



Gendered Associations of Flexible Work Arrangement and Perceived Flexibility with Work–Life Interference: A Cross-Sectional Mediation Analysis on Office Workers in Sweden

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Abstract

Flexible work arrangements (FWA) may be beneficial for increasing perceived flexibility (i.e. control over when, where and how to work) and reducing interference between work and private-life, but knowledge of gendered patterns of these relationships is sparse. Drawing on gender theory, the aim of this study was to conduct gender-differentiated analyses of the associations between FWA (non-regulated work or flex-time) and work–life interference using perceived flexibility as a mediator. Survey data were collected in 2016 from a sample of 2614 employees in the Swedish Transport Administration (response rate 67%). The sample included 39.6% women and 60.4% men, 71.7% had non-regulated work and 28.3% flex-time. Associations were determined using linear mixed models and mediation analysis. Results indicated a beneficial effect of non-regulated work (referencing flex-time) on work–life interference through an increase in perceived flexibility. The indirect effect of FWA was pronounced and statistically significant in the total sample, as well as in men and women. However, in men, non-regulated work was associated with a statistically significant increase in interference (competitive mediation). Gender did not interact significantly with work arrangement nor with perceived flexibility. In conclusion, the type of FWA can result in different perceptions of flexibility which in turn may affect experiences of work–life interference. Furthermore, it should be acknowledged that both FWAs and flexibility may be experienced differently for men and women regarding interference. Thus, employers seeking to reduce employee interference should consider gender norms and individual needs.

Keywords Women · Men · Mediation · Sustainable work · Flexible work arrangement · Flexibility · Autonomy · Work–life interference

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1 Introduction

Work arrangements that provide employees with flexibility in where, when and how work is performed have increased considerably in recent years (Allvin et al., 2013; Shirin & Michel, 2021). The share of workers with various types of flexible work arrangements (FWAs), such as flex-time and non-regulated working hours (non-regulated work), is high in Sweden compared to many European countries. As many as 84% of the Swedish working population have work arrangements with some dimension of flexibility (Allvin et al., 2013; Eurostat, 2020; Thévenon et al., 2016).

A driving force for the introduction of FWAs is the possibility of balancing conflicting demands from work and family for working men and women (Thévenon et al., 2016). Conflicting demands between work and private-life arise when demands of one role impede an individual's ability to fulfil the demands of another role (Greenhaus & Beutell, 1985). Two distinct facets are often studied in relation to conflicting demands (Allen & Martin, 2017; Eby et al., 2005), either work interferes with private-life (WIL) or vice versa (LIW). FWA can give employees greater flexibility in terms of deciding when, where and how to work, which in turn can ease conflicting demands (Byron, 2005; Chung & Van der Lippe, 2020; Hill et al., 2008; McNall et al., 2010). Meanwhile, some individuals struggle with the need to be available at work which can result in increasing demands, longer work hours, and feelings of being constantly accessible (Hagqvist et al., 2020; Kelliher et al., 2019), and thereby contribute to a more boundless work situation (Allvin et al., 2013; Mellner, 2016) and poor health (Johnson et al., 2020). However, the relationship between different FWAs, flexibility and interference are not established, and gendered patterns have rarely been studied.

Men and women have different preconditions in the labour market and the home sphere. Thus, men's and women's needs and opportunities to exert control over work and home responsibilities might diverge and impact on their requirements to plan their work (Chung & Van der Horst, 2020; Chung & Van der Lippe, 2020). While this likely contributes to different perceptions of flexibility among men and women, it may also impact the possibility of combining work and private-life (Chung & Van der Horst, 2020; Chung & Van der Lippe, 2020; Fahlén, 2014). Gender will therefore have a central role in this study examining the relationship between FWAs, flexibility and interference.

2 Theory and Previous Research

2.1 Flexible Work Arrangements, Flexibility and Interference

Although flexible work is well studied, the concept is rarely defined, and the fact that flexible work can have different meanings is sometimes neglected. For instance, the terms FWA and flexibility are often used interchangeably (Allen et al., 2013). In this study, we examine perceived flexibility and FWAs as two different concepts. Perceived flexibility (hereforth, *flexibility*) refers to workers' perceived control over where, when and how to work (Hill et al., 2008). Flexibility relates to the traditional concept of job control originating from the demand-control model (Karasek Jr, 1979), but emphasizes time and place, which are central aspects for knowledge workers with FWA.

While flexibility concerns perceived control, FWA refers to job-contracts that permit employees some control over when and where they work outside of the standard work-day (Lambert et al., 2008). In this study, two types of FWA are studied. First, flex-time implies that workers have the possibility to organize their daily work hours within a specific time frame with a range of acceptable options (Hill et al., 2008). Employees with flex-time have a bank of hours from which they can “borrow” hours if needed or save hours to use another day. Although flex-time rarely includes the possibility to decide where to work, it gives the employees some flexibility to better manage their private life (Russell et al., 2009). Secondly, non-regulated work refers to working hours that employees are entrusted to organize for themselves on the basis of their work duties. When hours needed to conduct those work-duties exceed 40 h a week, the employees are committed to use that time provided that the employee also has the right to compensate with fewer working hours in periods with decreased workload. This type of FWA can be accompanied with higher demands and more overtime work (Lott & Chung, 2016; Van der Lippe & Lippényi, 2020). Meanwhile, as non-regulated work implies that workers can allocate their personal resources in a way that allows them to meet the responsibilities of their various roles, Shifrin and Michel (2021) argue that they should have less stress.

According to the demand-control model, job control (e.g., the extent to which employees can control the pace of work, decide when and how to perform different work tasks, and be involved in decision making) can buffer against high demands at work and thus decrease the risk of stress (Karasek Jr, 1979; Karasek & Theorell, 1990) and reduce work–life interference (Grönlund, 2007). The two types of FWA at focus in this study provide employees with different levels of flexibility in terms of control over when, where and how to work (Hill et al., 2008) and it is plausible to assume that they also result in different levels of work–life interference (Allen et al., 2013; Januszkiewicz, 2019). However, to the best of our knowledge, this has not been explored earlier.

Studies suggest that it is rather the perceived usability and utilization of FWA than FWA itself that influence individuals’ work–life interference (Allen et al., 2013; Hayman, 2009; Lambert et al., 2008), indicating that there are other factors at play rather than just FWA. Moreover, Allen et al. (2013) found that the strength and direction of the relationship between flexible work and WLI vary across studies in which flexible work has been conceptualized in different ways, not distinguishing between different types of FWA or between FWA and flexibility. Authors suggest that these variations in the conceptualization of flexible work vary in effectiveness to alleviate conflicting demands (Allvin et al., 2013). Some FWAs give individuals more availability to be flexible while others do not, which seem to result in different levels of interference (Allen et al., 2013; Januszkiewicz, 2019). This is further exemplified in the study by Lott (2020), who found that FWAs with different levels of autonomy (i.e. flex-time and working time autonomy) differed in work-to-home spillover. Lott (2020) showed that working time autonomy related to increased cognitive work-to-home spillover while flex-time did not. Furthermore, studies showed that perceived control over work time mediate the relationship between the flexible schedules and work–life interface (Albrecht et al., 2016; Thomas & Ganster, 1995).

In summary, the evidence from the aforementioned studies suggests that (a) type of FWAs is important for the level of work–life interference; (b) type of FWA can give workers different levels of flexibility; and (c) the level of flexibility has an impact on the level of interference. Thus, we propose that flexibility acts as a mediator between FWA and interference (WIL and LIW).

2.2 Gender, Flexible Work Arrangement, Flexibility and Interference

When studying FWA, flexibility and interference, it is essential to put forward the different preconditions men and women have to combine work and private-life (Acker, 2006; Connell, 2002; Dearing, 2016; Hagqvist, 2016; Williams et al., 2016). Theoretically, it has been proposed that the organization of work and private-life is a gendered process in which men and women produce and reproduce gender norms (Connell, 2002, 2012; West & Zimmerman, 1987). Related to the concept of gender norms is gender relations, referring to the power relations where men as a group have more power in society than women, which is also reflected within families (Connell, 2002). Within the work sphere, gender norms and gender relations have implications for both vertical and horizontal segregation and inequalities. For instance, men and women cluster in different industries (Cerdas et al., 2019) and women are more often represented in industries with less flexibility (Allvin et al., 2013). More men than women have a managing position (Statistics Sweden, 2020), and men, in general, more often have work arrangements that include some dimension of flexibility (Allvin et al., 2013; The Swedish Work Environment Authority, 2018). In the home sphere, women more often have the main responsibility over housework, child care and care of older relatives (Hagqvist, 2018). Thus, in relation to the focus of this article, gender cultural norms are central for FWAs, perceived flexibility and for interference between work and private-life (Allvin et al., 2013; Chung & Van der Lippe, 2020; Hagqvist et al., 2017a).

Studies indicate that FWAs can have different meanings for men and women in relation to interference (Chung & Van der Horst, 2020; Chung & Van der Lippe, 2020; Fahlén, 2014). For instance, women more often use FWA to better combine work and private-life, while men tend to use FWA to increase their work engagement (Hofäcker & König, 2013). Moreover, women may need higher levels of control to reduce the level of interference (Grönlund, 2007). One study shows that for the working population with more family responsibilities, flexible working hours are rather a necessity than an extra benefit (Galea et al., 2014). In the article by Chung and van der Lippe (2020) they argue that FWAs can be more beneficial for women while at the same time reinforcing gender cultural norms. Meanwhile, among fathers FWA enable them to be more involved in parental activities, such as leaving and picking up children from childcare (Chung & van der Lippe, 2020; Hofäcker & König, 2013). Lott (2020) showed that flex-time was more beneficial for women than men and that FWA, more similar to our definition of non-regulated work, contributed to work-to-home spillover, but only for men. On the other hand, non-regulated work tends to be more beneficial for men as it tends to reward men financially (Lott & Chung, 2016).

Research is unambiguous to the fact that gender differences exist in perceived interference (Fahlén, 2014; Hagqvist et al., 2017a). However, some studies show that men experience higher levels of WIL than women (Fahlén, 2014; Hofäcker & König, 2013). Other studies have found that women report higher levels of WIL than men (Lunau et al., 2014). For women, unsocial working hours, no flex-time (Fahlén, 2014), and long work hours (McGinnity & Calvert, 2009) have a greater impact on levels of WIL than for men. These are factors that can be regulated through various FWAs.

In summary, although studies have explored the relationship between flexible work (including both FWA and flexibility or one of them) and the two dimensions of work-life interference no consensus exists as to whether flexible work is beneficial or not (Chung & Van der Lippe, 2020; Russell et al., 2009; Thilagavathy & Geetha, 2020).

One reason for this can, as we have argued, be that studies have not taken into consideration that men and women might value different FWAs to be beneficial to reduce interference, nor that they can perceive flexibility in different ways (Chung & Van der Lippe, 2020; Van der Lippe & Lippényi, 2020). In this study, we seek to address these shortcomings.

The overall aim is to explore the association between FWA (non-regulated work or flex-time), perceived flexibility (i.e. control over where, when and how to work) and interference between work and private-life (WIL and LIW) for men and women. Specifically, we investigate three research questions:

1. To what extent are FWAs (non-regulated work or flex-time) and flexibility, respectively, associated with two dimensions of interference (WIL and LIW) among women and men??
2. To what extent does gender moderate the relationships of type of FWA and flexibility with interference?
3. To what extent does perceived flexibility mediate the association between type of FWA and interference among men and women?

3 Method

Organizational culture has been shown to influence to what extent employees can make use of flexibility (ten Brummelhuis & Van Der Lippe, 2010). In an attempt to harmonize context, this study set place in a large governmental organization in Sweden. Thus, survey data collected in 2016 were analyzed from a cross-sectional sample in the Swedish Transport Administration (Bjårntoft et al., 2020). Employees participating in this study have the same corporate regulations and ideology to relate to and the same access to the social security system and childcare support. Furthermore, the organization has a large number of employees with two types of FWAs (flex-time and non-regulated work) and is expected to be fairly representative of other Swedish public organizations with knowledge-based work.

All employees and managers with a work contract allowing FWAs in the Swedish Transport Administration were asked to participate. Of the 4900 employees and managers with FWAs, 3259 responded to the questionnaire (response rate 66.5%). Because only 90 individuals answered not being a man or a woman, they were excluded. Only those younger than 70 years were included. Part-time work can be used as a strategy to reduce work-life interference. Therefore, only those who reported working full-time were included. Among those excluded due to part-time work, the share between men and women was fairly equal with a small excess of women. The sample included in the current study reached 2614, of which 39.6% were women and 60.4% were men, 71.7% had non-regulated work, and 28.3% had flex-time (Table 1). The study was approved by the Regional Ethical Review Board in Uppsala (Dnr 2016/085), and all participants provided informed consent to participate in the study.

3.1 Measurements

Our outcome measures *interference between work and private-life*, were constructed based on five items inspired by different sources (Hanson, 2004; Westerlund et al., 2014). A principal factor analysis was conducted to obtain two indices representing

Table 1 Characteristics of the sample stratified by work arrangement and gender

	Non-regu- lated work (N = 1920)	Flex-time (N = 768)	<i>p</i> value	Women (N = 1036)	Men (N = 1578)	<i>p</i> value
Total (%)	71.7	28.3				
Gender ^a						
Women (%)	40.6	39.5	0.738			
Men (%)	59.4	60.5				
WIL ^a (0–4)	1.57 (0.98)	1.52 (1.00)	0.276	1.68	1.47	<0.001
LIW ^a (0–4)	0.81 (0.88)	0.75 (0.84)	0.074	0.80	0.78	0.466
Flexibility ^a (0–4)	2.93 (0.84)	2.09 (0.83)	<0.001	2.69	2.69	0.965
Position (%)			<0.001			0.048
Manager	28.5	6.0		20.9	24.2	
Employee	71.5	94.0		79.1	75.8	
Children (%)			<0.001			0.160
Fulltime	46.7	39.3		48.6	45.6	
Parttime	8.3	7.3		8.7	7.9	
No children	44.9	53.4		42.7	46.5	
Relationship (%)			<0.001			0.964
Partner	88.4	81.6		87.1	87.2	
Single	11.6	18.4		12.9	12.8	
Age ^a (years)	52.7 (8.2)	52.1 (8.2)	0.228	54.0	51.5	<0.001
Education (%)			<0.001			<0.001
Compulsary	22.7	44.8		25.4	33.4	
High school	5.8	12.7		5.4	9.8	
University	71.5	42.5		69.2	56.9	

N = 2732

WIL work-interfering-life, LIW life-interfering-work

^aMean with standard deviation in brackets

WIL and LIW, respectively. The model with significantly best fit included all five items (KMO = 0.68; $X^2(10) = 5166.200$) and resulted in a 2-factor solution with an eigenvalue over Kaiser's criteria of 1. The two factors representing the two directions of interference explained 65.9% of the variance. The first factor represents work interfering private-life (WIL; eigen value = 2.68) and includes three items. Respondents were asked whether their work time affected private-life in a negative way; whether their work took so much energy that it affected private-life in a negative way; and whether work time limits their possibilities to do housework. The 5-point response scale ranged from 0 to 4. The second factor represents private-life interfering with work (LIW; eigen value = 1.27) and includes two items. Respondents were asked whether they felt that private-life limited possibilities to work; and whether private-life prevented them from focusing on work and career. The 5-point response scale ranged from 0 to 4. The items showed good internal consistency both for WIL (Cronbach alpha = 0.82) and LIW (Cronbach alpha = 0.83). Indices of WIL and LIW were constructed as a mean of the items for each index, respectively. A higher number indicates more interference.

Exposure variables are FWA, flexibility and gender. The type of *work arrangement* was measured by a single question ‘what type of work arrangement do you have?’. Respondents could answer either (1) flex-time work arrangement (flex-time), which allows the employee to be flexible with when to start and stop working or (2) non-regulated work arrangement (non-regulated work), referring to working hours that an employee may, according to the agreement, decide how and where to use. *Flexibility* was measured using four items (Allvin et al., 2013; Kossek et al., 2012). Respondents were asked if they can decide over (a) what hours to work a certain day; (b) when to do different work tasks; (c) how work is structured; and (d) where to work. Respondents answered on a 5-point Likert scale ranging from 0 to 4. The four items showed a high consistency (Cronbach alpha=0.79). The flexibility index was constructed of the mean of each item with a higher number representing more flexibility. *Gender* was measured using the question “are you a man or a woman” with three alternatives (man, woman, do not want to categorize).

We selected various individual and family characteristics as covariates based on the literature on associations between gender, FWA, flexibility and interference (Hill et al., 2008). The following variables were included: education, children living at home (full-time, halftime or no children), having a partner, age and lastly, whether the respondent had a management position. Education was divided according to Swedish school system into compulsory (finished grade 9), high school (finished grade 12), and University (attended university).

3.2 Statistical Analysis

Statistical analyses were performed in three steps outlined below. IBM SPSS Statistics version 25 (IBM, US) was used for all analyses. SPSS Hayes Process macro 3.5 was used to test the mediation effect in the third step.

In a first step, data were described using means and standard deviation (SD) and percentages. Differences between genders (men vs women) and FWA (non-regulated work vs. flex-time) were tested using Student t-test and χ^2 for continuous and categorical variables, respectively.

Linear mixed models (LMM) were used to obtain estimates of the associations of FWA, flexibility and gender with WIL and LIW, respectively. Two models were constructed, where Model 1 included exposure variables (i.e. FWA, flexibility, and gender), and Model 2 additionally included covariates (i.e. management position, having a partner, having children, education and age). In addition, Model 2 was run separately in men and women. Reference categories were flex-time, men, employees, having no children at home, and university education.

Secondly, we investigated the moderating effect of gender for the relationship between type of FWA and flexibility, respectively, and interference (WIL and LIW in separate models) by adding 2-way interactions. All models investigating the moderating effect were adjusted for covariates. In Model 1, the interaction effect of gender*FWA is shown and presented for women with non-regulated work (referencing flex-time). Model 2 shows the interaction term for gender*flexibility presenting results for women in relation to men.

Last, analyses to test if the relationship between FWAs and WIL and LIW, respectively, is mediated by flexibility were conducted using procedures described by Preacher and Hayes (2004) applied using the SPSS Hayes Process macro 3.5 for a simple mediating model (SMM) 4 with 95% confidence interval (CI) and 10,000 bootstrap sample (Hayes, 2009). Gender-specific mediation analyses were also conducted. However, because the

SMM showed no significant results for LIW, the results are presented in the supplementary material. The SSM was performed, including all covariates.

Mediation was assessed using the typology of mediation presented by Zhao et al. (2010), building on the methodological discussions in MacKinnon et al. (2000) and Preacher and Hayes (2004) stating that:

- Complementary mediation exists when the indirect effect (path a * path b) and direct effect (path c) both exist and point in the same direction.
- Competitive mediation exists when the indirect effect (path a * path b) and direct effect (path c) both exist and point in opposite directions.
- Indirect effect-only exists when the indirect effect exists without the existence of a direct effect.

4 Results

Descriptive statistics for type of FWAs (non-regulated work and flex-time) showed no significant differences in the level of interference (Table 1). Those with non-regulated work perceived significantly more flexibility than those with flex-time. Results showed that those with non-regulated work more often were managers, less often had children living in the household or were single and had a university degree than those with flex-time. Turning to gender, compared with men, women experienced significantly higher levels of WIL, were somewhat older, less often reported having a management position, and more often had a university degree. Men and women did not differ in the proportion of the type of work arrangements nor flexibility and level of LIW.

Table 2 Linear mixed models with work–life interference (WIL) as the outcome

	Model 1		Model 2		Women		Men	
	Est	SE	Est	SE	Est	SE	Est	SE
Intercept	1.84*	0.06	1.47*	0.16	1.82*	0.27	1.43*	0.20
Non-regulated work (ref. flex-time)	0.20*	0.05	0.10*	0.05	- 0.07	0.08	0.20*	0.06
Flexibility	- 0.19*	0.02	- 0.21*	0.02	- 0.16*	0.03	- 0.24*	0.03
Women (ref. men)	0.22*	0.04	0.17*	0.04				
Manager (ref. employee)			0.11*	0.05	0.09	0.08	0.12*	0.06
Having a partner (ref. single)			0.15*	0.06	0.26*	0.10	0.08	0.08
Children (ref. no children)								
Parttime			0.19*	0.07	0.33*	0.12	0.14	0.10
Fulltime			0.08	0.05	0.20*	0.08	0.02	0.06
Education (ref. university)								
Compulsory			- 0.18*	0.05	- 0.35*	0.08	- 0.10	0.05
High school			- 0.25*	0.07	- 0.60*	0.14	- 0.10	0.09
- 2LL		7049.9		6818.5		2754.8		4032.8

Model 2 and the gender specific models are additionally controlled for by age

*Statistical significance ($p = < 0.05$)

Table 3 Linear mixed models with life-work interference (LIW) as outcome

	Model 1		Model 2		Women		Men	
	Est	SE	Est	SE	Est	SE	Est	SE
Intercept	0.78*	0.05	- 0.17	0.13	- 0.23	0.22	- 0.16	0.17
Non-regulated work (ref. flex-time)	- 0.08*	0.04	0.01	0.04	0.07	0.07	- 0.04	0.05
Flexibility	- 0.02	0.02	- 0.04*	0.02	- 0.04	0.03	- 0.04	0.02
Women (ref. men)	0.02	0.04	- 0.07*	0.03				
Manager (ref. employee)			- 0.04	0.04	- 0.12	0.07	- 0.00	0.05
Having a partner (ref. single)			0.07	0.05	0.11	0.08	0.04	0.06
Children (ref. no children)								
Part time			0.47*	0.06	0.59*	0.10	0.40*	0.08
Full time			0.45*	0.04	0.57*	0.06	0.38*	0.05
Education (ref. university)								
Compulsory			- 0.17*	0.04	- 0.15*	0.06	- 0.19*	0.05
High school			- 0.26*	0.06	- 0.40*	0.12	- 0.22*	0.07
- 2LL		6557.3		5993.2		2401.1		3577.1

Model 2 and the gender specific models are additionally controlled for by age

*Statistical significance ($p < 0.05$)

Tables 2 and 3 present the results in line with the first research question: To what extent are FWAs (non-regulated work or flex-time) and flexibility, respectively, associated with two dimensions of interference (WIL and LIW) among women and men?. Starting with WIL, Model 1 in Table 2 shows that those with non-regulated work reported significantly higher levels of interference than those with flex-time (0.20 units). Furthermore, there was a significant negative relationship between flexibility and interference. For each unit increase in flexibility, WIL decreased by 0.19 units. In Model 2, with adjustment for covariates (manager, having a partner, children, education and age) results showed that the estimated associations between flexibility and WIL remained similar as in Model 1. However, the estimate of FWAs became smaller, although remaining significant.

The gender-specific analyses showed a non-significant negative association between non-regulated work and WIL among women but a significant positive association among men. A significant negative association between flexibility and WIL was found both in women and men, although slightly stronger among men. That is, one unit increase in flexibility was associated with a reduction in WIL by 0.24 units for men and 0.16 for women.

Continuing to LIW results from Table 3 Model 1 showed a marginal negative association between non-regulated work and LIW. Thus, those with non-regulated work reported somewhat lower LIW, than those with flex-time. The negative relationship between flexibility and LIW was non-significant. Gender was non-significant. In Model 2, while non-regulated work became non-significant with adjustments for the covariates, flexibility and gender became significant, although estimates for the two variables were rather small. In the gender-specific analysis, none of the exposure variables was significant.

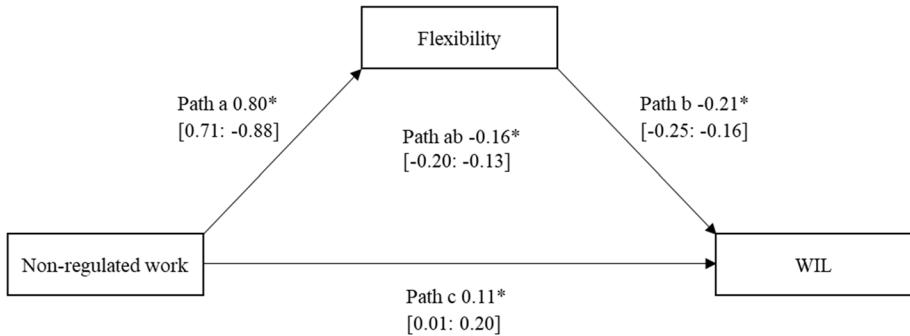


Fig. 1 The mediating effect of flexibility for the relationship between flexible work arrangement (i.e. non-regulated working hours, referencing flex-time) and WIL for the full sample ($n=2614$). Unstandardized path coefficients marked with an asterisk identify 95% bootstrap CI. Model is controlled for by gender, age, manager, children, partner, age and education

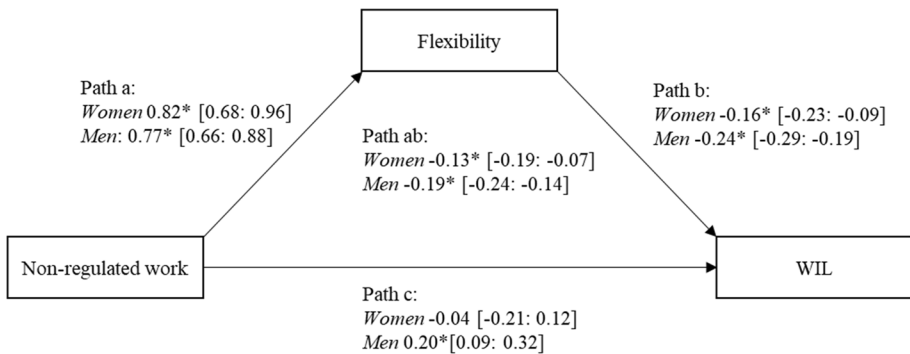


Fig. 2 The mediating effect of perceived flexibility for the relationship between flexible work arrangement (i.e. non-regulated work, referencing flex-time) and work-life interference (WIL). Unstandardized path coefficients with 95% confidence intervals and *denoting a statistically significant effect ($p < 0.05$). Models are controlled for by age, manager position, children, partner, age and education

4.1 Moderating Effect of Gender

The results of the second research question, to what extent does gender moderate the relationship between the type of FWA and flexibility with interference, are presented in the supplementary material. Results showed no significant interaction effect of gender and flexibility on WIL (Estimate = 0.09 and $p = 0.133$) and LIW (Estimate = -0.02 and $p = 0.631$) respectively. Neither was there a significant interaction effect of gender and FWA on WIL (Estimate = 0.09 and $p = 0.296$) and LIW (Estimate = 0.12 and $p = 0.112$) respectively.

4.2 Mediating Effect of Flexibility

Focusing on the third research question, to what extent is the association between type of FWA and interference (WIL) mediated by flexibility in men and women? Figures 1 and 2

show the mediation of flexibility for the relationship between work arrangements and WIL. Figure 1 shows the results using the total sample, while Fig. 2 shows the results for men and women separately.

Figure 1 shows a significant and negative indirect effect of flexibility (path ab). Non-regulated work was significantly and positively related to flexibility (path a), and flexibility was significantly and negatively related to WIL (path b). The direct effect of non-regulated work on WIL (path c) was significant and positive. This is what Zhao et al. (2010) refer to as competitive mediation. Thus, a mediation effect exists, however, there is also another mediator affecting the relationship between FWA and WIL.

In the gender-specific analysis (Fig. 2), the result for men showed a similar pattern as the result for the full sample. The result for men showed that all three pathways (path a, b and c) were significant, the direct effect (path c) is positive and a significant and negative indirect effect (path ab). The condition for competitive mediation was thus met (Zhao et al., 2010).

Women on the other hand, differed somewhat from the result of men as well as the results of the total sample (Fig. 2). In women, the direct effect between non-regulated work and WIL (path c) was negative and non-significant. The indirect effect (path ab) was significant and negative. The mediation model for women meets the conditions of an indirect-only effect (Zhao et al., 2010), which means that no direct effect exists when flexibility is included. In fact, the ratio between indirect and total effect indicates that 89% of the effect between work arrangements and WIL is an indirect effect of flexibility.

5 Discussion

This study extends the existing literature by giving greater nuance to the statement that flexibility at work can reduce interference (Allen et al., 2013; Hayman, 2009). Based on the research questions proposed, we add to existing knowledge in three main areas: (I) we compared two commonly used FWAs (non-regulated work and flex-time) as well as perceived flexibility in relation to two directions of interference (WIL and LIW); (II) we focused on the mediating effect of flexibility for the relationship between FWAs and WIL; and (III) and most importantly we explored the role of gender in the relationship between type of FWA and interference as well as in the mediating effect of flexibility. These three areas will be further discussed below.

5.1 Associations Between Different Types of FWAs and Flexibility, Respectively, with Interference

Although no significant difference in the level of LIW and WIL, respectively, was observed across the two types of FWAs in the descriptive analysis, interesting results emerged in the regression model, including FWA, flexibility and gender as predictors. Our results suggest that those with non-regulated work reported significantly higher levels of WIL compared to those with flex-time, which supports the results of Lott (2020). This result is in contrast to the observed association between higher flexibility and lower WIL since flexibility was higher in those with non-regulated work. Hence, our result suggests that while non-regulated work is beneficial to flexibility, it may still have a negative impact on WIL. The significant result between working time autonomy and WIL shown by Lott (2020) became non-significant when adjusted for overtime hours. This suggests that the relationship was

due to the high number of work hours among those with working time autonomy (Lott, 2020). Thus, it seems that having complete control over the work hours with no regulations is related to WIL because of the overtime hours needed. This could also be the case in our study which could give support to previous arguments that too much flexibility in terms of control over when, where and how to work may increase WIL (Björntoft et al., 2020; Hagqvist et al., 2020; Kelliher & Anderson, 2010; Kelliher et al., 2019). It is in line with Grönlund (2007) who found that job control had a marginal beneficial effect on WIL, while job demands significantly hampered the possibility of balancing work and private-life. However, more studies are needed to explore the role of job demands, such as long work hours, in the relationship between non-regulated work, flexibility and WIL. We found that some of the effects of non-regulated work on WIL were explained by the selected covariates (i.e. age, manager, having a partner and education). However, the estimate from the adjusted model was still statistically significant, suggesting that other factors also play a role.

For individuals' experience of LIW, FWAs and flexibility were of minor importance. Our study confirmed previous results that perceived flexibility tends to reduce the perception of WIL but had no relationship with LIW (Allen et al., 2013; Januszkiewicz, 2019).

5.2 Mediating Effect of Flexibility

To the best of our knowledge, no previous study has explored the mediating effect of flexibility on the relationship between FWA and WIL. The mediation models showed significant indirect effects of FWA on WIL, indicating that flexibility can be considered a mediator. For the full sample, our models showed that those with non-regulated work reported more flexibility which in turn was associated with reduced WIL. Thus, non-regulated work seems to be beneficial for reducing interference as long as it leads to more flexibility. On the other hand, the significant positive direct effect of non-regulated work on WIL suggests that this FWA also can lead to more interference for some employees. These inconsistent pathways resulting in different effects on WIL are referred to as competitive mediation and indicate that other mediators influence this relationship (Zhao et al., 2010).

5.3 Men and Women and Their Flexible Work Arrangements, Flexibility and Interference

Overall, our results add to previous research by showing that it is important to take gender into consideration when studying FWAs, flexibility and interference, especially for WIL. These results give emphasis to the arguments presented by Williams et al. (2016). Guided by gender theory, male and female roles in work and home are coloured by gender norms and gender relations (Connell, 2002; West & Zimmerman, 1987) which seem to impact FWAs, flexibility and interference for men and women differently.

First, when addressing the relationships between FWA, flexibility and WIL, our results showed no significant moderating effect of gender. However, in gender-stratified models, we found that FWAs only related directly to men's experiences of WIL and not women's experiences of WIL. Thus, although we found evidence that differences in estimates exist, they are small and uncertain. A similar pattern was found in the study by Lott (2020). Reasons for this can be several, for instance, the distribution of men and women differs across different types of FWA, which is demonstrated in this study as well as the study of Lott (2020). Another reason is that non-regulated work is more often found among workers in

management positions which are more represented by men than women. When gender is only included as a moderator, the analytical model does not fully acknowledge gendered norms in the studied phenomenon, i.e., work hours, management positions, and responsibilities at home. Thus, men and women have different prerequisites in work and life, which is not fully taken into consideration when gender is only used as a moderator (Giritli Nygren & Olofsson, 2014).

Non-regulated work seems to increase the perception of WIL in men but not in women. This agrees with findings by Lott (2020), who showed that men and not women with non-regulated work reported higher levels of WIL. The fact that we identified no independent relationship between women's FWA and WIL seems to be explained by the pronounced indirect effect through perceived flexibility, as further discussed below.

Secondly, in the stratified mediation models, gender differences were more pronounced. Whereas the competitive mediation effect was only observed in men, women showed an indirect-only effect (Hayes, 2009; Zhao et al., 2010). In fact, as much as 89% of the relation between FWA and WIL is accounted for by flexibility in women. Thus, having non-regulated work seems beneficial for increasing flexibility and reducing interference in women. Future studies should look for omitted mediating factors between FWA and WIL for men.

For women who often have to combine a full-time job with the main responsibility over home and family (Hagqvist et al., 2017b; van der Lippe et al., 2011) flexibility is of more importance than that type of FWA. It has previously been suggested that flexibility is more important for reducing women's level of interference than men's (Fahlén, 2014), which our study confirms. In similarity to Hayman (2009), this study shows that FWA in itself does not explain variance in interference among women. Moreover, a gender pattern is emphasized by the fact that having children at home as well as a partner increased women's level of interference but not men's level of interference. This parental and partner effect on interference for women with different FWAs has been shown in previous studies (Allen et al., 2013; Lott, 2020). Allen et al. (2013) argue that studies need to differentiate between the availability of FWA and being able to use FWA, which seems to be more valid for women than men. Thus, for women, any policies directed towards reducing women's WIL should focus on their perceived flexibility rather than FWA.

For men, who in general report working more and longer hours than women (Hagqvist et al., 2019) and often have higher normative pressure to work long hours (Connell & Messerschmidt, 2005; Thébaud, 2010), non-regulated work might add to perceived demands and normative pressure of working long hours and therefore cause more WIL, as indicated by the direct effect of FWA on WIL (Fig. 2, men). Bjärntoft et al. (2020) showed that over-commitment reduced work-life balance for men and women. Non-regulated work often implies that the employee should be available to work outside office hours and other studies indicate that non-regulated work relates to longer working hours (Chung & Van der Horst, 2020). This is a very similar situation as being self-employed, who describe this need to be available as "always on" referring to the fact that attention must be at work all the time (Hagqvist et al., 2020; Hilbrecht & Lero, 2014). Our study shows that non-regulated work gave male employees more flexibility than flex-time. A similar pattern was found for the self-employed that experienced being "always on" who also said they experienced high autonomy and control. In addition, for men working long hours also means fewer possibilities to participate in childcare and home duties, which for men with a quest to have a gender equal relationship can cause unease (Harryson et al., 2012, 2016). In future studies, working hours, work demands, work flexibility and attitudes to family responsibilities should be investigated as possible mediators between FWA and WIL for men.

All in all, this study suggested that not all employees benefit from flexibility at work in the same way. This conclusion is supported by Wöhrmann et al. (2020), who showed that individual-focused working time flexibility is related to more balance between work and home compared with organizational-focused working time flexibility. Employers and policymakers should aim at individualizing FWAs to improve perceived flexibility and minimize the possible negative effects of FWAs on WIL. In this study, we show that having children or a partner, as well as work positions and educational level, can be important individual factors that can influence men's and women's need to be flexible and have FWAs. In future research, the individual differences should be further investigated. Furthermore, we recommend that future studies in this field clearly define and distinguish between FWAs and perceived flexibility to facilitate interpretation and enable meta-analyses.

5.4 Methodological Discussion

The present study builds on a large sample of men and women with flexible work arrangements and a high response rate (66.5%). Data were gathered in one large governmental organization, which can be a strength as organizational culture and support for FWA are fairly equal (Lambert et al., 2008).

The strengths of this study and its contribution to the field of gender studies are that this study includes gender in various ways and, as such, acknowledges that gender norms factors are studied in different ways (Connell, 2012). Furthermore, in difference from previous research, this study acknowledges various aspects of flexible work in differentiating between flexible work arrangements and flexibility (Allen et al., 2013).

The cross-sectional design is a limitation precluding causal inferences. Thus, it is possible that the level of WIL resulted in changes in FWAs and flexibility, which needs to be addressed in future studies using a prospective design. Still, the finding of a negative association between flexibility and WIL is consistent with a previous prospective study on 26,000 employees in Sweden (Albrecht et al., 2016).

The scientific literature on the methodological development of mediation modelling is inconsistent with what conditions need to be met in order to draw a conclusion that a mediation effect exists (O'Rourke & MacKinnon, 2018). Some argue that indirect effect is the same as mediating effects, while others oppose that statement arguing that there are different types of mediating effects (MacKinnon et al., 2000; Preacher & Hayes, 2004). In this study, we have applied the second approach.

6 Conclusion

Our main conclusions are that in studies of flexible work and interference, scholars need to consider that there exist different types of FWAs which are not interchangeable. Type of FWA can result in different perceptions of flexibility which in turn may affect experiences of work–life interference. Specifically, offering non-regulated work arrangements may be beneficial for increasing flexibility and thereby reducing work–life interference in women and men. Furthermore, it should be acknowledged that both FWA and flexibility may be perceived differently for men and women with regard to perceived interference. Thus, employers seeking to reduce employee work–life interference should consider gender norms and individual needs.

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Declarations

Conflict of interest Authors declare no conflict of interest.

Ethics Approval The study was approved by the Regional Ethical Review Board in Uppsala (Dnr 2016/085) and all participants provided an informed consent to participate in the study.

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