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Not just daycare: Nordic mothers in research, development and innovation navigating work and childcare

Abstract

Nordic welfare policies mitigate work–childcare reconciliation; however, they are not enough for mothers working in intensive work cultures. In addition, there are differences among the three Nordic states in both work–family policies and cultural norms as to how they should be used. In this article, we study the resources mothers who work in research, development and innovation (R&D&I) in Finland, Norway and Sweden rely on in their work–childcare reconciliation. Thematic analysis of interviews with 74 professionals resulted in identifying four main resources: father involvement, parental leave system and daycare, flexible working, and grandparent help and networks. Our analysis brings to view the blind spots in work and childcare reconciliation that Nordic care policies and flexible work schemes do not cover in the case of professional R&D&I mothers. We find that the role of fathers is overarching, as it regulates which of the other resources are used and how. We also argue that the role grandparents play as a resource is understudied.

Keywords

Nordic welfare state; Mothers; Work–childcare; Research, Development and Innovation

Introduction

Nordic countries have a long history of active state provisions with family-friendly policies that aim to enable women’s participation in the workforce, reduce conflicting requirements in work and family life and enable and encourage fathers to be involved in childcare (Björnberg, 2016). The state provisions aim at a dual-earner/dual-carer model (Korpi, 2000; Thévenon, 2011), according to which both women and men work and equally share the care tasks within the family (Pfau-Effinger, 2005: 329). However, while Nordic mothers in general have a relatively high degree of employment (Grönlund et al., 2016; OECD, 2022), the share of women in research, development and innovation (R&D&I), particularly in the business sector, is around the EU average (European Commission, 2021). This may indicate that the Nordic family policies do not contribute to women’s employment in this sector to the same degree as they do for mothers in general. This article identifies resources mothers who work in R&D&I in Finland, Norway and Sweden rely on to reconcile the contending requirements of work and caring for children.

Highly educated mothers in R&D&I hold professional positions in a sector that research and innovation policies willingly highlight, and they are passionate about their work, as is expected in these work cultures characterized by long hours and autonomous work (Case & Richley, 2013; Haas et al., 2016; Hardey, 2020). As many subsectors of the field of R&D&I have a male dominance in terms of numbers, the work cultures carry traces of a masculine ideal worker norm (Acker, 1990) that pushes toward working styles where there should ideally be no distractions (Richardson & Bennetts, 2007; Watts, 2009). Although competing devotions of work and family life have been a longstanding topic that has been studied widely (Blair-Loy, 2003; Collins, 2020), intensive work cultures where the ideal worker norm prevails, such as R&D&I, have been showed to be especially harsh for women with care responsibilities (Haas et al., 2016; Hardey, 2020), which creates the need to further investigate how mothers manage the requirements of work and caring for children.

To our knowledge, there are no qualitative studies on the factors that influence the reconciliation of work and childcare for professional mothers in the context of differences among Nordic countries. This study contributes to this knowledge gap by shedding light on everyday life practices of Nordic mothers working in the intensive work cultures of R&D&I. Adding this knowledge is needed to diversify the image and culture of technology-driven fields and to work for making them more inclusive. The analysis shows blind spots in work and childcare reconciliation that Nordic care policies and flexible work schemes do not cover.

Ameliorating professional mothers' competing devotions

In managerial and professional roles, job demands are intensified, projectified and accelerated (Müller, 2014; Ylijoki, 2016). The high intensity of work is based on expectations for more productivity and efficiency, and managers often overload their subordinates, many of whom respond by overworking and being continuously on call (Reid & Ramajaran, 2016). However, Halrynjo (2017) suggests that job demands in elite professions are not necessarily always originating from unreasonable employers but from the harsh competition for projects and clients; therefore, extensive use of family-friendly provisions where such are provided may put an employee, often a mother, at a disadvantage if other players in the field are able and willing to invest more in the career game.

Women in high-speed, intensive and boundaryless work cultures can find that work expectations conflict with the norms of motherhood (Ward & Wolf-Wendel, 2016; Collins, 2020), and reconciling work and care for children becomes a demanding task. Today's motherhood has been called intensive, a concept introduced by Hays (1996), who proposed that this parenting ideology sees the individual mother as being primarily responsible for childrearing and assumes that she is child-centered, guided by experts, emotionally supportive, hardworking and prepared for financial expenditure. In this parenting culture, raising a child is not a simple task because it is believed that the child's tomorrow depends on the (potentially wrong) decisions made by mothers today (Lee et al., 2014: 2). Indeed, studies show that parental stress and guilt are more common among mothers than fathers (Pedersen & Egeland, 2020; Sorkkila & Aunola, 2020) but that shared parenting responsibility and well-functioning work-family policies mitigate the pressures mothers feel (Collins, 2020). The ideology of intensified mothering does not mean that all mothers will follow it in the

same way but rather that it is an ideal most mothers recognize and against which they measure their own motherhood (Faircloth, 2014).

Flexible forms of working are often seen as facilitating work–life reconciliation. Autonomy over working times and places can give a feeling of control even in high-speed, boundaryless jobs (van Zoonen et al., 2021; Allen et al., 2013; Kelly et al., 2011). Flexible working can help parents adapt their work to family demands and remain in demanding jobs when they have care responsibilities (Fuller & Hirsh, 2019). However, there is also research showing that, because of normative expectations concerning women’s and men’s roles and responsibilities in work and at home, flexible working has the potential to retraditionalize gender roles (Chung & van der Lippe, 2018; Sullivan & Lewis, 2001). Therefore, greater flexibility does not necessarily lessen the work–family reconciliation problem but may even increase it (Golden et al., 2006; Allen et al., 2013) because women easily end up multitasking household and work tasks if work–life boundaries are blurred (Sullivan & Lewis, 2001; Hilbrecht et al., 2013). In Sweden, Grönlund and Öun (2022) have suggested that high flexibility does not alleviate work-family tensions, and part-time work remains an important work-family strategy for mothers.

The role of the partner’s support of a mother’s career is significant (Bröckel, 2016). For example, Op de Beeck et al. (2021) found that negotiations within the couple have an important influence on how family and work are prioritized and also how satisfied the partners are with their work and life situations. Langner (2018) observed that, if fathers use flexible schedules to care for children, mothers can build their careers more easily. Studies also mention “family support” or “social support,” indicating that, in addition to the father, other people in the mother’s social network may facilitate the work–family reconciliation (Christopher, 2012; Daw, 2016; Pedersen & Egeland, 2020). However, while there is research on, for example, how taking care of grandchildren influences the situation of grandparents (van Bavel & de Winter, 2013; Zanasi et al., 2020), little is known about how such support influences the situation of mothers in demanding and intensive jobs in the social-democratic welfare model.

Nordic care policies and cultures in comparison

The focus of the present study is on highly educated mothers, who use the leave entitlements somewhat differently than the national averages, and whose partners take longer leaves in all three countries: mother’s full time, high status work increase father’s leave take-up (Brandth & Kvande, 2015; Duvander & Haas, 2015; Salmi & Lammi-Taskula, 2015). Therefore, the overall national statistics of the leave take-up are not fully relevant in describing the context of highly educated mothers working in R&D&I. Generally, it can be said that, despite the main similarities, the Nordic countries have some differences in how social provisions such as parental leave are arranged and how they are used by families. The most striking difference is, as Eydal et al. (2015) and Eerola et al. (2019) show, that Finland’s rather inflexible and maternalistic national leave scheme has poorly incentivized fathers’ use of leave opportunities.¹

¹ A parental leave reform will come into force in Finland in 2022. The reform has been designed to address the facts that mothers still take the majority of parental leaves and that the share of fathers among parental leave takers is one of the lowest in the Nordic countries. The new family leave entitlements will be allocated equally

The participants of this study had children during more than two decades and during that period, the countries have had several slightly different parental leave schemes and childcare provisions. To illustrate the systems according to which our interviewees organized childcare, we compared parental leave schemes in 2005 and 2015 (Deven & Moss, 2005; Moss, 2015). These years mirror the situations when most of the study participants had small (under 3 years) children; in addition, comparative data from Leave Network reports are available from 2005 onward. Summed up, maternal, paternal and parental leaves amount to 50–65 weeks in these three countries in 2005 and 2015 if we observe days with a compensation of 66%–100% of salary. For families with good incomes, flexibility in how the leaves can be used is particularly important. In both Norway and Sweden, both 2005 and 2015, parental leaves could be extended by reducing the compensation level and combining them with working in periods or part time. In Finland, extension of income compensated parental leave was not possible and combining it with part-time work was not simple. In Finland, flexible and partial home care allowances were available after parental leave but they were low-compensated. In 2015, parental leave could be taken in Norway until the child was three and in Sweden until the child was 12 years old. In all three countries, parents had the right to work part time, without or with low compensation, until the child was 8–10 years old (Deven & Moss, 2005; Moss, 2015).

In all the studied countries, when the parental leave system has been modified, an important aim has been to encourage fathers to engage more in childcare. In both Finland and Norway, the father's "quota" increased between 2005 and 2015. In Finland the father's quota increased from three to nine weeks – with an opportunity to get two extra weeks if father took the last two weeks of parental leave. In Norway the fathers' quota increased from six to ten weeks. In Sweden the quota stayed at ten weeks throughout the period. In 2015, Swedish parents received a monetary bonus for sharing the parental leave equally. In all countries, the use of parental leave by fathers increased, mostly because of the father's quotas and less because of increase in fathers taking sharable parts of parental leaves. Mothers still take most of the leave (Deven & Moss, 2005; Moss, 2015).

A low-compensated cash-for-care scheme has been very popular in Finland. It can be used to care for a child of under three years at home, and almost all families (for example, in 2015, 88%, of which 97% were mothers) take advantage of this allowance for at least some months after parental leave, well-educated mothers in good work situations less than mothers in more unstable positions (Salmi & Lammi-Taskula, 2015: 129-132). A similar system exists in Norway but has been less popular, particularly among the highly educated population (Bungum & Kvande, 2013). In Sweden, a cash-for-care option existed between 2008 and 2015, but has been discontinued.

In the Nordic countries, public daycare is available without gap between leave and daycare entitlements, and it is relatively inexpensive for all families. It is also regarded as being of good quality, and its educational aspect is increasingly stressed (Ellingsæter et al., 2017). However, Finnish mothers experience an atmosphere where the positive outcomes of homecare, such as using time and building attachment with a very limited number of people, are emphasized, which partly explains the popularity of using the cash-for-care option (Hiilamo & Kangas, 2009). Likewise, after- and sometimes before-

between both parents if there are two parents in the family, except for 40 days of pregnancy allowance (KELA, 2022).

school care is offered at a low cost in all three countries for children during their first years of school.

Comparing men's share of childcare at home between 1990 and 2010, based on recurrent national time use statistics, we see that fathers' engagement in childcare has increased in recent decades in all three countries. Based on self-reporting, Finnish fathers increased their share of the time parents spent taking care of children under school age from 17% to 33%, while the increase in Norway (both children under school age and schoolchildren) was from 29% to 42% and in Sweden (children under school age) from 35% to 43% between 1990 and 2010 (Statistics Finland, 2022; Statistics Sweden, 1992; 2012; Kitterød & Rønsen, 2013).

Data and methods

The study is part of the Nordic Centre of Excellence on Women in Technology Driven Careers research program. In this article, we combine interview data collected in the three countries within the program. The interviews were mainly done to investigate professional women's career histories in R&D&I, and combining work and motherhood was one overarching issue in them. For this article, we used the parts of the interviews where the influence of the family on the career was discussed. We only analyzed the interviews with women who had children. The ages of the children spanned from toddlers to grown-ups, which means that the women had small children during different time periods. However, all had needed to reconcile work and childcare because, as shown, for example, in Pfau-Effinger's (2005) review, both mother and father working was considered an established practice throughout the study period. We shared our interview guides among the project members when creating them and posed some of the same questions. We asked the women about their career development, their family situation and how they navigate or navigated their work and childcare responsibilities.

This article introduces interviews with 26 Finnish, 21 Swedish and 27 Norwegian mothers. The interviews were conducted between 2017 and 2020, and the professional life history interviews approach (Jackson & Russell, 2010) was used. The interview sample is presented in Table 1.

Table 1. Interview sample

Country	Number of mothers	Area of work	Age
Finland, sample 1	12	Health technology - related research in different positions in academia	38–59
Finland, sample 2	14	Health technology - related research, development or leadership outside academia	39–55

Sweden, sample 1	9	Research in steel industry	30–56
Sweden, sample 2	12	Research in biotechnology, start-ups	30–50
Norway, sample 1	21	Work in ICT related innovation and development outside academia	34–59
Norway, sample 2	6	Research in ICT in academia	37–49

Methods of inquiry

In Finland, the interviewed mothers worked under the multidisciplinary umbrella of health technology in academia or research centers outside academia, yet often linked to it. They worked in different positions, from PhD students (only one, all other Finnish interviewees had PhDs), senior researchers and professors within academia to project leaders, specialists and CEOs outside academia. The interviewees were found with the help of key actor interviews, web pages of R&D&I institutions, and a snowball method. They had one to four children, most often two. Four had adult children at the time of the interview. Three had not lived with the father of their children when they were school-aged or younger. All who were partnered lived in heterosexual dual-earner families. The face-to-face interviews lasted roughly one to two hours.

In Sweden, the sample consists of two sub-samples. One group (9 women) did research in or close to the steel industry. Their education varied from undergraduate exams to PhDs. Some of the women had high managerial positions, while others were in the beginning of their careers. The women were recruited via a contact person attached to the steel industry. The other group (12 women) consisted of women in biotechnology, all with PhDs. Most of them worked outside academia, and many of them either had started or worked in spin-off companies. They were found by searching for women who had moved away from academic research to industry, or who combined the two, or worked closely with industry. Women were sought via LinkedIn and a snowball sampling. Generally, the women had two or three children. All lived in heterosexual relationships. Two had grown-up children. Most of the steel industry interviews were done by telephone because of geographical distance, while the biotechnology interviews were conducted in person. The interviews lasted around one hour.

In Norway, the sample consisted of women either working in the ICT sector outside academia or doing research in ICT inside academia in the western part of Norway. While 6 women did research in ICT inside academia, 21 women worked with innovation and development in public and private sectors. The women were recruited through ICT research and innovation organizations and networks for women working in technology. Four had a bachelor's degree, sixteen had a master's degree, and six had a PhD. While some of the women had high-ranking positions, such as professorships or managerial positions, others were in the beginning of their careers. The women had 1–5 children, but often 2–3 children. All were partnered. Seven mothers had grown-up children. All interviews were conducted face to face and lasted about one hour.

Method of analysis

We conducted a thematic analysis (e.g., Clarke et al., 2015) where our mutual discussions and comparisons were important for extracting key themes. The Finnish data had already been read from the perspective of the contending areas of work and motherhood, and the article process started with the first author looking it over again in search of themes that would merit closer investigation. The second and third authors were acquainted with the Swedish and the Norwegian data, having worked on it with other research questions. We noticed that there were both similarities and differences in work–childcare reconciliation among the different samples. We collected the questions that emerged from our readings of our own interviews, shared them and each of us then provided answers to them from our national data. The questions we primarily dealt with concerned 1) caregiving responsibilities primarily –but not only – during the children's first years, in particular how caring responsibility was shared, 2) how mothers organized their intensive working and 3) the role of employers in the reconciliation of work and childcare. We shared our findings, drew mind maps and sharpened our focus through long discussions, which, through an inductive process (Clarke et al., 2015), resulted in our comparative findings: themes about how mothers coped with their situations that appeared to cross the countries' data, in some respects similar and in some respects different. We chose to categorize these as different *resources* they used. The data and article drafts were discussed on many occasions with other researchers who were doing other analyses of the same data in the research program. This increases the trustworthiness of the analysis.

Results – Resources for combining mothering with demanding work in R&D&I

The role of the father

The role of fathers in how childcare is managed as well as what and how different care resources are used is overarching. As indicated in the literature on Nordic childcare policies, leave take-up and time use, the role of fathers varies among countries, and this is reflected in our material. The role varied from the interviewee not living together with the father of the child to what we call father help, father support and shared parenting. These labels were more of a tool for us to distinguish different care practices, in particular in relation to the national cultural contexts, than exact categories. Our interpretations throughout the data are based on how the practices were recounted by mothers of children in different ages, as long as they needed some daily care.

With “father help”, we mean the lightest form of participation in childcare duties and household chores – there were cases where the father was just a helper whose role in care was not much described or was directly stated to be minimal; in other cases, the father helped some, but the mother told she did most of the practical parenting.

In our data, Finnish mothers more often than others described fathers as helping only a little, as in the following example of a mother with a demanding public sector work, where the situation is described as “polarized”:

I don't know if it is natural or why is it so, but at least in our family it is completely polarized. To be honest, I do much more.

Another father role can be described as that of a supporter, which refers to more evenly shared tasks, with the mother, however, being the primary caregiver and the person mainly responsible for everyday life running smoothly. This was the case in the Norwegian family quoted below, where the mother was working in a private ICT company. The childcare and household chores were shared but in a rather gendered way: the mother coordinated and did the laundry and cleaned the house, and the father played with the children. However, owing to the mother's work, in this family, the father took care of certain daily routines, and the mother managed the household economy.

Yes, because I'm commuting, he is the one who picks up and delivers the kids to school and kindergarten every day. So I have a lot of responsibility for organizing in the family. I am the one who remembers who is going to birthday parties, when, that the present is bought, and that they have nice clothes to put on and . . . So I am responsible for washing clothes and cleaning the house, but then he will take the children out for a couple of hours so that I can do that, so he is perhaps mostly with the kids, spends most time with the children, and then I have the house and economy and loans.

Shared parenting is the most equal model, where the responsibilities as well as the practical work are said to be shared equally. Although this is an ideal in many Nordic countries (Pedersen & Egeland, 2020), in our data, shared parenting appears – both as an ideal and a practice – in Sweden more often than in other countries, as in this Swedish family, where the mother works in a large company:

I've got three kids [. . .] With our kids, we have arranged so that we have shared parental leave, that we have worked every other week each, which has meant that we have never really been away from our careers, [. . .] and in that way you can make it work. And when our kids were small, my husband travelled quite a lot, and now I travel quite a lot, and we can make it work. [. . .] And then, of course, when the kids are sick, it's kind of, "Well, how does it look for you today?" and I can say, "Today I have this meeting that I feel I don't want to miss, but I can be at home tomorrow," and he says, "It's the other way round for me. I'll take today, and you take tomorrow." [. . .] And as I said, we share the housework, and my husband gets so aggravated when there's talk about men who help with housework. He says, "I never *help* at home."

In our data, the interviewed Finnish mothers, despite their high education and a demanding job, appeared to get less support and expected it less than their Norwegian and particularly Swedish counterparts, although there were cases of shared parenting also in Finland.

The role of the parental leave system and daycare

Parental leave policies and cultural habits of using the leave have an impact on how family roles are formed. For example, the difference between Sweden and Finland in the flexibility in how parental leaves can be used encourages families in Sweden to negotiate leave sharing from the beginning, whereas in Finland, it is almost exclusively mothers who use the salaried part of the leave, that is, the first 9–10 months. This practice (in Finland) contributes to establishing a mother-centered culture of care, because it is known that fathers who take

leave probably carry out more childcare tasks later (Haas & Hwang, 2008). In addition, when the cash-for-care system is used for some months, which is a common practice even for highly educated mothers (Salmi & Lammi-Taskula, 2015: 129), and good parent ideologies emphasize mothers' involvement (Hays, 1996; Hiilamo & Kangas, 2009; Lee et al., 2014), early care issues become mother-centered. In the following quote, a Finnish mother who had her children while doing her PhD explains the care solutions in her family. It is quite typical in the Finnish but not in the Norwegian and Swedish data that the childcare solutions have clearly involved only the mother:

I used the whole parental leave and a short homecare period, and both my daughters were one year and four months when they started in daycare. So I was happy I was able to have leaves of good length, and I was still partly involved in the research group.

Being involved in the research group does not mean paid work but includes activities typical of academic work, such as attending some meetings and contributing to the publications of the research group. In this way, longish parental leaves are not as much of a risk to the mother's career as a total absence would be – but she does not mention the father's role. Below, a Swedish example demonstrates how a leave system that allows flexible working helps in avoiding breaks and building the career of a mother.

When it comes to career, I haven't worked that hard on it these last few years, but I have small children instead. You could still say that I've worked on my career, because, basically, I have worked half time almost from the first day when the children were born. In that way, I have chosen to work on my career. Otherwise, I would have stayed at home almost half of my six years that I've worked here.

The interviewees in all three countries took for granted the use of daycare, although they did not use it as much as the daycare hours allowed. Shorter days were considered better for the children. Many interviewees shared with their spouses the leaving and picking up of the children, allowing parents to work longer days without the children's day becoming as long.

Parental leave legislation made having children in daycare from around 18 months of age a natural choice in Sweden and Norway. Finnish parents also preferred to wait until that age, even though the Finnish maternity and parental leave ended when the child was 9–10 months. Most often, the mother, and only sometimes the father or grandparents, cared for the child for a number of months between parental leave and daycare. In Sweden, parents had different flexible solutions in sharing the parental leave and making the fully paid days last until the child was about 18 months. All in all, the daycare system is taken for granted, but it is not used as much as it could be, and it does not cover all the needs, such as long hours outside standard office hours.

Flexible working

One common resource for mothers to maintain the practice of working a lot is the possibility of working flexibly. In some jobs, such as university research (except laboratory work), at least some part of the work can be done anywhere, and many interviewees working in the

private sector were also able to work flexibly. Most of our interviewees used this flexibility to adjust their working style according to their children's needs. They worked at atypical times outside standard office hours, both at home and in the workplace, trying to get work done when they were not immediately needed by the children, as described by a Finnish mother working in a university:

I try to get here in the morning as early as I can so I can then go and pick up my younger son from preschool around four, and then be with the family, and then work continues after eight in the evening when I get the kids to bed. [. . .] And I do a lot at home as well. It's easier to arrange it like that, that you're sort of present in the family's day-to-day, but you can also get work done.

The flexibility strategies mentioned across countries were that the mothers started their workday at home before leaving for the workplace; they arrived at work early to be able to leave early; and they continued to work at home during evenings, weekends and holidays even when the children were around, thereby hoping to be present for the children and active at work simultaneously.

Another form of flexibility in all countries is that one works less, which is made possible either by the provisions of the family policy or flexibility schemes negotiated with the employer, such as working every other week, having one day a week off or not having to be present at the workplace during standard office hours. When one of the Swedish interviewees was asked the best thing that could happen to her, she replied:

I could think of being even more effective in my job, still with shorter days and still more at home, because I have three kids and they need lots of different kinds of support at school and all kinds of things. [. . .] I work a four-day week. Before I started it, I felt all the time that I should be somewhere else, but it's a lot better now that I'm free one day a week. So, it's great.

This happy account of working less was not the only one, even though reducing work hours was pretty rare among our interviewees. As indicated in the quote above, this means can be seen as a choice – with possible career consequences which, thus, were accepted. However, sometimes, for example, if the mother did not have a spouse or he did not help much, a reduction of work tasks or working hours was not described as a completely voluntary choice, but rather a kind of last resort to keep life together.

The role of grandparent help and networks

Navigating work and childcare is often done with grandparent help. Although daycare provision is good and it is widely used, the system is adapted to parents who work standard office hours. There are daycare centers that are open in the evenings or around the clock, but they are for parents who have working outside standard office hours mentioned in their work contract. Therefore, public daycare does not cover all the needs of mothers who work a lot, are passionate about their job and sometimes start working again soon after giving birth. Not even opportunities for flexible working cover all the needs. Therefore, it was common for our interviewees to rely on grandparents or sometimes on other relatives for complementary childcare, exemplified here by a Norwegian mother:

My father has full control of all the children's training hours, where all their clothes and gear are. So, he's very good with that, he is looking after them a lot, the children are very often at my parents' place. I have a network around me, which helps me to manage the job I have, especially since the job has an international focus and I travel a lot.

Grandparents provided extra help even if they were still working themselves if it was possible to link helping to their work situation. Sometimes solutions were found from neighborhood help. Nannies or private childminders were not used regularly. The complementary service of grandparents was sometimes considered the best option because they had a personal, familial relationship to the children.

Relying on grandparent help influenced even mobility decisions. Sometimes, to get help with childcare, mothers had moved with their families to live closer to their or their husbands' parents, grandparents had moved to live closer to their children and grandchildren, and families had decided not to move in order to preserve the support from their networks. Staying in or moving to a smaller place, where the relatives often lived, helped with time management, facilitating more time for both work and family. Some mothers in our data commuted quite long distances to work in another town because appealing work opportunities was available there.

Among the Norwegian interviewees in particular, there were those who had moved back to the area where they grew up and had relatives. Although they argued that the main reason for moving back was that they had found an interesting job, they did not hide the fact that they also enjoyed the support from the grandparents in tackling the difficulties of time constraints in everyday life as well as covering for their absences because of extensive travelling, as explained by a Norwegian mother:

We have my mother and father, and my mother is travelling a lot as well, but my father, he is still working, but he is working from home. So, all of this is necessary to make this work, because I'm travelling here and there and then you are dependent on having people near you, and not only people looking after the children but people who are with them in their life more actively.

Although small places can provide this kind of luxury and opportunities to be a mother who provides her children with long-lasting care relationships, most of the interviewees lived and worked in bigger cities because the relevant employment opportunities for specialized R&D&I professionals are centered there. Many have moved far from relatives and far from grandparent help. In a few cases, the grandparents have moved along, even for periods abroad.

Discussion

This study was located in three Nordic welfare states. In the context of the similarities and differences among these nations' policies that aim to facilitate work–childcare reconciliation, we studied the work–childcare reconciliation of mothers who have intensive working lives in research, development and innovation inside and outside academia. The main resources used in work–childcare reconciliation were found to be (1) father involvement (most to be improved in Finland), (2) parental leave system and daycare (used in all countries), (3)

flexible working (used in all countries) and (4) grandparent help and networks (the most integral part of day-to-day life in our Norwegian sample).

One of our findings is the critical role of the father involvement. The limitation of our study is that the research participants had children in different ages, which is why we compared the parental leave schemes in two points of time, 2005 and 2015. However, although the schemes have been changed and fathers have increased their participation in all countries, country differences still exist in our data, and the studied mothers meet challenges in reconciling demanding work and childcare. Our findings support, for example, Langner's (2018) study about the importance of father's role in childcare for mother's career. The possibilities for fathers to share childcare duties, framed by national family policies, and the propensity of fathers to do so, framed by organizational and cultural family values, interacted and formed the most important resource for mothers in advancing their careers. One important finding in particular is how fathers' family roles were described in the three countries, which are often thought of as being similar in regard to gender equality. Fathers had large opportunities to take leaves to care for children, but the extent to which these possibilities were used in our interviewees' families varied, which is in line with the findings of Eydal et al. (2015). We used the labels of helping (mainly Finland), supporting (mainly Norway) and sharing (mainly Sweden) fathers, even though there are examples of all of these in each country. Fathers' involvement constituted an important framework for the use of other resources.

Nordic countries, with their generous parental leaves and the good coverage of public daycare (Kosłowski et al., 2020), have been applauded for enabling women to take part in working life to the same extent as men. However, gender inequalities still exist (Grönlund et al., 2016). Our findings can shed some light on this from mothers' perspectives. Public daycare in all three countries falls short when mothers attempt to adjust to the boundaryless culture of R&D&I. Complementary resources are needed. In our study, how much the father, grandparents and other private networks took responsibility emerged as essential. The mothers who did not have a spouse or grandparents living nearby were more restricted in their career possibilities.

Earlier research has posited flexible working as something that can help parents adapt their work to family duties but also as a possible risk leading women to traditional gender roles (Chung & van der Lippe, 2018; Grönlund & Öun, 2022; Sullivan & Lewis, 2001). In our study, we found that flexible working was used in some form by all participants irrespective of how they described the father's role, and they talked it about in positive terms yet also as a necessity for fulfilling the obligations of work and motherhood. Only a few used flexibility to work part time. Instead, flexibility was more a means to work full time or even more, to keep up in the career game in a competitive environment. Therefore, parental stress and guilt found in some studies (Pedersen & Egeland, 2020; Sorkkila & Aunola, 2020) do not automatically decrease by working flexibly, but this option provides some more autonomy. Still, other resources are needed as well.

One of our main findings is the role of grandparents. The importance of private, preferably familial and long-lasting social networks as a complement to comprehensive public daycare has hitherto been scarcely studied in the Nordic countries, where family policies generally have taken their departure in the assumption that public daycare is the solution to enabling women's working life (Moss & Duvander, 2019). However, as our study shows, grandparents were needed to cover situations where public daycare, generally designed for parents with standard office hours, was not enough. Regarding small children, there is a social pressure in all three countries not to have children in public daycare as early as it would be possible,

potentially caused by good motherhood discourses (e.g., Hays, 1996). The complementary service of grandparents was sometimes preferred explicitly because they could have a personal relationship with the children and tighten the family ties. The cases where grandparents had travelled far or even moved abroad to be able to take care of their grandchildren demonstrate how a mother's passionate work attitude can heavily affect the extended family. The importance of grandparent help for mothers working in intensive R&D&I jobs in the Nordic countries has been invisible and, therefore, the amount and significance of grandparent help for Nordic R&D&I working mothers needs to be further studied.

Our study in three Nordic countries, which are seen as forerunners of gender equal family policies, shows that these policies have gaps that need to be filled by different means. These gaps may be particularly problematic for women making careers in R&D&I – a working life that demands, at least periodically, more than full-time engagement and in many cases a considerable amount of travelling. While this group of women is relatively small in number, it is a group that national research and innovation policies eagerly want to emphasize. Our findings show how these mothers manage the conflicting demands of work and childcare, and they can also give some hints about how the conflict could be ameliorated.

Based on the experiences of our interviewees, to make the combination of family obligations and demanding work in R&D&I easier for mothers, the involvement of fathers needs not only to be made possible but also to be encouraged. This is especially the case in Finland, where fathers' involvement in early childhood has remained weaker than in the other two countries, particularly Sweden. The 2022 parental leave reform is a welcome move and possibly also will work to change the preferences and, as theorized, for example, by Pfau-Effinger (2005), cultural values about care.

Our interviewees did not ask for improvements to the daycare system, but based on their experiences, we argue that more flexible "emergency daycare could ameliorate the situation, in particular for those mothers who do not have a supportive network. Additionally, using grandparents, neighbors or other help could be facilitated by extending parents' benefits (right to absence from work with or without payment) to other carers when children fall ill, as is the case in Sweden (Duvander & Löfgren, 2021: 579).

Additionally, we see flexibility and tolerance toward different family situations of the members of organizations as important for the reconciliation of work and childcare. Work organization could be a better resource for both mothers and fathers. However, the creation of such organizational cultures and practices is not easy in the competitive world of R&D&I work, because, as Halrynjo (2017) points out, as long as other workers are able and willing to participate fully in the career competition, those who limit their input suffer the consequences individually.

Because of the focus of the research program, we only interviewed women. A limitation of our study is that the voices of men and fathers are not heard. Further studies should include them when discussing sharing care duties in families. In addition, this study utilizes material from interviews where mothering practices were only one of several issues and not the main focus. Hence, several interesting observations that appeared in the analysis phase were not discussed deeply enough in the interviews for a nuanced understanding. The results are in line with earlier research, but they reveal areas that hitherto have not been well covered and that merit further investigation.

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