“CAUGHT IN A FOXTRAP”

Working single mother’s experiences of barriers, facilitators and wishes for support for physical activity.

Marie-Madeline Gougeon
**Titel:** "Fast i en rävsax” Förvärvsarbetande ensamstående mamors erfarenheter av hinder, möjligheter och önskningar av stöd till fysisk aktivitet.

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**Nyckelord:** ensamstående moderskap, arbetande föräldrar, hälsa, kvalitativ forskning

**Introduktion:** Förvärvsarbetande ensamstående mödrar är en växande grupp i Sverige med högre risk för dålig hälsa och funktionedsättningar. De är inte tillräckligt fysisk aktiva för att få hälsövinster av fysisk aktivitet (FA). Studier bland amerikanska föräldrar och ensamstående mödrar visar gemensamma hinder till FA som brist på tid, brist på socialt stöd och att sätta barnens behov före sina egna. Man vet lite om svenska förvärvsarbetande ensamstående mödrars erfarenheter av hinder, möjligheter och önskningar av stöd till FA.

**Syfte:** Utforska svenska förvärvsarbetande ensamstående mödrars erfarenheter av hinder, möjligheter och önskningar av stöd till Fysisk aktivitet.

**Metod:** Åtta deltagare med lägre FA-nivå än Världshälsoorganisationens (WHO) rekommendationer, intervjuades. Materialet transkriberades och analyserades med kvalitativ innehållsanalys enligt Graneheim and Lundman.

**Resultat:** Ett tema framkom: ”Att prioritera många andra åtaganden och samtidigt behöva mer stöd till fysisk aktivitet”. Deltagarna upplevde svårigheter att finna tid, energi, ekonomi och möjligheter för FA ensam eller med barnen. De satte andra åtaganden och andras behov före FA. De upplevde brist på stöd till FA från sitt sociala nätverk och miljö och önskade sig mycket mer stöd för möjliggöra FA.

**Slutsats:** Det behövs ett socialt orienterat tillvägagångssätt för ökad nivå av FA hos denna grupp som fortfarande verkar kämpa med ekonomiska och sociala svårigheter och som inte åtnjuter friskvårdsinsatser från arbetsplatsen. Framtida forskning bör undersöka sambandet mellan deras FA-nivå och deras tillgång till friskvårdsinsatser från arbetsplatsen.
**Title:** “Caught in a fox trap” Working single mother´s experiences of barriers, facilitators and wishes for support for Physical activity.  
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**Keywords:** single motherhood, working parents, health, qualitative research.

Introduction: Working single mothers is a growing group in Sweden that has higher risk of poorer health and disabilities. They do not engage in enough physical activity (PA) to achieve health benefits. Studies among American parents and single mothers show common barriers to PA such as lack of time, lack of social support and not overcoming putting children's needs before their own. Little is known about Swedish working single mothers´ experiences of barriers, facilitators and wishes for support for PA.

Aim: Explore swedish working single mothers experiences of barriers, facilitators and wishes for support for PA.

Method: Eight participants with lower PA level than the World Health Organisation (WHO) recommendations, were interviewed. The material was transcribed and analyzed with qualitative content analysis according to Graneheim and Lundman.

Results: One theme emerged: “Prioritizing many other responsibilities while needing more support for physical activity”. Participants experienced difficulties finding time, energy, economy and opportunities for PA alone and with children. They put other responsibilities and others ‘needs before PA. They experienced a lack of support for PA from their social network and environment and wished for more support to make PA possible to do.

Conclusion: A socially oriented approach is needed to raise PA level in this group who seem to still struggle with economical and social disadvantages. They seem to not benefit from workplaces fitness and wellness plans. Future research should investigate the relationship between their PA level and their access to fitness and wellness plans at their workplace.
Introduction

Working single mothers is a growing demographic group in Scandinavia that have higher risk of poorer health and disability in later life than partnered mothers (1) due to, among other explanations, low physical activity (PA) level (2). Being a single mother implies risk factors in terms of socio-economic circumstances, gender, income level, educational status, social support and stress that increases risk for poor mental and physical health (3). The highest mortality subgroup among working women are previously married women who became single mothers later in life and had low job control (4).

Scandinavia has the highest prevalence of single motherhood before the age of 50 (38%) in comparison to other countries. Single mothers commonly experience a work-family conflict due to the dual responsibility of caring and providing for children despite a relatively weak position on the labor market and often poor qualities job (1). Single mothers living in Sweden report worse self-rated health and have higher risks of hospitalization and mortality than partnered mothers (5). They have an increased risk for total mortality, lung cancer, psychiatric disease and addiction, suicide/suicide attempt, inflicted violence, traffic injury and other accident. Lack of household resources seems to play a major role in the increased risks (6). Other explanations for health disadvantages of single mothers are lack of social support and health related behavior. Lack of social support has been found to be a risk factor on its own for poorer health and higher mortality (7, 8). Even Swedish lone mothers that are positive about their situation, would like more social support (9).

Single mothers are more likely to be daily smokers (10) and do less physical activity (PA) than partnered mothers (2). Single mothers do not engage in sufficient levels of moderate to vigorous physical activity (MVPA) to meet World Health Organization (WHO) ’s guidelines of PA for achieving health benefits (i.e., ≥150 minutes of moderate intensity aerobic activity during a week) and participate in significantly less MVPA than non-mothers (2). Evidence on the physical and mental health benefits of routine PA continues to accrue. In order to reduce the risk of non-communicable diseases (NCD) and depression, adults aged 18–64 years are recommended to do at least 150 minutes of moderate intensity aerobic PA throughout the week, in bouts of at least 10 minutes duration , according to Word Health Organization (WHO) guidelines. (11).

Social cognitive theory: a framework to explain lifestyle behavior such as PA adherence
Social cognitive theory (SCT) is a theoretical framework that considers the behavioral, individual, and environmental factors that interact and are useful for predicting, explaining, and promoting lifestyle behavior changes. SCT main constructs are self-efficacy, outcome expectations, socio-structural factors and self-regulatory strategies. (12). SCT has been used to explain and understand PA behavior in a wide range of populations including young adults (14), older adults (15), as well as individuals suffering from type 1 and type 2 diabetes (16). The present study only focuses on one of the main construct of SCT, the socio-structural factors. The perception of socio-structural barriers and facilitators are one of the determinant of health habits (3).

Experiences of barriers and facilitators to PA among parents

There are no studies as far as I know that has examined experiences of barriers and facilitators to PA among working single mothers in Sweden. Seemingly the few studies existing about that topic were conducted in the USA among working partnered parents and working single mothers using SCT as a framework and a qualitative approach for data collection (17, 18). They reported common barriers to PA; lack of time (scheduling constraints and work) and lack of support, (from the spouse, the community), lack of childcare, as well as guilt about taking time away from the children. They even report several common facilitators to PA; having social support, someone who exercises with you or encourage you to exercise, having someone who provide childcare, experiencing the feeling of being a role model for their children, overcoming feeling of guilt about being away from their children and overcoming the ethic of care (17, 18). The ethic of care is, according to Gilligan, putting your children’s needs and other responsibilities before your own needs (19). Specific to the working single mothers was the unwillingness to use childcare for PA. The single mothers having high MVPA are the mothers reporting having confidence in overcoming barriers to PA and planning PA in daily routine, overcoming ethic of care and that report more social support than single mothers with low PA (18). Another study conducted in the USA showed that the only statistically significant independent predictor of PA scores found in the final model was the ability to plane for PA, not the lack of social support. Most of the participants in this mentioned study reported low social support (17). In the meantime, having social support, having someone encouraging to PA, to do PA with or providing childcare were reported as facilitators to PA from both married parents and single mothers (17, 18). The role of social support from the perspective of working single mothers need to be further investigated.
As single mothers do not engage in sufficient MVPA to achieve health benefits (20), there is a need to understand facilitators, barriers and wishes for support for PA, experienced by working single mothers in Sweden.

Aim

The aim of this study was to explore the barriers, facilitators and wishes for support to achieve WHO recommendation of PA experienced by working single mothers in Sweden, with currently lower PA level than 150 minutes a week.

To concretize further this study’s research question a Setting, Perspective, Intervention, Comparison and Evaluation (SPICE) model was used (see Table 1).

Table 1. SPICE model.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Perspective</th>
<th>Interest</th>
<th>Comparison</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psycho-socio-economical aspects of being a working single mother in Sweden</td>
<td>Working single mothers with lower PA level than WHO recommendations</td>
<td>Physical activity adherence according to WHO recommendations (a minimum of 150 min/week of PA)</td>
<td>N/A</td>
<td>The experiences of barriers, facilitators and wishes for support to achieve WHO recommendations of PA</td>
</tr>
</tbody>
</table>

Method

Study design and procedures

Qualitative one- to -one interviews were conducted and analyzed with Qualitative content analysis according to Graneheim and Lundman (21) to explore the differences and similarities in those mothers’ experiences of barriers and facilitators for PA. Qualitative content analysis was chosen because it offers opportunities to analyze both manifest and descriptive content as well as latent and interpretative content. The manifest content is close to the text, the latent content is close to the participants’ lived experiences, the interpretations of the underlying meaning of the “red thread” between the lines in the text (22). Convenience sampling was used to recruit participants (23). Eligible participant
inclusion criteria were; being or have been until recently (maximum of one year ago) a working single mother (i.e., never married, divorced/separated, or widowed), not living with a partner, not actually achieving WHO recommendations of PA of 150 minutes per week of medium intensity, and having at least one child younger than the age of 18 years currently living in their household. Exclusion criteria were; long term pain, used to be a single working mother for more than one year ago, but not anymore, or “feeling” like a single mother because your partner work and live away from home most of the time, but still sharing a common economy and the responsibility of rising the child/children together.

This study was advertised by putting an announce on diverse Facebook pages. First on my own Facebook page, I shared the announce with all my female acquaintances I knew were single mothers. I even asked them to share forward. Then the announce was put on different Swedish Facebook pages for single adults, single parents and single mothers. In the announce itself readers were encouraged to share forward the announce to their acquaintance. Most of those Facebook pages were closed groups and I had to be accepted as a member first to be able to share the announce on those pages. As I am a single mother, that was not an issue. After a little while, as no one were responding from the different Facebook groups I realized the announce needed to be ameliorated by writing as early as in the two first sentences of the announce that the interview would take a maximum of 45 minutes. As well as the guaranty that I will be the one to adapt to the “where”, “when” and “how” that the participating mothers would demand and not the other way around. Already some hours after making those changes, some single mothers who wanted to get more information about this interview study, contacted me.

Participants

Eight participants were recruited for this study. From the eleven persons who wanted to participate, three persons were excluded. Four of the authors acquaintances wanted to participate in this study, two of them had to be excluded. The first was already meeting the WHO recommendations of 150 minute a week without realizing it. The second one was on sick leave the last two years because of a burnout. Seven single mothers the author had no relation to prior to this study responded to the announce. One of them had to be excluded because she was not actually a single mother but felt like one, as her partner was working and living abroad. Nevertheless, they were married and had a common economy and responsibility in rising their child. Furthermore, she had a long-term pain problem due to an injury in her right arm. The eight participants were aged from 26 to 48 years old, had between one to three children under the age of 18 (between 8 months to 16 years old) living at home and they were currently doing PA between zero to 60 minutes a week. They were
working from part time work 70% to even more than fulltime work (more than 40 hours a week), had custody of their children at home between 60 % of the time to fulltime custody, from having shared custody of the children to be the sole provider and parent to the children. Those mothers ´level of education was from no college education to high college educated. They were all upraised in Sweden but two were born in other countries. Some were living in big cities, others in the country side. Some were heterosexual, some homosexual, the other parent being a mother and had their children by sperm donation. Some were the sole parent as they had children by sperm donation without having a partner.

Data collection

As lack of time is a common issue for working single mothers, I intended to be very flexible and let the participants choose the way they prefer to be interviewed, by telephone, skype or face to face, as well as the place and the time for the interview. I conducted eight one- to -one qualitative interviews (five face to face, two by telephone, one by skype). Eventual disturbance from non-participants’ presence that might affect the participant was handled by asking the participant if she wanted to keep on the interview or take a break, stop the audio recording or postponing the rest of the one to one interview to another time.

A semi structured interview guide with open ended questions was used (see appendix 2). It was discussed about with my supervisor but not pilot tested prior to the interviews. This interview guide covered several areas. Participants were asked which the barriers and the facilitators were to do at least 150 minutes of PA a week that they experienced in their everyday life. They were further asked how they experience that their social support, work, healthcare policy at work, economy, childcare, access to training/ sport centers providing childcare and opportunities to train with their children influenced their possibilities to do at least 150 minutes a week of PA. Every interview ended with the participant being asked if they wanted to add something and if they had any questions for the author. Every informant was informed that she was welcome to contact me later if she wanted to add something more to the interview, none of them did it. The interviews were audio-recorded and lasted between 21 to 64 minutes. The participant did not receive any remuneration for their participation. I transcribed the eight interviews verbatim and checked for accuracy. The data material was deidentified from names, cities, villages and workplaces/companies.

Ethical aspect

Before conducting each one to one interview, participants were given written and oral information about the reasons for this study as well as the procedure of the study. They were
reminded that they could cancel their participation whenever they wanted. They could ask questions about this study and they signed an informed consent form. Before engaging in the interviews, participants were reminded of the WHO recommendations of 150 minutes a week. As the participants were few and I came very close to their personal lives, I used strategies to ensure their confidentiality. Two USB keys were used, one with the data and numbers code to identify the participants and a second one with name-numbers code.

Data analysis

Qualitative content analysis according to Graneheim and Lundman was used to analyze the data. The process of analysis involved a back and forth movement between the whole and parts of the text. As suggested by Graneheim and Lundman the most suitable unit for analysis was all interviews (21). The material was read and reread several times to get a sense of the whole, then divided into three domains facilitators for PA, barriers for PA and wishes for support for achieving WHO recommendation of PA. The meaning units; words, sentences or paragraphs containing aspects related to each other through their content and context were selected. Then a process of condensation was done, that is a process of shortening the meaning units while still preserving the core. Then abstraction was conducted, which means creating codes, categories and themes on varying interpretative levels. Labelling a condensed meaning unit with a code allowed the data to be thought about in new and different ways (24). A group of codes that shared a commonality created a category. A category must be exhaustive and mutually exclusive and answers the question “what?” (25). No data was excluded due to lack of suitable category or fit into more than one category. A category must be an expression of the manifest content of the text and often includes several subcategories (24). Then themes were created. Themes answer the question “how?” and are threads of an underlying meaning through condensed meaning units, codes or categories, on an interpretative level. It is an expression of the latent content of the text (25). Themes are not necessarily mutually exclusive which means that a condensed meaning unit, a code or a category can fit into more than one theme. (24). I conducted the data analysis, one interview was coded independently by both my supervisor and me, then we discussed our coding together. A color system, within each domain, was established to distinguish codes belonging to different categories and sub-categories. Results from the three domains were not presented for each domain. Instead they were woven into relevant sub-categories, so the reader would easily understand participants’ experiences of barriers and facilitators of PA and their wishes for help to overcome those barriers. The results were presented by describing the emerged theme, the categories and the subcategories within each category (see Table 2).
Table 2. Examples of codes within the emerged theme; “Having to prioritize many other responsibilities before PA, needing much more support for PA”

<table>
<thead>
<tr>
<th>Examples of Codes</th>
<th>Sub-Category</th>
<th>Category</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming lessons too expensive. Skip what you cannot afford.</td>
<td>Strained economy.</td>
<td>Struggling alone with work and parental responsibilities.</td>
<td>Prioritizing many other responsibilities while needing more support for PA.</td>
</tr>
<tr>
<td>Strenuous job. Tired. Need to sleep. Go to bed early</td>
<td>Fatigue.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not want my colleague to work alone. Feel guilty.</td>
<td>Colleagues needs.</td>
<td>Putting others´ needs before PA.</td>
<td></td>
</tr>
<tr>
<td>My mom has her limits. My mom also helps my brothers.</td>
<td>Social networks limits and own needs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My children´s needs come before mine. I work less for my child. Suicidal child.</td>
<td>Children´s needs and interests.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannot use fitness hour at work. Colleagues never encourage to PA.</td>
<td>Lack of support and encouragement to PA.</td>
<td></td>
<td>Needing a PA supportive social network and environment.</td>
</tr>
<tr>
<td>Hiking together. Just dance together.</td>
<td>Activity with children or children's activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pokémon go the only reason we walked. Competition inspire me.</td>
<td>Inspiration.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One theme emerged: “Prioritizing many other responsibilities while needing more support for PA”. This theme was built from three categories: “Struggling alone with work and parental responsibilities”, “Putting others´ needs before PA” and “Needing a PA supportive social network and environment”. All participants experienced a lonely everyday struggle with work and parental responsibilities they had to prioritize over PA. They experienced
difficulties finding time, energy, economy and opportunities to do PA alone and/ or with their children. They experienced having to put other needs and others’ needs before their PA. Overall the participants experienced lack of support for PA from their social network and environment and wished for more support to make PA possible to do.

Struggling alone with work and parental responsibilities

This first category was built from three subcategories; strained economy, fatigue and lack of time for PA. Some participants experienced that they could not afford PA and had to work full time or more to manage their economy. Fatigue impeded their energy for PA and they prioritized their and their children’s need to rest before PA. Participants experienced lack of time for PA. Dealing with time consuming issues with the other parent, living far from their workplace and their children’s (pre)-school, doing two parents’ jobs alone every day and working a great deal were barriers for finding time for PA. One participant expressed the lonely struggle as follow:

“It is mums that are all alone with the children most of the time, shared custody might be easier but having full custody it is so unbelievably hard, eh most of the time we have a hardship with not enough money eh...it is like being caught in a fox trap... and if further you do not have a big social network eh..I have some friends but mainly from work and I have no one else but my mum who lives here...so it is pretty lonely and it makes it even more difficult because otherwise you could get some help from several other adults during the week, but you cannot just only take advantage of only one”

Some participants experienced that training memberships fees, training equipment and babysitting to be able to do PA were too expensive, even when receiving fitness reimbursement from work. A strained economy controlled the informants’ choices of activities and they chose the cheapest activities for them and/ or their children. Although some reported having a strong enough economy to afford PA and that it was a matter of prioritizing by refraining something else.

Fatigue caused by work stress factors, parental and household duties impeded participants’ strength for PA. When they finally had the opportunity for PA, they prioritized resting and sleeping. Children’s fatigue after long days at school and their need to go home directly, eat and rest, were barriers for PA. One participant expressed the issues of fatigue as follow:

“But the strength is just not there because you get up so early in the morning, dealing with the children all day long, driving them to school and preschool, you work until quarter to four in the afternoon and they are so very very tired...so you get to be at home until they have to go to sleep and relax before and this thing with PA there is no way and those days you maybe are free you do not have the strength because you are too tired”

Participants experienced lack of time for PA because they were working a great deal, dealing with child custody battle, long distance between home- (pre) school-workplace and doing two parents jobs all alone. Working full time or more, unsecured employment, work overload and
unpaid overtime were experienced as barriers to PA. Some had to skip their entitled work breaks, could not use their “Fitness and wellness hour a week” and could not find time to go to the free gym at their workplace. On the other hand, some reported it was easy to find time for PA when they worked less and had leisure time on all-inclusive holidays. One participant expressed the issues of having an unsecured employment and working a great deal as follow:

“As a substitute worker, I never really know, sometimes you can work 6 days a week for four five weeks ahead (...) because if you say no, well... they just go on asking someone else, so you never dare to turn down a work shift as a substitute worker.”

Putting others ‘needs before PA

This second category was built from three sub-categories; colleagues ‘needs, social networks limits and own needs and children’s needs and interests. Some participants experienced putting others ‘need before their need for PA. Some felt guilt towards work colleagues as a barrier for PA during the workday. They experienced unwillingness to ask family and friends to provide childcare for PA when they were aware of their social network’s own limits and difficulties. Some experienced guilt of spending time away from the children rather they chose to put their children’s needs first. Some participants experienced extra challenges because they had children with chronic diagnosis and extra needs.

Some participants did not want to leave their colleagues overwhelmed with work and responsibilities to be able to take time away for PA during the workday. They skipped their entitled work breaks and their fitness and wellness hour a week because they felt guilty for leaving their colleagues with more work and potentially troubling scenarios. One participant expressed the issues of guilt towards colleagues as follow:

“ It( PA at work) falls apart because we are too little staff at school and preschool so then when you disappear then someone else has to pay for it by being alone with all the kids and so...therefore it became... it is a great idea (PA at work) but you must put a substitute for that because otherwise you feel very guilty towards your colleagues”

Some participants had an understanding for their family and friends own limits, needs and difficulties so they did not want to ask them for help to take time away for PA. Instead some participants wished their social network would understand their everyday struggle and offer voluntary help without the participants having to ask for it.

Some participants experienced guilt for spending time away from their children rather than putting their children’s needs and interests first. When coming home after work, they were unwilling to leave their children for PA. They experienced barriers to do PA together with their children: having several children of different ages, needs, motoric abilities and children’s lack of interest for PA. On the other hand, having a child that regularly practices
PA was a barrier to PA because participants prioritized their children’s activity. Some had children with chronic health issues and special needs that implied extra demanding parenting, for example attending extra meetings with school and healthcare appointments, as barrier for PA. They reported doing more PA before their children became sick. One participant expressed the issue of having a child with chronic health problems as follow:

“I was working out four times a week, aerobics, indoor walking, body pump, working out a lot at the gym, badminton was fun too and now I do nothing at all..... when X (her son) became sick it took all my time, I still tried to go and work out, I still had the membership for one month more but I went there may be only once and it is expensive so I felt It is not worth it if I cannot be there.”

Needing PA supportive social network and environment

This third category was built from four subcategories; lack of support and encouragement for PA, activity with children or children’s activities, inspiration and environmental factors. Participants experienced lack of support and encouragement for PA from their social network. At the same time being inspired for PA, having a PA supportive social network enabling and encouraging PA and family PA and being active with children or while children do activities, were experienced as facilitators to PA. They wished for more support for PA from work, childcare facilities, family and friends.

Some participants experienced lack of support and encouragement for PA from their workplace, childcare facilities, healthcare system, the other parent, family and friends. Additional barriers to PA were: not having fitness and wellness policy at their workplace, not receiving information about the existing one from employer and colleagues, not being encouraged to use it for PA during workday and not having the right to use the fitness reimbursement the way that would fit their family’s needs. Some were excluded from the fitness and wellness policy at their workplace because they were substitute employees. Some had to work through their entitled wellness hour instead of doing PA. Participants wished that PA during paid time at work and fitness reimbursement would be legislated by the government and that fitness and wellness policies at the workplace would be more adapted to the needs of single parents. One participant expressed the issues of lack of support and encouragement for PA from the workplace as follow:

“It is a double standard I think because there are so much pretty words about fitness and wellness policy at work, that we should work out but there is no time for that, and one time I had booked a badminton hall to play badminton but then my boss said no, there is too much work so there is no way.”

On the other hand, participants experienced facilitators that increased their PA level at the workplace: a PA supportive work environment, for example access to a local free gym, colleagues and manager’s encouragement to do PA and worksites PA interventions.
Unfortunately, these interventions were sporadic and short termed. Some participants experienced a lack of support for PA from childcare facilities that refused to give extra time for opportunity to do PA on the way to and from their workplace. One participant expressed the issues of lack of support for PA from childcare facilities as follow:

“I have discussed if I could bicycle to work, but my children’s childcare facility did not allow it, it was the same for a neighbor...because it would take too much time and we do not have the right to have children there that much time”

Some participants experienced lack of childcare and family friendly PA at training centers as a barrier to both their own PA and PA with their children. Some reported lack of support and encouragement for PA from the other parent, family and friends. Additional barriers to PA were; having no or limited social network to provide childcare, to encourage or to do PA with. Meanwhile other participants reported that skipping arguing with a partner about planning time for PA made it easier to do PA.

Participants experienced that having children practicing an activity is a facilitator for PA during the children’s activity. Family walks, playing active video games and bicycling with children raised participants PA level. But it required that children liked PA and those activities. Trendy games, social media and having pets to walk facilitated PA. Additional facilitators for PA were; participating in interactive games such as Pokémon Go and Just dance with children and friends, getting inspiration about trendy work out and exercises on social media, being inspired by family and friend ’s work out posts on social media and competing against or encouraging each other to do PA via social media. One participant expressed the inspiration to PA from friends and social media as follow:

“I have many friends that often go to the gym and they tell me, and you can see that on social media they posted pictures (...) it is where you see a lot of work out they post about, I must do the same therefore you get inspired”

The environmental barriers to PA experienced by some participants were; not having access to gym and training center with childcare nearby, insufficient infrastructure on the countryside, uneven ground, winters darkness and coldness. The lack of sidewalk and street lightning in the country side implied that some participants did not feel safe doing PA outside with their children, in the darkness, risking being hit by a vehicle. On the other hand, living close to walking and bicycling paths, beautiful nature, summer and nice weather increased motivation and opportunities to do PA.
Discussion

The perception of socio-structural supports and obstacles are one of the determinant of health habits (3). The regulation of healthful behavior is not solely a personal matter. Some of the obstacles to healthful living reside in health systems rather than in personal or situational impediments. These impediments are rooted in how health services are structured socially and economically (13). Participants in the present study experienced a lonely everyday struggle with many responsibilities and duties, they had difficulties finding time, energy, economy and opportunities for PA. They experienced a need and wished for more PA supportive social network and environment.

Participants and their children’s fatigue were barriers to PA as the mothers made the priority on resting instead of doing PA. This finding agreed with an early study among American mothers who reported fatigue as one of the three main barriers to PA, together with lack of childcare and cold weather (26).

Some participants reported a strained economy and prioritized working (overtime, extra jobs) before doing PA which impeded on finding energy and time to do PA. This finding agreed with earlier studies showing that working a great deal was experienced as a barrier to PA more often among mothers than fathers (17) and that Scandinavian welfare democracies did not successfully relieve the financial stress that single working mothers were experiencing (27). The present study’s findings agreed with earlier studies that showed the Swedish system was organized and structured so that all parents must work, but the system did not recognize lone parents’ special needs and extra responsibilities. Compared to married mothers, most Swedish lone mothers worked more. There were strong expectations for them to work, but they were in a relatively weak and insecure position in the labor market. The quality of work may be poorer which might expose them to greater occupational health hazards, such as heavy or dangerous working conditions, or to the more stressful high demand/low-control jobs on the labor market (28).

In the present study, some participants experienced not receiving fitness reimbursement from work and did not take time for PA during the workday. This finding agreed with earlier findings among working partnered parents where fathers could rearrange their work schedules, so they could do PA during the workday. Mothers were not able to rearrange their work schedules, risking being perceived as less committed to their work and would feel guilty doing so (17). However, a well-functioning fitness and wellness policy at work was experienced as a facilitator for PA. Participants wished that worksite fitness and wellness interventions, PA during workday, would become legislated by the government. They even
wished that fitness and wellness policies at work would be more adapted to the special needs of single parents. Those findings agreed with an early cross-sectional study showing that, in Sweden, many employees did not participate in PA promoting workplace programs implying reimbursing some of the expenses for health-promoting activities. However, employees who took advantage of the workplace health promoting programs had higher assessment of PA and general health. That cross-sectional study emphasized the need of future studies designed to determine factors influencing employees’ participation in workplace healthcare programs (29). The present study underscored the need for a more supportive work environment for PA. Most public health experts agree that workplace programs will be more likely to generate PA behavioral changes (30). Working single mothers was a population that could significantly benefit from PA promoting interventions that taught participants behavior modification strategies based on social cognitive principles (31). From a financial point of view, Health promotion at the workplace is not only beneficial to the health of the population, but even beneficial for the employer (32). Health economic assessments have shown impressive returns on investment in health promotion in the workplace (33).

Concerning lack of support for PA from significant others, the present study showed that time consuming issues with the other parent and lack of support and encouragement for PA from the other parent were barriers to PA. This finding agreed with an early study among single mothers who indeed highlighted the negative impact of ex-spouse on their PA level (18). On the other hand, having a partner was not a guarantee to find more time for PA if the partner was not supportive for PA. Earlier studies conducted among partnered parents showed that the lack of support and encouragement for PA from spouse was experienced as a barrier to PA (17) and that spousal support was a key facilitator of PA among mothers (34). Relative lack of social support was a barrier to PA. Having no or only few adults in your social network were barriers to PA. Relative lack of social support has been found to be a risk factor for poorer health and higher mortality. In-depth interviews with Swedish lone mothers revealed that the majority would like more financial assistance and social support (7, 8). Those findings agreed with the findings of the present study. Participants reported strained economy and wished their social network would offer them more support. Furthermore, putting others’ needs before doing PA and not daring to ask for help for PA were barriers to PA. However, an earlier study showed that the only statistically significant independent predictor of PA scores was the ability to plane for PA, not the lack of social support (10). The present study findings could give one potential explanation. As shown in the present study, having a social network did not perforce imply receiving support for PA. Some informants were unwilling to spend time away from their children for PA or did not want to ask family and friends for support for PA. Meanwhile, receiving support, encouragement and inspiration
from social network and community for PA, were reported as facilitator for PA. Those findings even agreed with earlier findings among working parents where the more active parents were the ones adept at seeking support from others, making time for PA and receiving support from others for PA. They even surrounded themselves with active friends and role models (17).

As a previous study among working partnered parents showed, feeling guilty taking time away from children were reported among working partnered mothers (17), which was even the case in the present study. Some participants put their children’s needs and interests first and were unwilling to use childcare for PA. This finding even agreed with a previous study where single mothers with high MVPA were the mothers that overcame putting children’s ‘needs before their own (18). However, they never investigated if those mothers’ children were healthy or not (18). One may wonder about the relationship between being able to overcome putting children’s needs first for PA and having healthy children versus having children with chronic diagnoses and extra needs. It might be more difficult for a working single mother to prioritize PA if she had child/children with extra needs. As the present study suggested, where participants who used to do PA regularly while their children were healthy stopped when their children became sick. This finding agreed with an earlier study that reported that chronically ill children had ongoing preventive, acute, and chronic health care needs that may be dramatically greater than those of healthy children. Having chronically ill children implied greater demands on parents who were expected to provide a range of health care services without which the current health care system for children would not function. Under this “shadow health care system,” parents often needed to be with the child, a requirement that could create difficulties for working parents (35). Another earlier study showed that overcoming putting children’s needs for PA was reported among PA active partnered parents. They viewed PA as something that made them feel good, gave them energy to enjoy time with their children (17) and enhanced being a good parent rather than distracting them from being parents (36). Future health promoting interventions for parents should, as suggested in an earlier study (37), alleviate guilt of spending time away from children by linking PA effects with parent’s core value. PA reduced stress which helped parents to be more patient with children (37).

In the present study, being able to do PA with your children was experienced as a facilitator for PA. Participants wished for more family-friendly training centers with opportunities to do PA with children. This finding agreed with earlier finding among parents who discussed incorporating their children in their work out as a facilitator for PA and to enjoy an active lifestyle while spending time together (17). Future health care interventions should consider providing parents with variety of age appropriate ideas for being active with their children.
(37). It would be beneficial for the whole family to enable working single mothers to do PA with their children, as positive role modeling examples for children's own health behaviors. Indeed, children were more likely to be physically active when their mother also tended to be physically active (38).

Method discussion

The choice of using Qualitative content analysis according to Graneheim and Lundman to analyze the material was relevant (21). This study succeeded to shed light on the differences and similarities in those mother’s experiences. Using one to one interviews as data collection was adequate because one to one interviews are often used to explore personal and sensitive themes. They can help to identify potentially modifiable factors for improving health care (39). Although this study had only eight participants, the material was rich and succeeded to cover the three domains meant to be explored. This sample of participants was quite heterogeneous regarding age, number of children, children’s ages, children’s health and (dis)-abilities, numbers of years of single motherhood, educational level, child custody extend (part time to fulltime), sexual orientation and geographic domicile (country side, big city, from south to north of Sweden). The participants had different ethnical backgrounds but were all upraised in Sweden. This study had another strength, it did not have only a heteronormative perspective on parenthood, some participants were indeed homosexual mothers which implied that “the other parent” was not necessary a father but another mother or no one (sperm donation).

To raise trustworthiness of this study, before I coded all material, the first interview was coded independently by my supervisor and me. Then we discussed about our coding. As I have been a working single mother for 8 years, the risk would have been to “go native” and to interpret too much from my own life’s experiences as a working single mother. On the other hand, it is also an advantage, this prolonged engagement gave me a deeper understanding of the psycho-social settings of working single motherhood in Sweden. My understanding for single mothers’ lack of time, fatigue and guilt spending time away from children helped me write an attractive announce for the study. It was indeed very clear in the announce that the participants will be the ones to decide where, when and how long the interview will be. My understanding of the need for flexibility enabled finding participants for this study. I was able to interview participants late in the evening (when children are asleep), week end or during participants lunch breaks at work. Furthermore, I did a reference group checking (40), three working single mothers with currently lower PA level than 150minuter a week, who did not participate in the present study, were asked to read a summary of the results in Swedish and to give their feedback about those results. They confirmed having experienced same barriers
and facilitators for PA brought up in the present study and further explained that, even though they were aware of all PA benefits on health and well-being, their working single mother’s life were already too busy and challenging to prioritize PA.

Limitations of the present study.

This sample of participants were single mothers been upraised in Sweden, where the concept of PA for public health is a well rooted concept in the Swedish mentality. Most of those participants had indeed an overall positive attitude to PA, having experienced regular PA earlier in their life. The results might not reflect the experiences of single mothers living in Sweden but been upraised in other countries nor mothers that have a strong negative attitude toward PA. Those participants had landed in being single mothers and had experienced between 2 to 9 years of working single motherhood. The results might not reflect experiences of younger working single mothers, nor mothers who recently became single and were currently dealing with the stress of going through a separation/divorce/grief and probably a move. Concerning the setting of the interviews, some of them were done late in the evening after 9 PM when children were finally asleep, the participants were tired, which might have influenced those participants to talk more about fatigue as a barrier for PA as they probably felt it during the interview.

Implications of the present study

Despite the limitations of this study, it contributed by exploring this growing demographic group in Sweden with higher risks of health issues. Mainly the present study highlighted the knowledge gap about working single mothers’ PA habits in Sweden and it might help developing questionnaire to conduct survey studies, to reach a greater number of working single mothers and to investigate if the present findings could represent a larger group. The present study suggested that workplace PA and better adapted to single parent’s fitness reimbursement might be a solution for single working mothers to achieve WHO recommendations of PA. The present study even suggested the need to investigate further the relationship between access to workplace fitness and wellness plans, PA during the workday and single working mothers PA level in Sweden. It might help physiotherapist understand how to support working single mothers to meet the WHO recommendations of PA for health benefits. It might help developing and delivering interventions for increasing PA level in this group. It showed the need to highlight PA benefits for the whole family, providing supportive environment for family PA and PA supportive workplace by eventually legislating PA at work. First as health promotion to prevent NCD and secondly to prevent sick leave, keeping working single mothers in the labor market.
Ethical aspect

During the interview some participants brought up sensitive topics that made them feel emotional. Topics as why they were single mothers such as their children’s other parent had passed away, or conflictual relation with the other parent. When they discussed lack of social support, some talked about deceased parents or serious health issues in the family, children having chronic health issues and extra needs. My strategy to handle those topics was to let participants talked if they needed to about those topics, I showed empathy and confirmed that I heard what they said but I decided to not ask further following questions about those topics, by example I did not ask about the cause of death of the other parent. Instead I went back to the questions from the semi structured interview guide.

Conclusion

This present study reinforced a socially oriented approach to PA adherence habits among working single mothers in Sweden. Swedish welfare had not succeeded to relieve the economic stress experienced by working single mothers, they still had a weak position on labor market and they seemed not to benefit from their workplace fitness and wellness policies and fitness reimbursement, which impacted negatively on their opportunities to do PA. It suggested that workplace PA interventions might be successful to produce sustained PA behavior changes in this demographically growing group.

References

24. Graneheim UH, Lundman B.
Appendix

Appendix 1: Literature overview.

Working single mothers is a growing demographic group in Scandinavia. These mothers commonly experience work family conflict due to the dual responsibility of caring and providing for children despite a relatively weak position on the labor market and often poor qualities job. Single mothers significantly score lower life satisfaction and happiness and higher financial stress than partnered mothers. For these single mothers, happiness has three significant predictors: financial hardship, work family conflict and lack of confidant support.
Scandinavian welfare democracies seem not having successfully relieved the financial stress that single working mother are experiencing (1).

Being a single mother implies disadvantages in terms of socio-economic circumstances and health (2). The prevalence of single motherhood before the age of 50 differs between countries. Scandinavian has the highest prevalence (38%) in comparison with the USA (33%), England (22 %), Western Europe (22%) and in Southern Europe (10%). Single mothers have higher risk of poorer health and disability in later life than partnered mothers. Risks are greatest in Scandinavia, the USA and England. Women who became single mothers before age 20, for 8+ years, or resulting from divorce or non-marital childbearing, are at particular risk (2).

American women’s mortality risks vary by job stress, family type and their combination. The highest mortality subgroup is previously married mothers who became single mothers later in life and had low job control. It is suggested that workplace intervention should consider both work and family characteristics to reduce health risks more effectively (3).

Single mothers living in Sweden have an increased risk for total mortality, psychiatric disease, addiction, lung cancer, suicide/suicide attempt, inflicted violence, traffic injury and other accident. Lack of household resources seems to play a major role in the increased risks (4).

Others explanations for health disadvantages of single mothers are lack of social support (5) and health related behaviors. Single mothers are more likely to be daily smokers (6) and do less physical activity (PA) than partnered mothers (7).

*Physical activity, health benefits and social cognitive theory*

Evidence on the physical and mental health benefits of regular PA continues to accrue. In order to improve cardiorespiratory and muscular fitness, bone health and reduce the risk of non-communicable diseases (NCD) and depression adults aged 18–64 years are recommended, according to Word Health Organization (WHO) guidelines, to do at least 150 minutes of moderate to intensity aerobic PA throughout the week or to do at least 75 minutes of vigorous intensity aerobic PA throughout the week or an equivalent combination of moderate- and vigorous intensity activity. Aerobic activity should be performed in bouts of at least 10 minutes duration. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week (8).

A review on randomized trials on PA adherence shows that PA guideline characteristics as frequency, intensity, duration, and mode of activity has generally trivial effects on the adherence to PA. Factors unrelated to the recommended guidelines may be of greater importance when considering behavioral adherence issues. Social cognitive, personality, and
environmental or socioeconomic factors have amassed considerable evidence as correlates or determinants of PA (9). Therefore, health workers and promoters need to consider these variables when promoting PA to adults.

In a cross-sectional design pilot study, single mothers report significantly less physical activity (PA) during a typical 7-day period and over the previous year compared to non-mothers and married mothers. Single mothers do not engage in sufficient levels of moderate to vigorous physical activity (MVPA) to meet public health guidelines for achieving health benefits (i.e., ≥150 minutes of moderate intensity aerobic activity during a week) and participate in significantly less MVPA than non-mothers (10).

Social cognitive theory: a framework to explain lifestyle behavior change

Social cognitive theory (SCT) is a theoretical framework that considers the behavioral, individual, and environmental factors that interact and are useful for predicting, explaining, and promoting lifestyle behavior change (11). SCT posits that human behavior is dynamic and influenced by the interaction of internal and external forces and humans’ interactions with their environment. SCT emphasizes the global influence of perceived self-efficacy, which affects health habits directly by impacting goal setting, expectations concerning outcomes, and perception of socio-structural supports and obstacles to health promoting behaviors. The perceived facilitators and obstacles are one of the determinant of health habits. If they were no obstacles to surmount, a healthy behavior could be easy to perform, and everyone would be efficacious. The regulation of healthful behavior in not solely a personal matter. Some of the obstacles to healthful living reside in health systems rather than in personal or situational impediments. These impediments are rooted in how health services are structured socially and economically (12). SCT has been used to explain and understand PA behavior in a wide range of populations including young adult (13), older adults (14) as well as individuals suffering from type 1 and type 2 diabetes (15).

Social cognitive theory and physical activity among parents

There are no studies as far as I know examining PA among working single mothers in Sweden. There are some studies conducted in the USA examining SCT and PA using a qualitative approach with focus group interviews among working parents (16) and individual interviews among single mothers (17) for data collection. Seemingly this topic has not been studied in Sweden. What working parents and single mothers have in common is that they all reported barriers to PA as lack of time (scheduling constraints and work) and lack of support, from the spouse, the community, not having childcare, as well as guilt about taking time away from the children. Regarding facilitators to PA working partnered parents and single mothers report several in common: having social support, someone who exercises with you or
encourage you to exercise, having someone who provide childcare, experiencing the feeling of being a role model for their children, overcoming feeling of guilt about being away from their children and overcoming the ethic of care; overcoming putting children’s needs first (16, 17).

Working partnered parents and single mothers differ in their experiences of facilitators and barriers to PA in several aspects. Partnered parents report family-related guilt. Partnered mothers even report work related guilt if taking time for PA during the workday and are concerned to be perceived as less committed to their jobs. Working fathers do not report such feelings and are willing to take time for PA during the work day. Working partnered parents report several facilitators to PA; participating in activity with their children or during their children’s activity. As well as having push from their spouse and making time for PA by scheduling with their spouse (16). Limitations of that mentioned study is that it is a small homogeneous sample of participants who are highly educated and partnered. Therefore, these results should not be generalized to parents with lower socio-economic status and single parents (16).

Single mothers report guilt not being with their children and lack of childcare and unwillingness to use childcare for PA (17). The single mothers having MVPA are the mothers reporting having confidence in overcoming barriers to PA and planning PA in daily routine, overcoming ethic of care, meaning overcoming putting their children’s needs first, and that report more social support than single mothers with low PA (17). The single mothers in the mentioned study are often the primary or sole care providers for their children and report a long-term motive of being there for their children as a motivation for PA (17) while working partnered parents report benefits for their health and family as increase energy and reduced stress as motivation for PA (16).

Another study conducted in the USA examines how SCT correlates of PA among single mothers with young children (10) with cross sectional design. The only statistically significant independent predictor of PA scores found in the final model is the ability to plane for PA and not lack of social support. Most of the participants in this mentioned study report low social support. Such results raise questions about lack of support as a barrier to PA for single mothers. The cross-sectional design limits conclusion about directionally of the relationship and the impact of time on those relationships. Furthermore, the participants who volunteered in the study might not have been representative of the general population of single mothers as mentioned by the authors of the study themselves (10).

In the meantime, having a social support, having someone to encourage you to PA, doing PA with you, providing childcare is reported as facilitator to PA from both married parents and single mothers (16,17). Social support and financial stress are important factors on the wellbeing and happiness of single working mothers in Scandinavia. As brought up by Bull
and Mittelmark, the level of the other parent involvement was not assessed in their study and could be an important factor for a single mother well-being (1).

**Literature overview’s references**

8. World Health O. Global recommendations on physical activity for health.

Appendix 2: Interview guide in English.
welcome!
Date: 
Name: 
Interview: [telephone, skype, face to face]

Who are you?
How old are you? Where do you come from?
What do you work with? How much do you work? Full time, part time? How many kids? How old are they? Do you have part time custody or full time custody of your children? How long have you been a single mother? What kind physical activity do you like? What have you done for PA earlier in your life? Nowadays how much PA do you do every week?

Which barriers do you have to do PA at least 150 minutes a week do you experience in your everyday life?

Work
How does your work influence your possibilities to do PA at least 150 minutes a week?
What does healthcare policy at your workplace look like? What are your possibilities to do transport PA to and from your workplace?

How does your social network look like?
How does your social network influence your possibilities to do PA at least 150 minutes a week?
Who encourages you to do PA?
How does your kids PA habits look like?

Economy?
How does your economy influence your possibilities to do PA at least 150 minutes a week?

Places to work out
Which places do you know where you could do PA with your children? What kind of PA?

What facilitate for you to do PA in your everyday life? What would facilitate for you to do at least 150 min PA a week?

Wishes for support to PA
Let say now that you are allowed to wish as big as you want, what would you wish for support to do PA 150 minutes a week?
From your social network? From your employer? From the healthcare system? From society?

Done! Anything you want to add? any questions for me? You are welcome to contact me if you want to add something later. Thank you very much!

Before every interview, I reminded the participant that: “In this interview PA refers to physical activity, at a medium intensity level. WHO is recommending to do at least 150 min a week of PA with a minimum of 10 minutes bouts each time.”