed light on the influence of sex assigned at birth on children's experiences with diverse child-rearing practices.

### **Parental Locus of Control**

Parental locus of control (PLOC) refers to a parent's perception of what or who controls their child's behaviour (Campis et al., 1986). This term descends from Rotter's (1966) original concept of locus of control, except it places an additional emphasis on the parent-child relationship. Parents with an external locus of control are considered to believe that their child's behaviour is primarily influenced by external factors, such as fate and circumstance, which are beyond their control (Campis et al., 1986). Alternatively, parents with an internal locus of control often view their child's behaviour to be within their control as a parent (Campis et al., 1986). Parents with more external locus of control may compensate for this through excessive parental control, using approaches such as control-oriented parenting (Bugental et al., 1989; Janssens, 1994). According to Ystrom et al. (2012), mothers with high negative affectivity and an external locus of control are associated with using more control-oriented parenting strategies, which can involve pressuring children to eat and placing restrictions on their diet. This may occur due to the mother's desire to regain control over her child's behaviour, especially when they believe it is beyond their control. Although these associations may be applicable to several parents, child-rearing values and practices can present themselves differently in diverse Indigenous communities.

## **Impacts of Parental Locus of Control on Child Well-being in Norway**

While PLOC has not been directly explored within Indigenous populations, several parental factors may impact the relationship between PLOC and Sami child well-being in Norway. According to Bekkhus et al. (2022), prenatal exposure to maternal and paternal anxiety were both associated with behaviour problems among children in Norway at the ages of 1.5 and 5 years. Prenatal maternal stress has also been linked to internalizing and externalizing symptoms among children in Norway at the age of 8 (Clayborne et al., 2023). However, these associations varied by sex assigned at birth (Clayborne et al., 2023). Increased levels of concurrent maternal depressive symptoms have predicted higher levels of internalizing and externalizing behaviours among children and youth (Hermansen, 2022). With more external PLOC, there is often an increase in control-oriented parenting to compensate for parents' reduced sense of control over their child (Bugental et al., 1989; Janssens, 1994). Hence, there may be a potential relationship between maternal mental health and child well-being outcomes, with child-rearing factors, such as PLOC, moderating this association.

Furthermore, Clayborne et al. (2022) demonstrated that positive maternal mental health was negatively associated with child internalizing and externalizing symptoms in both boys and girls in Norway. At low levels of maternal self-esteem, the association between prenatal stress and children's internalizing symptoms was significant among children, boys and girls alike (Clayborne et al., 2022). Parents may lean towards more external PLOC due to a reduced sense of self-esteem and lack of belief in their capabilities to support their child. Thus, there is a likelihood that maternal self-esteem may also be an influencing factor on child mental health and behaviour in Norway, potentially moderated by PLOC.

According to Javo et al. (2004b), family demographics, such as low maternal age and single parenthood were specifically associated with increased child behaviour problems in Sami communities. Child-rearing factors also appeared to pose a stronger impact on girls than boys (Javo et al., 2004b). However, correlation patterns for harsh child-rearing practices differed significantly between Sami and non-Sami children, especially for boys (Javo et al., 2004b). A positive correlation was determined between physical punishment and externalizing problems among non-Sami boys, but not for Sami boys (Javo et al., 2004b). Teasing and ridiculing was positively correlated with internalizing problems for non-Sami boys, but inversely correlated for Sami boys. This highlights the critical role of cultural context and sex assigned at birth in the assessment of how child-rearing practices impact child mental health and well-being. Current research overemphasizes issues of substance use and suicide in Indigenous populations, failing to adequately address the key factors influencing Indigenous child mental health and well-being, such as specific mental health determinants, geographic region, and colonialism (Nelson & Wilson, 2017).

### **Study Purpose and Research Questions**

The purpose of this study is to examine the differences in PLOC between Sami and non-Sami parents and how PLOC impacts children's mental health and well-being at the ages of 3 and 5 years in Norway. This study will answer the following three research questions: 1) "Are there any differences in PLOC between Sami and non-Sami parents in Norway?"; 2) "How is PLOC

impacted by demographic, psychosocial, and cultural factors?"; and 3) "How does PLOC influence the mental health and well-being of Sami and non-Sami children?" By enhancing existing knowledge on Sami children's mental health and well-being, research outcomes will inform the development of culturally appropriate mental health services within Sami communities in the Norwegian Arctic, part of the overall Sami homelands known collectively as Sapmi (shown in Figure 1.)

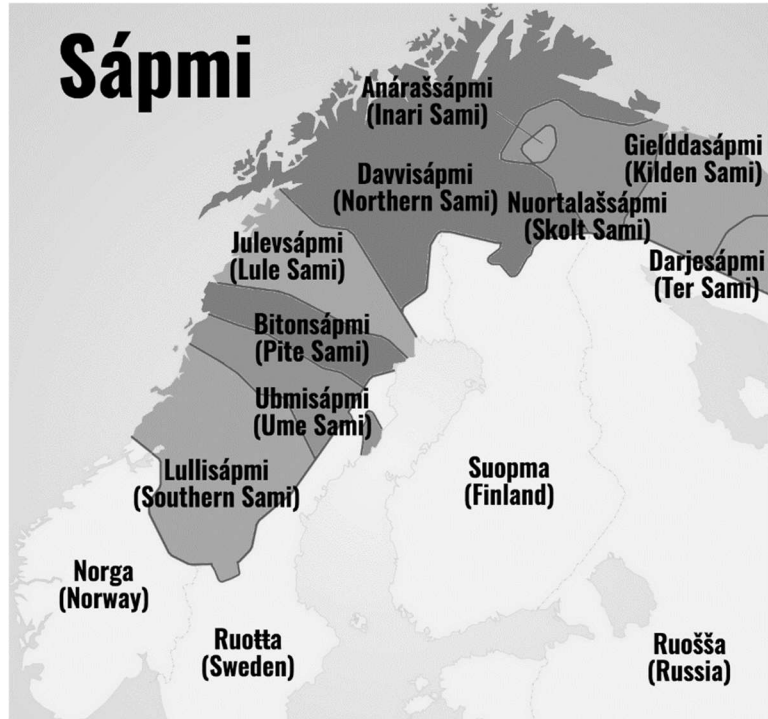


Figure 1. A map of the Sami homelands, called Sapmi (Engel, 2021).

## METHODS

### Methodology

#### I. Background on Methodology

This research is a subset of a longitudinal study called SamBa, which is short for "Samiske Barn" meaning Sami children. The SamBa study aims to explore how antenatal and early life factors impact the social, emotional, and developmental outcomes of Sami and non-Sami children in Norway (*The SAMBA study*, 2021). This study is the first longitudinal study of its kind to involve a Sami and ethnically diverse child population in Norway (*The*

*SAMBA study*, 2021). Within this investigation, this study focuses on examining the differences in PLOC between Sami and non-Sami parents, the various factors influencing PLOC, and how PLOC impacts children's mental health and well-being. To do this, statistical analyses were performed of the data collected from the Norwegian Mother and Child Cohort Study (MoBa).

The MoBa is a longitudinal cohort study involving more than 100,000 pregnant women and their children, recruited between 1999 and 2008 (Norwegian Institute of Public Health, 2016). Recruited participants included more than 111,000 children and over 70,000 fathers (Norwegian Institute of Public Health, 2016). The MoBa was initiated by the Medical Birth Registry in Norway and conducted by The National Institute of Public Health (Norwegian Institute of Public Health, 2016). Participants were recruited at their first ultrasound examination at obstetric units at all but two of the 52 hospitals in Norway (Norwegian Institute of Public Health, 2016). The participation rate for the MoBa was approximately 40.6% of the recruited participants (Norwegian Institute of Public Health, 2016). The study was originally designed as a health study of mothers and their children, but later expanded to several areas of the child's developmental life (Norwegian Institute of Public Health, 2016). Questionnaire data and biological material have been collected from the point of pregnancy, and throughout the child's development at the ages of 6 months, 18 months, 3 years, 5 years, 7 years, and 8 years. Questionnaires cover several domains, such as maternal and paternal health, daily lifestyle and living conditions, as well as children's physical and mental health, psychological and social development, language development and learning, and schooling (Norwegian Institute of Public Health, 2016). More information regarding

the MoBa questionnaires and items can be found at:

<https://www.fhi.no/en/ch/studies/moba/for-forskere-artikler/questionnaires-from-moba/>

## **II. Research Design**

The current study undertakes a retrospective cohort research design, where demographic, psychosocial, and cultural data collected through the MoBa are assessed to determine the differences in PLOC between Sami and non-Sami parents in Norway, the influence of various factors on PLOC, as well as the impact that PLOC has on children's mental health and well-being at the ages of 3 and 5 years. A cross-tabulation analysis was conducted to compare PLOC data between the Sami and non-Sami population groups. Multiple linear regressions were performed to examine the influence of demographic, psychosocial, and cultural factors on PLOC, and investigate the relationship between PLOC and child well-being outcomes. Data for the various variables included in the analysis were gathered from questionnaires administered when the mother was 15 weeks pregnant (child's ethnicity), when the child was 6 months-old (child's sex assigned at birth), and when the child was 3 years-old (PLOC, mother's relationship status, maternal depression and anxiety, and maternal self-esteem). Data from questionnaires administered when the child was at the age of 3 and 5 years were used to assess child mental health and well-being outcomes. All performed tests were two-sided at a 5% significance level. The Statistical Package for the Social Sciences (SPSS) was used for performing all statistical analyses.

## **III. Philosophical Orientation**

The philosophical orientation that underpins this study is positivism. The positivist paradigm acknowledges that reality is accurately represented through observation and

quantifiable measures. This philosophical orientation involves the use of quantitative research methods that promote the objective collection and interpretation of data, such as structured surveys, questionnaires, and official statistics. As this study focuses on exploring PLOC in both the Sami and non-Sami populations and examining its impact on children's mental health and well-being, this research involves objective statistical analyses of the collected data to formulate empirical conclusions.

#### **IV. Participants**

In the MoBa data accessible through the SamBa study, there were 2497 children with mothers in participation until the age of 5 years. Although fathers were also involved in the MoBa, all of the variables examined in the current study were reported by participating mothers. Thus, only mothers and their children were included in this study. Responses from mothers and their first child alone were included in the current study, to avoid the repetition of responses for child-rearing approaches used by the same parent. Participants excluded from this study were those who did not respond to the queries of the included variables, contained missing responses for one or more of the variables, or already provided responses for their first child involved in the study. This resulted in a total sample size of 670 mothers and their first child participating in the study.

### **Measures**

#### **I. Child's Ethnicity**

The child's ethnicity is defined by their parents' and grandparents' spoken ethnic language. In MoBa, mothers reported the ethnic language spoken by the children's parents and

grandparents in Questionnaire 1, administered when the mother was 15 weeks into her pregnancy. Item responses were coded as 1 (“Sami”), 2 (“Urdu”), 3 (“English”), and 4 (“Other”). Participants with scores of 1 were those whose parents and grandparents spoke a Sami language, referred to as “Sami”. Those with scores between 2 and 4 were categorized as having parents and grandparents speaking a non-Sami language, referred to as “non-Sami”.

## **II. Parental Locus of Control**

Parental locus of control was assessed using five items from the Parental Locus of Control (PLOC) Scale. The PLOC Scale is a tool used to measure the degree to which parents perceive their child’s behaviour to be influenced by their own parenting or by external factors beyond their control (Campis et al., 1986). The Cronbach alpha reliability coefficients ( $\alpha$ ) for the five factors within the original PLOC Scale (parental efficacy, parental responsibility, child control of parents’ life, parents’ belief in fate/chance and parental control of child’s behaviour) have been estimated to be 0.75, 0.77, 0.67, 0.75 and 0.65, respectively, and that of the entire scale was estimated to be 0.92 (Norwegian Institute of Public Health, 2020). The five items included in the shortened PLOC Scale ( $\alpha = 0.425$ ) for the present study were scored using a Likert Scale, within the range of 1 (“Completely Disagree”) to 5 (“Completely Agree”). Scoring higher on the PLOC Scale indicates an external PLOC, the condition where parents believe that their child’s behaviour is primarily influenced by external factors (Campis et al., 1986). A low score signifies an internal PLOC, the condition where parents consider their child’s behaviour to be well within their control (Campis et al., 1986). Mothers reported their PLOC items scores in Questionnaire



6, administered when the child was 3 years of age. The PLOC Scale items are presented in Table 1.

**Table 1. PLOC Scale Items and Response Options**

| <b>PLOC Scale Item</b>   | <b>Response Options</b>   |
|--|---|
| 1) What I do has little effect on my child’s behaviour   | Completely Disagree - 1<br>Partially Disagree - 2<br>Neutral - 3<br>Partially Agree - 4<br>Completely Agree - 5 |
| 2) My child is used to getting what he/she wants in any case, so there’s no point in even trying to refuse him/her |   |
| 3) My life is chiefly controlled by my child   |   |
| 4) It is often easier to let my child have his/her own way than to put up with a tantrum                           |   |
| 5) Sometimes when I’m tired, I let my child get to do things that I usually would not have allowed otherwise       |   |

### III. Child’s Mental Health and Well-being

The child’s mental health and well-being was assessed using the Emotionality, Activity, and Shyness (EAS) temperament questionnaire. This questionnaire measures the following four dimensions of temperament: Shyness (fear), Emotionality (irritability/anger), Sociability (positive affect/including approach), and Activity (activity level) (Buss & Plomin, 1984). To provide a reflection of child mental health and well-being, the dimensions of shyness, emotionality, and sociability were assessed within this study. Each dimension contains five items in the EAS temperament questionnaire (Buss & Plomin, 1984). Three of these items from each dimension were used in the MoBa. All of the items

were scored using a Likert Scale within the range of 1 (“Very Typical”) to 5 (“Not At All Typical”). The three dimensions were assessed at two points after PLOC Scale item responses were received: when the child was 3 years-old (Emotionality:  $\alpha = 0.647$ ; Shyness:  $\alpha = 0.574$ ; Sociability:  $\alpha = 0.328$ ) and 5 years-old (Emotionality:  $\alpha = 0.754$ ; Shyness:  $\alpha = 0.628$ ; Sociability:  $\alpha = 0.614$ ). Hence, in the second regression investigating the relationship between PLOC and child mental health and well-being, this independent variable was assessed in relation to the outcome variable at two different time-points.

#### **IV. Child’s Sex Assigned at Birth**

Mothers reported their child’s sex assigned at birth in Questionnaire 4, administered when the child was 6 months of age. Item responses were coded as 1 (“Boy”) and 2 (“Girl”).

#### **V. Other Demographic, Psychosocial, and Cultural Variables**

The following are the remaining variables which were assessed within the first regression analysis examining the influence of demographic, psychosocial, and cultural factors on PLOC: child’s ethnicity; mother’s relationship status, maternal depression and anxiety; and maternal self-esteem. The child’s ethnicity, defined by the ethnic language spoken by the child’s parents and grandparents, was reported in Questionnaire 1, when the mother was 15 weeks into her pregnancy. Item responses were coded as 0 (“Non-Sami”) and 1 (“Sami”). The mother’s relationship status was reported in Questionnaire 6, when the child was 3 years of age. Item responses were coded as 1 (“Married”), 2 (“Cohabiting”), 3 (“Single”), 4 (“Divorced/Separated”), and 5 (“Widowed”). Maternal depression and anxiety were assessed using the short version of the Hopkins Symptoms Checklist (SCL-8), containing eight items ( $\alpha = 0.859$ ). This version was generated from the original

Hopkins Symptoms Checklist with 90 (SCL-90) designed by Derogatis, Lipman, & Covi (1973), which measures symptoms of various mental disorders, including anxiety and depression. Four of the items (i.e., Items 1, 2, 7 & 8) assess symptoms of anxiety and the remaining four items (i.e., 3, 4, 5 & 6) evaluate symptoms of depression. Each item is scored within the range of 1 (“Not Bothered”) to 4 (“Very Bothered”). Maternal depression and anxiety scores collected in Questionnaire 6, which was administered when the child was 3 years of age, were assessed in this study. Maternal self-esteem was investigated using the four items from the shortened version of the Rosenberg Self-Esteem Scale (RSES), which measures global self-esteem ( $\alpha = 0.782$ ). All of the items were scored within the range of 1 (“Agree Completely”) to 4 (“Disagree Completely”). Maternal self-esteem scores collected in the administration of Questionnaire 6, when the child was 3 years of age, were examined in this study.

### **Statistical Analyses**

The statistical analyses were divided into three different components: 1) a cross-tabulation analysis to examine the differences in PLOC between Sami and non-Sami parents, with a consideration for the impact of children’s sex assigned at birth; 2) a multiple linear regression to investigate how demographic, psychosocial, and cultural factors influence PLOC; and 3) a multiple linear regression to assess how PLOC affects mental health and well-being among Sami and non-Sami children in Norway, with a consideration for the impact of the child’s ethnicity and sex assigned at birth.

## **I. Differences in PLOC Between Sami and Non-Sami Populations**

To determine the differences in PLOC between Sami and non-Sami parents, the sum of the five PLOC item scores was obtained for each participant to represent their Total PLOC Score. The five items, initially scored within the range of 1 (“Completely Disagree”) to 5 (“Completely Agree”), were computed to scores between 1 (“Disagree”) to 3 (“Agree”) to strengthen the clarity of analyses. A cross-tabulation analysis was conducted with the Total PLOC Score and Child’s Ethnicity, which was coded as 0 (“Non-Sami”) and 1 (“Sami”). A Chi-square test was performed to assess the statistical significance of findings. To compare PLOC between parents of children of different sexes assigned at birth, a stratification analysis was conducted. This analysis sought to observe the differences in PLOC between Sami and non-Sami communities in Norway, with a consideration for the impact of sex assigned at birth.

## **II. Influence of Demographic, Psychosocial, and Cultural Factors on PLOC**

To examine how various demographic, psychosocial, and cultural factors influence PLOC, a multiple linear regression analysis was conducted. These factors included the child’s ethnicity, sex assigned at birth, maternal self-esteem, and maternal depression and anxiety. The five items assessing the mother’s relationship were computed from values ranging from 1 to 5, to scores of 1 (“Parent in a Relationship”) and (“Single Parent”) to reflect the mother’s relationship status within the context of parenthood. This analysis aimed to study how these various factors influence PLOC within Sami and non-Sami households in Norway.

### **III. Impacts of PLOC on Child Mental Health and Well-being**

To investigate the impact of PLOC on children’s mental health and well-being in Norway, a second regression analysis was performed. This analysis accounted for the child’s ethnicity and sex assigned at birth to examine the cultural differences in well-being outcomes. To strengthen the results of the data analyses, item scores were computed from the range of 1 (“Very Typical”) to 5 (“Not At All Typical”) to that of 1 (“Typical”) to 3 (“Not Typical”). Shyness, Emotionality, and Sociability item scores were summed, respectively, to compute an overall variable score for each of the three dimensions. In cases where item scores did not all exhibit the same directionality, items were computed to develop summed scores that could reflect levels of shyness, emotionality, and sociability. For two of the three items within the Shyness dimension, increasing scores indicated less shyness. These scores were computed to demonstrate increasing shyness, so they could be summed to create an overall Shyness score. A regression analysis was performed for each of the three dimensions at two different time-points, when the child was 3 years of age and 5 years of age. This analysis sought to examine the potential association between PLOC and children’s mental health and well-being in Norway. This analysis also included the child’s ethnicity and sex assigned at birth to understand the impact of these variables on this relationship.

#### **Ethical Considerations**

Indigenous Peoples across the Circumpolar North have and continue to experience adverse and discriminatory treatment within health research. While Indigenous health research is often performed with the intent of benefiting Indigenous Peoples, research outcomes often do not reach

back to the communities from which data were collected. This issue, along with the historical maltreatment of Indigenous Peoples in research experimentation, can lead Indigenous communities to feel hesitant to participate in research initiatives, even if they aim to uplift and promote the health of Indigenous populations. To achieve authentic alliance with Indigenous researchers, health advocates, and community members in the research process, building long-term relationships of mutual trust, respect, and priority is essential (Government of Canada, 2019; First Nations Information Governance Centre, 2022). The entirety of this study was performed under the guidance of Dr. Siv Kvernmo, a Sami scholar in the field of child and adolescent psychiatry. Continuous engagement with Sami health researchers, advocates, and stakeholders is essential prior to and throughout the research process, to ensure that the management and analysis of data is aligned with Sami cultural values and practices (First Nations Information Governance Centre, 2022; Wong, 2022). This will ensure that every aspect of this study is informed by in-community perspectives and that research outcomes aim to make meaningful contributions within Sami populations.

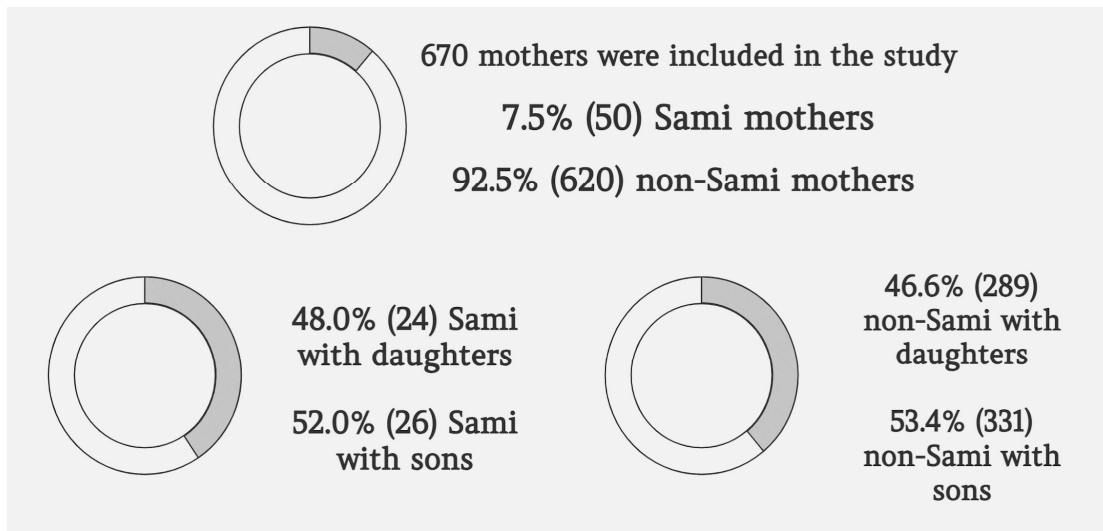
This study previously received research ethics approval in Norway and has also obtained approval from the Hamilton Integrated Research Ethics Board (HiREB). The Regional Ethical Committee for Medical research in southern Norway approved the MoBa. The Norwegian National Data Inspectorate and the Ministry of Health granted approval for the storing of individual information and for establishing subsequent linkages. The SamBa study: Growing up in the Arctic is approved in Norway by the Regional Medical Ethical Committee with the reference number REK 2018/129 ref.nr. 8336, and by Norsk samfunnsvitenskapelige datatjeneste (NSD) with the reference number 8219995. It has also been approved by the Comittée of Sami Health Research, at the Sami Parliament.

## RESULTS

### Difference in PLOC Between Sami and Non-Sami Populations

A cross-tabulation analysis was conducted of mothers' PLOC against child ethnicity. The data was stratified to examine the impact of the child's sex assigned at birth on this relationship. The results of the analysis are as shown in Tables 2-6.

670 mothers were included in this analysis, of which 50 (7.5%) were Sami and 620 (92.5%) were non-Sami (as shown in Figure 2.). Among the Sami mothers, 24 (48.0%) of them had daughters and 26 (52.0%) had sons. Likewise, 289 (46.6%) of the participating non-Sami mothers had daughters and the remaining 331 (53.4%) had sons.



**Figure 2. Study Sample Size and Distribution**

The results of this cross-tabulation analysis convey notable findings for each of the five PLOC Scale items. For Item 1 (What I do has little effect on my child's behaviour), 94.5% of non-Sami mothers with daughters and 79.2% of Sami mothers with daughters disagreed with this statement. This finding was statistically significant, indicating that mothers of daughters in both the Sami and

non-Sami communities feel that their actions have a stronger impact on their child’s behaviour and hence, they resonate more with internal PLOC. The results are presented in Table 2.

**Table 2. Cross-tabulation of Child Ethnicity and PLOC Scale Item 1 Responses (Row %).**

| Child’s Sex Assigned at Birth | Child’s Ethnicity | PLOC Item 1: What I do has little effect on my child’s behaviour |         |       |
|-------------------------------|-------------------|--|---------|-------|
|                               |                   | Disagree   | Neutral | Agree |
| Boy                           | Non-Sami          | 91.2   | 3.3     | 5.4   |
|                               | Sami              | 92.3   | 3.8     | 3.8   |
|                               | Total             | 91.3   | 3.4     | 5.3   |
| Girl                          | Non-Sami          | 94.5*  | 1.4*    | 4.2*  |
|                               | Sami              | 79.2*  | 4.2*    | 16.7* |
|                               | Total             | 93.3*  | 1.6*    | 5.1*  |
| Total (Boys and Girls)        | Non-Sami          | 92.8   | 2.4     | 4.8   |
|                               | Sami              | 86.0   | 4.0     | 10.0  |
|                               | Total             | 92.3   | 2.5     | 5.2   |

**\*Represents the statistically significant results at  $p < 0.05$**

Moreover, for Item 2 (My child is used to getting what he/she wants in any case, so there’s no point in even trying to refuse him/her), 96.9% of non-Sami mothers and 91.8% of Sami mothers were in disagreement with this statement. This statistically significant finding indicates that most of the mothers in the study, Sami or non-Sami, feel that their child is not accustomed to having



their way and that parental intervention makes a difference. Hence, within this item, Sami and non-Sami mothers demonstrate more internal PLOC. The results are as shown in Table 3.

**Table 3. Cross-tabulation of Child Ethnicity and PLOC Scale Item 2 Responses (Row %).**

| Child's Sex Assigned at Birth | Child's Ethnicity | PLOC Item 2: My child is used to getting what he/she wants in any case, so there's no point in even trying to refuse him/her |         |       |
|-------------------------------|-------------------|--|---------|-------|
|                               |                   | Disagree   | Neutral | Agree |
| Boy                           | Non-Sami          | 96.1   | 2.1     | 1.8   |
|                               | Sami              | 92.3   | 7.7     | 0.0   |
|                               | Total             | 95.8   | 2.5     | 1.7   |
| Girl                          | Non-Sami          | 97.9   | 1.7     | 0.3   |
|                               | Sami              | 91.3   | 8.7     | 0.0   |
|                               | Total             | 97.4   | 2.3     | 0.3   |
| Total (Boys and Girls)        | Non-Sami          | 96.9*  | 1.9*    | 1.1*  |
|                               | Sami              | 91.8*  | 8.2*    | 0.0*  |
|                               | Total             | 96.6*  | 2.4*    | 1.0*  |

**\*Represents the statistically significant results at  $p < 0.05$**

Regarding Item 3 (My life is chiefly controlled by my child), 63.0% of non-Sami mothers with daughters were in disagreement with this statement. Among Sami mothers with daughters, however, 37.5% were opposed to this statement and 41.7% were neutral. This indicates that most non-Sami mothers with daughters believe that their lives are not primarily run by their children.

Sami mothers with daughters, on the other hand, are slightly more neutral on this statement, conveying more external PLOC relative to non-Sami mothers. The results of this analysis are presented in Table 4.

**Table 4. Cross-tabulation of Child Ethnicity and PLOC Scale Item 3 Responses (Row %).**

| Child's Sex Assigned at Birth | Child's Ethnicity | PLOC Item 3: My life is chiefly controlled by my child |         |       |
|-------------------------------|-------------------|--|---------|-------|
|                               |                   | Disagree   | Neutral | Agree |
| Boy                           | Non-Sami          | 91.1   | 97.5    | 93.0  |
|                               | Sami              | 80.8   | 7.7     | 11.5  |
|                               | Total             | 65.8   | 22.1    | 12.0  |
| Girl                          | Non-Sami          | 63.0*  | 22.5*   | 14.5* |
|                               | Sami              | 37.5*  | 41.7*   | 20.8* |
|                               | Total             | 61.0*  | 24.0*   | 15.0* |
| Total (Boys and Girls)        | Non-Sami          | 63.9   | 22.9    | 13.2  |
|                               | Sami              | 60.0   | 24.0    | 16.0  |
|                               | Total             | 63.6   | 23.0    | 13.4  |

**\*Represents the statistically significant results at  $p < 0.05$**

In response to Item 4 (It is often easier to let my child have his/her own way than to put up with a tantrum), most of the participants appeared to express disagreement with this statement, indicating more internal PLOC overall. Although these findings were statistically insignificant, it is important to consider their role in informing future research studying this concept in-depth. According to

Javo et al. (2004a), children’s temper tantrums and displays of jealousy towards others were less permissible among Sami parents than among non-Sami parents. This highlights the potential cultural nuances in parenting approaches employed during child emotional outbursts and tantrums. Further research is needed to adequately examine the differences in PLOC with relation to Item 4 between Sami and non-Sami parents. The results of this analysis are presented in Table 5.

**Table 5. Cross-tabulation of Child Ethnicity and PLOC Scale Item 4 Responses (Row %).**

| Child’s Sex Assigned at Birth | Child’s Ethnicity | PLOC Item 4: It is often easier to let my child have his/her own way than to put up with a tantrum |         |       |
|-------------------------------|-------------------|--|---------|-------|
|                               |                   | Disagree   | Neutral | Agree |
| Boy                           | Non-Sami          | 69.2   | 20.5    | 10.3  |
|                               | Sami              | 65.4   | 26.9    | 7.7   |
|                               | Total             | 68.9   | 21.0    | 10.1  |
| Girl                          | Non-Sami          | 76.1   | 14.9    | 9.0   |
|                               | Sami              | 62.5   | 33.3    | 4.2   |
|                               | Total             | 75.1   | 16.3    | 8.6   |
| Total (Boys and Girls)        | Non-Sami          | 72.4   | 17.9    | 9.7   |
|                               | Sami              | 64.0   | 30.0    | 6.0   |
|                               | Total             | 71.8   | 18.8    | 9.4   |

Finally, Item 5 (Sometimes when I’m tired, I let my child get to do things that I usually would not have allowed otherwise), demonstrated that 46.2% of non-Sami mothers with boys disagreed with this statement, while 46.2% of Sami mothers with boys agreed with it. This finding, statistically

significant, indicates that Sami mothers tend to be more lenient with their sons when they are tired in comparison to non-Sami mothers. This item reveals that non-Sami mothers of boys may convey more internal PLOC than Sami mothers of boys, who present more external PLOC with relation to this item. The results of this analysis are as shown in Table 6.

**Table 6. Cross-tabulation of Child Ethnicity and PLOC Scale Item 5 Responses (Row %).**

| Child's Sex Assigned at Birth | Child's Ethnicity | PLOC Item 5: Sometimes when I'm tired, I let me child get to do things that I usually would not have allowed otherwise |         |       |
|-------------------------------|-------------------|--|---------|-------|
|                               |                   | Disagree   | Neutral | Agree |
| Boy                           | Non-Sami          | 46.2*  | 29.9*   | 23.9* |
|                               | Sami              | 26.9*  | 26.9*   | 46.2* |
|                               | Total             | 44.8*  | 29.7*   | 25.5* |
| Girl                          | Non-Sami          | 50.5   | 27.0    | 22.5  |
|                               | Sami              | 54.2   | 29.2    | 16.7  |
|                               | Total             | 50.8   | 27.2    | 22.0  |
| Total (Boys and Girls)        | Non-Sami          | 48.2   | 28.5    | 23.2  |
|                               | Sami              | 40.0   | 28.0    | 32.0  |
|                               | Total             | 47.6   | 28.5    | 23.9  |

**\*Represents the statistically significant results at  $p < 0.05$**

**Influence of Demographic, Psychosocial, and Cultural Factors on PLOC**

To examine the influence of demographic (i.e., child’s sex assigned at birth and mother’s relationship status), psychosocial (i.e., mother’s mental health and self-esteem), and cultural (i.e., child’s ethnicity) factors on PLOC among mothers in Norway, a multiple linear regression analysis was conducted. The independent variables included in this analysis were the child’s ethnicity and sex assigned at birth, as well as the mother’s relationship status, mental health (i.e., depression and anxiety) and self-esteem. PLOC was the dependent variable. The overall regression was statistically significant ( $R^2 = 0.105$ ,  $F(15, 655) = 5.103$ ,  $p < 0.001$ ). The results are as shown in Table 7.

**Table 7. Multiple linear regression estimates for the prediction of PLOC by demographic, psychosocial, and cultural factors**

|                               | <b>Coefficient (B)</b> | <b>Standard Error (SE)</b> | <b>95% (Confidence Interval (CI)</b> | <b>β</b> | <b>P-value</b> |
|-------------------------------|------------------------|----------------------------|--------------------------------------|----------|----------------|
| <b>Demographic Factors</b>    |                        |                            |                                      |          |                |
| Child’s Sex Assigned at Birth | -0.275                 | 0.198                      | -0.663 - 0.112                       | -0.052   | 0.164          |
| Parent Relationship Status    | -0.299                 | 0.370                      | -1.026 - 0.429                       | -0.031   | 0.420          |

|                                 |        |       |                 |        |       |
|---------------------------------|--------|-------|-----------------|--------|-------|
| <b>Psychosocial Factors</b>     |        |       |                 |        |       |
| Maternal Depression and Anxiety |        |       |                 |        |       |
| Item 1                          | 0.279  | 0.343 | -0.395 - 0.954  | 0.040  | 0.417 |
| Item 2                          | 0.251  | 0.274 | -0.287 - 0.790  | 0.050  | 0.360 |
| Item 3                          | -0.301 | 0.263 | -0.817 - 0.216  | -0.58  | 0.253 |
| Item 4                          | 0.403  | 0.251 | -0.091 - 0.897  | 0.86   | 0.110 |
| Item 5                          | -0.345 | 0.255 | -0.847 - 0.156  | -0.76  | 0.177 |
| Item 6                          | 0.503  | 0.199 | 0.112 - 0.894   | 0.129  | 0.012 |
| Item 7                          | 0.69   | 0.222 | -0.367 - 0.506  | 0.015  | 0.755 |
| Item 8                          | -0.800 | 0.480 | -1.743 - 0.143  | -1.665 | 0.96  |
| Maternal Self-esteem            |        |       |                 |        |       |
| Item 1                          | 0.418  | 0.202 | 0.22 - 0.813    | 0.099  | 0.039 |
| Item 2                          | -0.377 | 0.170 | -0.710 - -0.044 | -0.108 | 0.027 |
| Item 3                          | -0.391 | 0.182 | -0.748 - -0.34  | -0.098 | 0.032 |
| Item 4                          | -0.327 | 0.196 | -0.712 - 0.059  | -0.078 | 0.097 |
| <b>Cultural Factors</b>         |        |       |                 |        |       |
| Child's Ethnicity               | 0.646  | 0.379 | -0.99 - 1.390   | 0.65   | 0.089 |

## I. Demographic Factors

In this analysis, it was demonstrated that the child's sex assigned at birth was not a significant predictor of PLOC ( $\beta = -0.052$ ,  $p = 0.164$ ). It was also shown that the mother's

relationship status, an indicator of single parenthood, was also not a significant predictor of PLOC among the mothers in this study ( $\beta = -0.031$ ,  $p = 0.420$ ).

## II. Psychosocial Factors

The multiple linear regression indicated that Item 6 (Feeling everything is an effort) on The Hopkins SCL-8, measuring maternal depression, was a statistically significant predictor of PLOC ( $\beta = 0.129$ ,  $p = 0.012$ ). The remaining items measuring maternal depression, Item 3 (Feeling hopeless about the future), Item 4 (Feeling blue), and Item 5 (Worrying too much about things) were not statistically significant in predicting PLOC (Item 3:  $\beta = -0.058$ ,  $p = 0.263$ ; Item 4:  $\beta = 0.086$ ,  $p = 0.110$ ; Item 5:  $\beta = -0.076$ ,  $p = 0.177$ ). The items measuring maternal anxiety, Item 1 (Feeling fearful), Item 2 (Nervousness or shakiness inside), Item 7 (Feeling tense or keyed up), and Item 8 (Suddenly scared for no reason) also were not statistically significant predictors of PLOC among the mothers in this study (Item 1:  $\beta = 0.040$ ,  $p = 0.417$ ; Item 2:  $\beta = 0.050$ ,  $p = 0.360$ ; Item 7:  $\beta = 0.015$ ,  $p = 0.755$ ; Item 8:  $\beta = -0.072$ ,  $p = 0.096$ ). Three of the four items measuring maternal self-esteem from the RSES, Item 1 (I have a positive attitude toward myself), Item 2 (I feel completely useless at times), and Item 3 (I feel that I do not have much to be proud about), were found to be statistically significant predictors of PLOC (Item 1:  $\beta = 0.099$ ,  $p = 0.039$ ; Item 2:  $\beta = -0.108$ ,  $p = 0.027$ ; Item 3:  $\beta = -0.098$ ,  $p = 0.032$ ). The remaining item from the RSES, Item 4 (I feel that I am a valuable person, as good as anyone else), was not statistically significant in predicting PLOC ( $\beta = -0.078$ ,  $p = 0.097$ ).

### **III. Cultural Factors**

This multiple linear regression analysis indicated that the child's ethnicity, being Sami or non-Sami, was not a statistically significant predictor of PLOC among the mothers in this study ( $\beta = 0.065$ ,  $p = 0.089$ ).

#### **Impacts of PLOC on Child Mental Health and Well-being**

To investigate the impact of PLOC on child mental health and well-being among Sami and non-Sami populations in Norway, a second multiple linear regression analysis was conducted. The independent variables included in this analysis were PLOC, as well as the child's ethnicity and sex assigned at birth to account for the impact of cultural context on child well-being outcomes. Child mental health and well-being was the dependent variable. As a total score was obtained for each of the three mental health-related dimensions of the EAS Survey—emotionality, shyness, and sociability—a multiple linear regression was performed for each of the dimensions using the same set of independent variables. Since the responses to the EAS Survey items were obtained at two time-points in the child's development, at the ages of 3 years and 5 years, three multiple linear regression analyses were conducted for each time-point, forming a total of 6 regressions.

##### **I. Emotionality at 3 Years of Age**

This first regression was statistically significant overall ( $R^2 = 0.057$ ,  $F(3, 666) = 13.398$ ,  $p < 0.001$ ). The results demonstrated that PLOC was a statistically significant predictor of emotionality among children at the age of 3 years ( $\beta = -0.239$ ,  $p < 0.001$ ). The child's ethnicity ( $\beta = 0.013$ ,  $p = 0.730$ ) and sex assigned at birth ( $\beta = -0.019$ ,  $p = 0.612$ ), however,



were not statistically significant predictors of emotionality at this age. The results are as shown in Table 8.

**Table 8. Multiple linear regression estimates for the prediction of children’s emotionality at the age of 3 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>   | <b>β</b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|-----------------|----------|----------------|
| PLOC                                | -0.154   | -0.024    | -0.201 - -0.106 | -0.239   | <0.001         |
| Child’s<br>Ethnicity                | 0.084    | -0.243    | -0.392 - 0.560  | 0.013    | 0.730          |
| Child’s Sex<br>Assigned at<br>Birth | -0.065   | -0.127    | -0.315 - 0.186  | -0.019   | 0.612          |

## II. Sociability at 3 Years of Age

This second regression was also statistically significant ( $R^2 = 0.016$ ,  $F(3, 666) = 3.694$ ,  $p = 0.012$ ). The results demonstrated PLOC to be a statistically significant predictor of sociability among children aged 3 ( $\beta = -0.128$ ,  $p < 0.001$ ). The child’s ethnicity ( $\beta = -0.003$ ,  $p = 0.945$ ) and sex assigned at birth ( $\beta = -0.003$ ,  $p = 0.948$ ), however, were not found to be statistically significant predictors of sociability at this age. The results are presented in Table 9.

**Table 9. Multiple linear regression estimates for the prediction of children’s sociability at the age of 3 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>   | <b><math>\beta</math></b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|-----------------|---------------------------|----------------|
| PLOC                                | -0.051   | 0.016     | -0.082 - -0.021 | -0.128                    | <0.001         |
| Child’s<br>Ethnicity                | -0.011   | 0.155     | -0.315 - 0.294  | -0.003                    | 0.945          |
| Child’s Sex<br>Assigned at<br>Birth | -0.005   | 0.82      | -0.165 - 0.155  | -0.003                    | 0.948          |

### III. Shyness at 3 Years of Age

Overall, this third regression was not statistically significant ( $R^2 = 0.010$ ,  $F(3, 666) = 2.307$ ,  $p = 0.075$ ). The results indicated that PLOC was not a statistically significant predictor of shyness among children at the age of 3 years ( $\beta = -0.044$ ,  $p = 0.256$ ). It was also demonstrated that ethnicity was not a statistically significant predictor of shyness at this age ( $\beta = -0.022$ ,  $p = 0.569$ ). The child’s sex assigned at birth, on the other hand, was found to be a statistically significant predictor of children’s shyness at 3 years of age ( $\beta = -0.089$ ,  $p = 0.021$ ). According to the findings, boys experienced higher levels of shyness compared to girls in this study. The results are as shown in Table 10.

**Table 10. Multiple linear regression estimates for the prediction of children’s shyness at the age of 3 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>   | <b><math>\beta</math></b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|-----------------|---------------------------|----------------|
| PLOC                                | -0.017   | 0.015     | -0.047 - 0.012  | -0.044                    | 0.256          |
| Child’s<br>Ethnicity                | -0.086   | 0.150     | -0.381 - 0.210  | -0.022                    | 0.569          |
| Child’s Sex<br>Assigned at<br>Birth | -0.183   | 0.079     | -0.339 - -0.028 | -0.089                    | 0.021          |

#### **IV. Emotionality at 5 Years of Age**

This fourth regression was found to be statistically significant overall ( $R^2 = 0.031$ ,  $F(3, 666) = 7.124$ ,  $p < 0.001$ ). This analysis demonstrated that PLOC was a statistically significant predictor of emotionality among children at the age of 5 years ( $\beta = -0.169$ ,  $p < 0.001$ ). The child’s ethnicity ( $\beta = 0.056$ ,  $p = 0.144$ ) and sex assigned at birth ( $\beta = 0.022$ ,  $p = 0.556$ ), however, did not have a statistically significant impact on their emotionality at age 5. The results are as shown in Table 11.

**Table 11. Multiple linear regression estimates for the prediction of children’s emotionality at the age of 5 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>   | <b>β</b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|-----------------|----------|----------------|
| PLOC                                | -0.105   | 0.024     | -0.151 - -0.058 | -0.169   | <0.001         |
| Child’s<br>Ethnicity                | 0.346    | 0.237     | -0.119 - 0.811  | 0.056    | 0.144          |
| Child’s Sex<br>Assigned at<br>Birth | 0.073    | 0.124     | -0.171 - 0.318  | 0.022    | 0.566          |

**V. Sociability at 5 Years of Age**

Overall, this fifth regression was not statistically significant ( $R^2 = 0.001$ ,  $F(3, 666) = 0.261$ ,  $p = 0.863$ ). According to the results of the analysis, PLOC ( $\beta = -0.013$ ,  $p = 0.737$ ), the child’s ethnicity ( $\beta = 0.023$ ,  $p = 0.552$ ), and the child’s sex assigned at birth ( $\beta = 0.022$ ,  $p = 0.570$ ) do not have a statistically significant association with children’s sociability at the age of 5 years. The results are as shown in Table 12.

**Table 12. Multiple linear regression estimates for the prediction of children’s sociability at the age of 5 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>  | <b><math>\beta</math></b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|----------------|---------------------------|----------------|
| PLOC                                | -0.004   | 0.013     | -0.029 - 0.021 | -0.013                    | 0.737          |
| Child’s<br>Ethnicity                | 0.076    | 0.127     | -0.174 - 0.325 | 0.023                     | 0.552          |
| Child’s Sex<br>Assigned at<br>Birth | 0.038    | 0.067     | -0.093 - 0.169 | 0.022                     | 0.570          |

## **VI. Shyness at 5 Years of Age**

The sixth regression was also not statistically significant ( $R^2 = 0.004$ ,  $F(3, 666) = 0.984$ ,  $p = 0.400$ ). The independent variables, PLOC ( $\beta = -0.040$ ,  $p = 0.297$ ), the child’s ethnicity ( $\beta = 0.001$ ,  $p = 0.985$ ), and sex assigned at birth ( $\beta = -0.054$ ,  $p = 0.160$ ) were all found to be statistically insignificant predictors of children’s shyness at the age of 5 years. The results are as shown in Table 13.

**Table 13. Multiple linear regression estimates for the prediction of children’s shyness at the age of 5 years by PLOC, child’s ethnicity, child’s sex assigned at birth**

|                                     | <b>B</b> | <b>SE</b> | <b>95% CI</b>  | <b>β</b> | <b>P-value</b> |
|-------------------------------------|----------|-----------|----------------|----------|----------------|
| PLOC                                | -0.015   | 0.015     | -0.044 - 0.014 | -0.040   | 0.297          |
| Child’s<br>Ethnicity                | 0.003    | 0.147     | -0.285 - 0.291 | 0.001    | 0.985          |
| Child’s Sex<br>Assigned at<br>Birth | -0.108   | 0.077     | -0.260 - 0.043 | -0.054   | 0.160          |

## **DISCUSSION**

This study involves the statistical analysis of data collected on mothers and their children in Norway through the MoBa, to gain an increased understanding of the following: 1) the differences in PLOC between Sami and non-Sami populations, with consideration for the impact of the child’s sex assigned at birth; 2) the influence of demographic, psychosocial, and cultural factors on the PLOC of mothers; and 3) the impact of PLOC on children’s mental health and well-being in Norway, with consideration for the unique effects of ethnicity and sex assigned at birth. This research seeks to enhance the current knowledge of Indigenous Sami parenting approaches and practices, as well as the determinants of Sami children’s mental health and well-being in early childhood. Informed by the guidance of Indigenous Sami and Norwegian scholars, this study represents a step forward in the direction of research and knowledge development that is meaningful to Indigenous Sami communities, as it relates to their children and youth—the backbones of their future generations.

### **PLOC in Sami and Non-Sami Populations in Norway**

According to the cross-tabulation analysis conducted of mothers' PLOC against child ethnicity, four of the five PLOC Scale items yielded statistically significant findings. Stratified by the child's sex assigned at birth, the results varied for mothers of daughters, mothers of sons, and those with either a son or daughter. For Item 1 (What I do has little effect on my child's behaviour), 94.5% of non-Sami mothers with daughters disagreed with this statement, while 79.2% of Sami mothers with daughters disagreed. This indicates that the majority of mothers, Sami and non-Sami, felt that their actions held a significant impact on their child's behaviour. This finding conveys that the mothers resonated more with internal PLOC for this item. It is notable that the percentage of non-Sami mothers who felt this way was larger than the percentage of Sami mothers by approximately 15%. This finding suggests that non-Sami mothers may have leaned slightly more towards internal PLOC than Sami mothers, who may have relatively aligned more closely with external PLOC.

For Item 2 (My child is used to getting what he/she wants in any case, so there's no point in even trying to refuse him/her), 96.9% of non-Sami mothers and 91.8% of Sami mothers disagreed with this statement. This demonstrates that nearly all of the mothers in this study felt that their child was not always accustomed to getting what they wanted on demand. This provides insight into the values and approaches inherent to the cultures of both the Sami and non-Sami populations. Within Sami communities, where cultural practice and a close connection with nature and their community are highly valued, children are instilled with communal values and the importance of shared resources from an early age. Although the non-Sami population might prioritize individualism and consumerism, current parenting approaches employed among parents in Norway may prioritize perspective-taking and thoughtfulness of others in one's decision-making. It is also crucial to consider the intersection of socioeconomic factors, such as income, education,

and access to resources, in the parenting approaches applied within these populations. Moreover, most of the mothers in this study resonated with the importance of parental intervention to help set healthy boundaries for their children. This finding emphasizes that mothers from both the Sami and non-Sami populations believe that their actions play a vital role in navigating their child's behaviour and thus, demonstrating more internal PLOC for Item 2 among the mothers in this study.

With regards to Item 3 (My life is chiefly controlled by my child), there were notable variations in the responses of Sami and non-Sami mothers. While 63.0% of non-Sami mothers of daughters disagreed with this statement, 37.5% of Sami mothers of daughters disagreed and 41.7% remained neutral. There were no statistically significant results for mothers with sons. This finding indicates that more than half of the non-Sami mothers with daughters in this study felt that their child did not hold a primary influence on their lives. On the other hand, the majority of Sami mothers either also felt this way or remained neutral on this statement, believing that their lives were moderately influenced by their child, in addition to other factors. Oftentimes, non-Sami communities adhere to cultural norms that emphasize individualism. Hence, non-Sami parents may tend to work towards their own career paths and pursuits, while also raising their children. In this parenting approach, children may not entirely influence the lives of parents. With the communal nature imbedded in Sami culture, Sami mothers often hold deep connections with family and community members which may moderate the influence that their child has on their lives with other factors, such as their family, friends, and responsibilities to their community.

Socioeconomic factors may also play a significant role in how each population responded to this item. In times of economic struggle, Sami communities may place a greater emphasis on fostering family cohesion and collective well-being, which in turn may balance the influence of their child and financial factors on their lives. Among non-Sami populations, however, financial



responsibilities may take precedence to ensure family stability (Conger et al., 2010). This may lead to more uninvolved or inconsistent parenting, creating distance in parent-child relationships (Conger et al., 2010).

Another important factor to consider is the number of children the mothers have in each of the populations. Although these responses pertain to each mother's relationship with her first child involved in the study, they may have had more children prior to the study who were not included. According to Nordin and Sköld (2012), mothers of Sami communities have higher fertility rates relative to non-Sami populations who are living in the same region or country. Thus, if Sami mothers had more children than non-Sami mothers in this study, this could further justify the increased influence of children on their lives. Further research is required to observe this relationship for mothers of sons in both the Sami and non-Sami populations. Overall, the findings for Item 3 convey that the lives of most of the mothers with daughters in this study are not chiefly influenced by their child, with this statement applying more strongly to the non-Sami population.

Although there were no statistically significant findings for Item 4 (It is often easier to let my child have his/her own way than to put up with a tantrum), there were notable results for Item 5 (Sometimes when I'm tired, I let my child get to do things that I usually would not have allowed otherwise). According to the findings, 46.2% of non-Sami mothers with boys disagreed with this item. In contrast, 46.2% of Sami mothers with boys agreed with it. There were no statistically significant results for mothers with daughters. This finding implies that almost half of the Sami mothers tended to be more lenient with their sons than the non-Sami mothers in this study. This reveals the child-rearing values and approaches present within the Sami culture, and how they uniquely manifest for boys and girls.

Consistent with Javo et al. (2004a), Sami parents tend to implement a more permissive child-rearing approach than non-Sami parents in Norway. Within Sami culture, raising children to become independent, adaptable, and self-reliant members of society is a pivotal aspect of their development (Javo et al., 2003; Javo et al., 2004a). Thus, Sami parents may foster their children's autonomy and adaptability by enforcing fewer household rules and maintaining leniency in their children's feeding and sleeping schedules. Javo et al. (2004a) also demonstrated that levels of parental permissiveness differed distinctly between sons and daughters, with sons experiencing a higher degree of parental permissiveness in comparison to daughters. This may be due to men's cultural roles of hunting, fishing, and herding within Sami communities, which will often involve a significant level of assertiveness and resilience. Hence, congruent with the findings of this study, the results pertaining to Item 5 reveal the significant role of sex assigned at birth on the child-rearing values and approaches employed in Sami communities. Moreover, it is evident that among non-Sami mothers with sons in this study, more internal PLOC was conveyed with relation to Item 5. Meanwhile, Sami mothers with sons demonstrated more external PLOC, which may be rooted in cultural factors.

### **Demographic, Psychosocial, and Cultural Factors Influencing PLOC**

Among the demographic, psychosocial, and cultural factors examined in this multiple linear regression, it was demonstrated that maternal depression and self-esteem were two statistically significant predictors of PLOC. The remaining demographic factors—the child's sex assigned at birth and the mother's relationship status—psychosocial factor—maternal anxiety—and cultural factor—the child's ethnicity—were statistically insignificant predictors of PLOC among the mothers in the study. This finding reveals the key role that maternal depression and self-esteem play on PLOC in both Sami and non-Sami households in Norway.

In terms of maternal depression, one of the four items on the SCL-8 measuring maternal depression demonstrated to be indicative of PLOC among the mothers in the study. This was Item 6 (Feeling everything is an effort), where an increased score reported demonstrates that the mother highly agreed with this statement. According to the results, increased agreement with this item was associated with higher overall PLOC scores, which signify an increased likelihood of external PLOC. This may be a result of the self-concept and self-efficacy of the mothers involved in this study. The statement of ‘feeling everything is an effort’ aligns closely with the feeling of a perceived lack of control over one’s life or circumstances. Thus, mothers who reported a higher degree of agreement with this item may have been experiencing a significant level of exhaustion and overwhelm, which could have led them to feel a perceived external locus of control over their child’s behaviour. Beyond the effects of depression, this feeling that every task requires significant effort may also result from other factors, such as challenges in navigating maternal tasks, a lack of social or familial support systems, and mental health coping strategies. Further research is required to better understand the role of maternal depression on the PLOC of mothers in Norway.

Moreover, the results of the multiple linear regression indicate that maternal self-esteem was a strong predictor of PLOC. Three of the four items measuring maternal self-esteem from the RSES were found to be statistically significant predictors of PLOC among mothers. These items were Item 1 (I have a positive attitude toward myself), Item 2 (I feel completely useless at times), and Item 3 (I feel that I do not have much to be proud about). Agreement with Item 1 demonstrates positive self-esteem and self-concept, which could be associated with a stronger belief in one’s capabilities and control over their life outcomes. According to the results, increased agreement with this statement was associated with more internal PLOC. This finding aligns with Bandura’s (1977) Self-efficacy Theory, which states that individuals with a higher degree of self-esteem tend

to perceive themselves as more capable, leading to higher levels of self-efficacy and increased effort expended towards challenging tasks. In the context of parenting, mothers with higher self-esteem may possess a stronger belief in their parenting abilities, resulting in a greater sense of internal locus of control and agency over their child's behaviour. Moreover, potential moderating factors such as mothers' personality traits, personal life experiences, and socioeconomic context may have had an influence on the results. Mothers in this study may have been subject to social desirability bias, feeling the need to select a response that was socially acceptable and positive. This is an important consideration, as the occurrence of social desirability bias can lead to a potential misrepresentation of findings.

In terms of Item 2, agreement with this statement implies that the mothers do not always feel that their actions hold a significant purpose. According to Rotter (1966), mothers who believe that external factors, such as fate and circumstance, play a larger role in their child's life outcomes would align more closely with external PLOC. The results for Item 2 reflect this concept, as increased agreement with Item 2 was associated with more external PLOC among the mothers in this study. This finding aligns significantly with Rotter's (1954) Social Learning Theory, which suggests that individuals who perceive their actions to be ineffective in supporting their child's development will tend to demonstrate this through their actions and rely more heavily on external sources of control. This applies similarly to Item 3, in which agreement with this statement presents a reduced sense of self-concept, where the individual feels that they do not have accomplishments or experiences that are worthy of recognition. According to the results, higher agreement with this statement was associated with more external PLOC among mothers. These findings reasonably reflect the above concept, as mothers who believe they have fewer accomplishments to be proud of may feel less confident in their capabilities to positively shape their child's life. Mothers with a

reduced sense of self-concept and self-worth may feel less capable to take on an active parental role, leading to an increased reliance on external factors to justify their child's life outcomes. It is also important to consider the potential role of moderating factors related to the mother's life experiences and socioeconomic context, which may have influenced the emergence of these findings. In sum, it was demonstrated that a reduced sense of maternal self-esteem was a statistically significant factor associated with external PLOC among mothers in both the Sami and non-Sami parent populations in Norway.

### **Impacts of PLOC on Child Mental Health and Well-being**

The second multiple linear regression demonstrated that PLOC was a statistically significant predictor of children's emotionality at the ages of 3 and 5 years, and sociability at the age of 3 years. Increased internal PLOC among mothers was associated with a higher degree of emotionality and sociability among children at these ages, respectively. This may have emerged due to several factors.

According to the EAS temperament questionnaire, increased emotionality presents in children who cry or fuss more easily, are relatively emotional, and react intensely when upset (Buss & Plomin, 1984). Since parents with more internal PLOC tend to believe that their actions and choices have a stronger impact on their child's life, they may be more likely to engage in control-oriented parenting practices. These practices often involve setting strict boundaries in the household and working to actively manage their child's emotions. Although well-intentioned, increased parental expectations set for their children can cause them to experience excessive pressure to conform to parental demands, contributing to heightened emotionality in children. It is also important to consider the potential bidirectional nature of the relationship between PLOC and child

emotionality. While PLOC can impact children's emotional development, a child's emotionality can also influence a parent's perception of their locus of control. A child's heightened emotionality may lead parents to adopt more control-oriented parenting strategies to help manage their child's behaviour, leading parents towards a stronger alignment with internal PLOC and fostering a reinforcing cycle of behaviours. Hence, the resulting association between PLOC and child emotionality provides insight into the impact of child-rearing practices on children's emotional development and the potential influence of bidirectional processes on this relationship.

In terms of sociability, the EAS temperament questionnaire describes sociability to present in children who like to be around people, tend to prefer to be around others rather than be alone, and find being around people stimulating (Buss & Plomin, 1984). Parents who possess more internal PLOC tend to experience a greater sense of self-assurance and emotional stability, creating an environment of warmth and security in their interactions with their children. As children are highly influenced by their surroundings in early childhood, being raised in an environment where parents model comfortability in their social interactions can enhance children's social development. Moreover, parents with more internal PLOC tend to take on a more proactive parenting approach. To provide increased support towards their children's social development, these parents often initiate play dates with their children's neighbours or classmates and organize opportunities for them to socialize with other children their age. They may also seek out resources and supports for their children to help facilitate their social development further. Like emotionality, the relationship between PLOC and child sociability may also be bidirectional. A child's advanced sociability may elicit a perceived sense of control in their parents, leading them to align more closely with internal PLOC. Hence, the association between PLOC and child sociability sheds light on the role of child-

rearing practices on children's sociability in early childhood and the potential bidirectional processes that may influence this association.

Although there were no statistically significant relationships between PLOC and child shyness at the ages of 3 and 5, the child's sex assigned at birth was found to be a statistically significant predictor of shyness at the age of 3 years. According to the results, increased levels of shyness were associated with boys, while reduced levels of shyness were associated with girls. This may be due to the enforcement of gender roles and norms in the household, which may stem from cultural beliefs and practice or an alignment with societal expectations. For example, parents may instil qualities of assertiveness and independence in their boys, which may lead them to feel heightened levels of social-consciousness in social environments, influencing their expression of shyness at this developmental age. With girls, conversely, parents may foster in them a nurturing and adaptable nature, which may enhance their interpersonal skills and increase their comfort in various social interactions. In this case, girls may feel a reduced sense of shyness in comparison to boys. Thus, the employment of varying parenting approaches can influence children's levels of shyness early into their development. Further research is required to comprehensively investigate the association between PLOC and child shyness, to understand how locus of control in child-rearing practices may impact children's levels of shyness in early childhood.

### **Limitations**

There are limitations in this research that require further consideration. A significant proportion of the study sample consisted of mothers and children who identified as non-Sami, while a smaller proportion of the sample identified as Sami. Consequently, this may affect the generalizability of results to the Sami population, particularly those pertaining to the broader parent population in

Norway. Given the self-report nature of the MoBa questionnaires used to collect participant data, there is the potential for sociability bias in the data analyzed. The Cronbach alpha reliability coefficient for the shortened PLOC Scale, containing 5 items, was estimated to be 0.425. This low value may have been due to the reduced number of items within the scale and the nuances of each item in their examination of PLOC. Other influential variables not included in the conducted analyses may have also had a moderating effect on the results. The presented analyses in this study were developed from the lens of a non-Indigenous graduate student. This perspective in authorship may have also influenced the interpretation and discussion of findings.

### **Global Implications**

There is potential for this research to extend beyond Sami populations in the Norwegian Arctic, to fill knowledge gaps in other parts of the world. According to Nelson and Wilson (2017), there are significant gaps in research focused on mental health in Indigenous communities in Canada. Though there is an abundance of research for the inequalities in morbidity and mortality rates of Indigenous communities in Canada, research focused on mental health and well-being remains scarce (Nelson & Wilson, 2017). In 2007 and 2008, the Nunavut Child Inuit Health Survey was conducted to assess the health status and living conditions of Inuit children across Nunavut (Egeland, 2009). However, the status of mental health and well-being among Inuit children was not examined (Egeland, 2009). This highlights the opportunity for cross-border data comparison between countries with Indigenous child populations.

Similar studies focused on examining Indigenous mental health among child and youth populations have been performed in other countries. For example, Australia's Longitudinal Study of Indigenous Children (LSIC) is a study exploring the social and cultural determinants of



Indigenous child health and development in Australian populations (Australian Government, 2022). The formulation of international collaborations with countries performing similar research on Indigenous mental health among children can help to fill existing knowledge gaps, ultimately advancing the global understanding of Indigenous mental health and well-being in child populations.

## **CONCLUSION**

This retrospective cohort study provides novel insights on PLOC among Sami and non-Sami populations in Norway and its impact on children's mental health and well-being outcomes. Although both ethnic groups leaned more towards internal PLOC overall, the Sami mothers remained closer to external PLOC relative to the non-Sami mothers in this study. This may stem from the child-rearing approaches employed within Sami communities, which involve more leniency in the household and instil a greater sense of independence and autonomy in their children, supporting their growth into self-sufficient members of their communities. One of the four items measuring maternal depression and three of the four items measuring self-esteem also played a notable role in predicting PLOC among mothers in Norway. Further research is required to comprehensively investigate the significance of maternal mental health and self-esteem outcomes in determining the child-rearing approaches utilized in the household. This may provide valuable insights to improve social and mental health supports for parents. Finally, PLOC was a statistically significant predictor of children's emotionality at the ages of 3 and 5 years, and their sociability at the age of 3 years. Children's sex assigned at birth was also a statistically significant predictor of children's shyness at the age of 3 years, with boys experiencing higher levels of shyness than girls in this study. These findings underscore the importance of considering the

unique influence of sex and gender on the child-rearing approaches employed in the household. This will inform the development of adequate child and parental supports that effectively enhance children's opportunities for emotional and social development. This research will also hold significant clinical implications, emphasizing the need to ensure both cultural appropriateness and gender specificity in the care provided for Sami communities. Further investigation of the impacts of PLOC on other aspects of Sami and non-Sami children's mental health and well-being are necessary to gain a broader understanding of the influence of child-rearing approaches on children's wellness outcomes. This study calls for the creation of cross-border research partnerships across the Arctic to collaboratively fill existing knowledge gaps and advance the global understanding of Indigenous child mental health and well-being.

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