# Managerial stress: The role of gender

Master's Thesis

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# Abstract

Although a lot of research has been conducted to explore gender differences in leadership behavior and its impact on followers, less attention has been spent on how women and men experience their leadership position. The aim of this study is to comprehend the difference in stress levels experienced by men and women in leadership roles. Based on previous literature, I hypothesize that women leaders experience more stress than men (Hypothesis 1) and that women leaders working in male-dominated industries experience the highest stress levels (Hypothesis 2).

The data used in this study are from the eighth edition of the 2014 Swiss Human Relations Barometer, which received responses from 470 managers, 34% of whom were women.

Surprisingly, the results indicate that (a) women report lower levels of stress than men and (b) the gender balance in the industry does not seem to influence the relationship between gender and stress.

The study emphasizes the importance of discussing stress-related disorders and searching for strategies to reduce stress in the workplace. Moreover, the findings raise questions about the current validity of prior studies that have found that women are more susceptible to stress-related disorders than men.



**Keywords:** *gender differences, female leadership, stress, managerial position, sex*

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# List of Abbreviations

| | |
|---|---|
| CEHRM | Center for Human Resource Management |
| UNILU | University of Lucerne |
| ILO | International Labour Organization |
| DCS | Demand, control, and support |
| ETH | Swiss Federal Institute of Technology in Zürich |
| $R^2$ | Coefficient of determination |
| SD | Standard Deviation |
| 1st Qu. | 1st quartile |
| 3rd Qu. | 3rd quartile |
| N | Number of observations |
| p | p-wert |
| HSE | Health and Safety Executive |

# 1. Introduction

Johansen (2012) characterizes the current business environment as VUCA - vulnerability, uncertainty, complexity, and ambiguity - reflecting the challenges that leaders face today.
Lochmann and Steger (2002) identify new sources of pressure on companies, including technological advancements, global markets with new competitors, investor demands for higher financial targets, and increasingly demanding customers. In recent decades, globalization has brought companies into an international market with a dense network of competitors from all over the world, spanning all activities of the value chain. The liberalization of markets has increased competition, while the internet has facilitated faster exchange of information and capital flows. Managers are under increasing pressure to bring new products and technologies to market more quickly and to remain profitable in new markets (Venkatesh & Davis, 2000). Moreover, the expansion of roles in "flattened" organizational structures has resulted in managers being exposed to rapidly changing responsibilities (Rees, 1997).
As a result of all these changes in working conditions, there has been a significant increase in workplace stress (Lochmann & Steger, 2002).

The Swiss Human Relations Barometer (2014) paints a worrying picture with regard to stress, revealing that 27% percent of employees reported feeling often or almost always stressed in the three months prior to data collection, while a third reported feeling stressed sometimes (Doden, Morf, Arnold, Feierabend & Staffelback, 2014). The annual employee survey conducted by Travail Suisse reported an even worse situation, with 44% of Swiss employees stating that they were often or very often stressed at work in 2021 (Kettner, 2022). The “Job Stress Index”, published by Health Promotion Switzerland, has confirmed that stress levels at work continue to rise. In fact, the level of stress at work increased from 25.4% in 2016 to 27.1% in 2017, and almost 30% of respondents reported feeling emotionally exhausted (Misicka, 2018).
The job of a manager, in particular, comes with a lot of responsibility, deadlines to meet, and goals to achieve, which can make it vulnerable to high levels of stress (Burke & Richardson, 2004). In 2021, between 33% and 35% of managers reported feeling exhausted "very often or always" (Gallup, 2021). A study by researchers at Portland State University and the University of Zurich describes the transition from employee to manager role as "a double-edged sword". Charlotte Fritz, the co-author of the study, says that while the increased authority and freedom that come with a managerial role can lead to increased job satisfaction, the downside is that having to juggle a heavier workload often means having to work longer hours, which can result

in higher levels of fatigue and more conflict between work and family (Debus, Fritz & Philipp, 2019).
The trend of increasing stress is accompanied by increased sensitivity and awareness of mental well-being (Glicksman, 2023). More managers are recognizing the importance of mental well-being and are reluctant to give it up. According to a survey of 2,100 respondents conducted by Deloitte and Workplace Intelligence, 81% of executives believe that improving their well-being is now more important than advancing in their career, and a large majority of senior executives are seriously considering leaving their current position for one that better supports their well-being (Hatfield, Fisher & Silverglate, 2022). In addition, a study by Hänngi and Villa (2019) found that 76% of Swiss people claim that having a good work-life balance is now more important than a successful career.

Stress is a threat to health and is directly or indirectly linked to most of the top 10 causes of death (Michael, Anastasios, Helen, Catherine & Christine, 2009). Chronic exposure to stressful work situations is associated with various health effects for workers, including depression, anxiety, mental fatigue, immunodeficiency disorders, and cardiovascular disease (Michael et al., 2009). Additionally, stressful working conditions can indirectly impact employees' well-being by encouraging negative health behaviors like smoking and alcohol consumption (Noblet & LaMontagne, 2006). From an organizational perspective, a survey of 28,000 employees in 215 organizations in the United States linked occupational stress to poor job performance (Michael et al., 2009). According to the International Labour Organization (ILO, 2016), occupational stress can lead to poor job performance, high rates of accidents and injuries, and low productivity. Additionally, stress is costly to organizations as it leads to costly voluntary turnover and absenteeism (Villanueva & Djurkovic, 2009; Griffin & Clarke, 2011). Health Promotion Switzerland calculates that work-related stress causes a loss of productivity of around CHF 6.5 billion per year, which corresponds to around 1% of Switzerland’s gross domestic product (Misicka, 2018). Poor managerial health, in particular, can threaten the effectiveness of the entire organization and affect the well-being of employees (Little, Simmons & Nelson, 2007).
For all of these reasons, it is important to investigate the factors that influence managers ‘health (Gadinger et al., 2009).

According to the cognitive approach, stress can be caused by a variety of factors related to both the work environment and individual characteristics (Tran et al., 2020). Work environment variables such as poor lighting, unstable working hours, night shifts, work overload, monotony,

role conflict, role ambiguity, and lack of supportive colleagues have been associated with increased stress (Michael et al., 2009). Individual characteristics such as introversion, gender, level of education, and age have also been linked to stress. Age, socioeconomic status, and educational background have been found to be negatively related to stress, with the older individual experiencing less stress and those with lower levels of education and socioeconomic status experiencing higher levels of stress (Michael et al., 2009). Less clear, however, is the relationship between stress and gender. Different studies have reported conflicting and inconclusive results. Some studies have found no significant gender differences in levels of stress (Michael et al., 2009; Plaisier et al., 2007), while others report significant gender differences. Some of these show that stress levels are higher in men than in women (Cooper et al., 1989; Rosen et al., 1999). However, most studies claim that women experience more stress than men (Doyle & Hind, 1998; Matud, 2004; McDonough & Walters, 2001; Osorio et al., 2003; Pines & Zaidman, 2003; Tytherleigh et al., 2007; Ryland & Greenfeld, 2011; Herrero et al., 2012).
This study uses data from the Swiss Human Relations Barometer to examine the levels of stress reported by Swiss managers, with a specific focus on the potential differences in stress levels between men and women in leadership positions.
The research questions of this study are: (1) Are there significant gender differences in occupational stress? And (2) Does the relationship between gender and occupational stress vary by industry type?
The first hypothesis is that women managers will generally report higher levels of occupational stress than men (H1); the second hypothesis is that women managers working in typically male-dominated industries[i] will report the highest levels of stress (H2).

Since 2010, there have been few new studies that investigated the relationship between gender and stress, despite important changes for women in the workplace. The number of women in leadership roles is growing, which serves as a model for younger women and as an indicator of women's progress toward gender equality (Burke & Richardsen, 2004). Although women have gained greater access to supervisory and middle management positions in recent years, they remain severely under-represented at all levels of management (Fielden & Cooper, 2001; Eagly & Karau, 2002). There is a large gap between the number of women in the workforce and the number of women in top management (Burke & Richardsen, 2004). In the United States,

[i] Male-dominated occupations are those in which women make up 25% or less of the total workforce (Catalyst, 2021).

women make up 46% of the labor force, yet hold only 4% of CEO positions and 16% of directorships in Fortune 500 companies. Globally, only 24% of women hold leadership positions (Hoobler, Masterson, Nkomo & Michel, 2018). Similarly, other developed and emerging economies have low proportions of women in most senior positions (Eagly & Karau, 2002). This group of women can experience increased stress and frustration due to the relative lack of progress (Burke & Richardsen, 2004).

Several studies suggest that women are held back by role biases and stereotypes, with the "glass ceiling" referring to the barrier of prejudice and discrimination that contributes to the underrepresentation of women in senior leadership positions (Eagly & Karau, 2002).

In today's global business environment, attracting and retaining top talent is essential to maintaining market position (Davidson & Burke, 2004). Women are now better educated and highly skilled, representing an important percentage of the talent pool (Burke, Richardsen & Martinussen, 2004). In this context, it is important to explore stress experiences that may explain why women are limited in their effectiveness or even quit leadership positions (Morf, 2022).

To investigate how women and men differ in terms of stress levels associated with managerial positions, this study uses data from 470 individuals (161 female and 309 male) from the Swiss Human Relations Barometer as a database. A dummy variable is created for each gender, and the regression analysis is run with stress level as the dependent variable and the dummy variable as the independent variable. The relationship between gender and stress is moderated by the dummy variable for male-dominated industries, and t-tests are performed to support the regression results.

The thesis is divided into several chapters. The second chapter begins with a brief theoretical background, divided into three subsections: managerial stress, women in managerial positions and the unique stressors they experience, and the difference in stress between men and women based on the available studies. The end of the second chapter develops the hypotheses to be tested using the data from the Swiss Barometer. The third chapter is devoted to the data and the methodological approach, and the results are presented in the fourth chapter. The fifth chapter discusses and critically evaluates the results.

# 2. Theoretical Background

## 2.1 Managerial stress

Stress has become a major concern for organizations in recent years due to its rise (Tran et al., 2020) and it has been described by various experts as “the disease of the century” (Panigrahi, 2021). Technological progress and economic growth have been accompanied by many new challenges, such as overwork and the fast pace of work, job insecurity, and the interdependence of organizations. The cumulative effect of these changes is an increase in stress-related disorders among managers (Rees, 1997; Lochmann & Steger, 2002).

The understanding of stress and its causes has evolved over time. Initially, it was viewed as pressure from the external environment. In 1969, Arnold defined stress as "any condition that disrupts normal functioning" (Panigrahi, 2021; Michie, 2002). Later, Selye defined it as tension within the person, "a non-specific response of the organism to any demand" (Selye, 1974). The current concept emphasizes the interaction between the situation and the individual, with Beehr and Newman (1978) defining stress as "a condition resulting from the interaction between people and their work, characterized by changes within people that force them to deviate from their normal functioning" (Panigrahi, 2021, p. 154).

Stress is generally defined as the negative physical and psychological response that individuals experience when their resources are insufficient to cope with job demands and situational pressures (Michie, 2002; Tran et al., 2020). General workplace conditions, such as monotonous, untidy, poorly designed, or poorly workplaces, can contribute to stress in the workplace, particularly if they impede the achievement of set goals and prevent employees from performing their work effectively (Hicks & Caroline, 2007). Environmental factors like lighting, heating, ventilation, and humidity can also affect the perception of stress (Hicks & Caroline, 2007). Finally, individual worker differences, such as personality, age, education, experience, and coping style, determine whether the specifics of the job will cause stress (World Health Organization, 2023). Age, socioeconomic status, and educational background have been found to be negatively related to stress, with older individuals experiencing less stress and those with lower educational and socioeconomic levels experiencing higher stress (Michael et al., 2009).

The Health and Safety Executive (HSE) identifies six factors that can cause stress: demands, support, relationships, role conflict, and change management (Health and Safety Executive, 2020).

Additionally, Menon and Akhilesh (1994) suggest that managers may experience a specific type of stress related to their functional area, which they call "function-dependent" stress. Each functional area can lead to specific problems and different sources of stress. Their study identifies nine stressors related to functional areas such as role ambiguity, pressure to perform, responsibility for people and things, travel, and crisis situations (Menon & Akhilesh, 1994).

Stress can be divided into two types: eustress and distress. Eustress, or positive stress, is a limited and reasonable amount of stress that has positive effects on individuals and organizations. It can create passion for work, motivate professionals to solve problems and achieve personal and organizational goals (Panigrahi, 2021). Distress, on the other hand, is excessive stress that has negative effects on the body and mind.
Excessive stress has implications for both individuals and organizations (Menon & Akhilesh, 1994; Villanueva & Djurkovic, 2009). At the physical level, it can lead to heart disease, back pain, headaches, and gastrointestinal disorders. At the mental level, it can cause anxiety and depression (Tran et al., 2020), and long-term exposure can lead to burnout (World Health Organization, 2023; Hicks & Caroline, 2007). Finally, at an organizational level, it can lead to high rates of voluntary turnover, increased sick leave, injury rates, and early retirement. Stress can also reduce job performance, with negative effects on productivity and profits (Panigrahi, 2021; Michie, 2002; Tran et al., 2020; Van Der Voordt & Jensen, 2021; Misicka, 2018).

To manage stress at work, personal characteristics such as coping skills (e.g., problem-solving, assertiveness, time management) and work situations such as a good work environment and social support are important (Michie, 2002). Delegating work, sharing tasks with colleagues, and reducing working hours are some stress management strategies. Yoga, meditation, exercise, and recreational activities can also help create a better environment for managing stress (Panigrahi, 2016).
It is crucial to understand how gender affects the perceived stress of managers in order to improve their well-being in a targeted manner and prevent the loss of talent within organizations due to stress-related disorders discouraging future generations from pursuing ambitious career goals (Hicks & Caroline, 2007).

## 2.2 Women in leadership positions

Despite progress in recent years, men continue to dominate leadership positions, especially at senior levels (Helfat, Harris & Wolfson, 2006). The term "glass ceiling" still refers to the barrier

of bias and discrimination that contributes to the under-representation of women in senior leadership positions (Fielden & Davidson, 2001; Eagly & Karau, 2002). Numerous barriers prevent women from reaching high-level leadership positions, including gender bias in recruitment and promotion practices, lack of access to training and development opportunities, and a lack of support for work-life balance and family caring responsibilities (Elias, 2018).
Morrison (1992) identified six important barriers including prejudice, poor career planning, a hostile work environment, lack of organizational skills, the old boys' network, and difficulties in balancing work and family (overload, conflict, stress) (Burke & Richardsen, 2004).
The "think manager, think male" phenomenon suggests a broad consensus that the ideal manager is male (Heilman, 2006). In Schein's (1973, 1975) empirical study, successful middle managers were described as more similar to men than to women in terms of characteristics such as competitiveness, self-confidence, objectivity, aggressiveness, ambition, and leadership (Eagly & Karau, 2002).

Social role theory suggests that differences in behavior, attitudes, and personality traits between men and women are largely the result of the different social roles they occupy in society and the shared stereotypes about gender roles (Eagly, 1987). According to the role theory, men are more likely than women to take on leadership and competitive roles, and women are more likely to take on caring and supportive roles, both at home and at work (Eagly & Wood, 2012). Gender roles tend to be shared in society, leading people to believe that others will react positively to behaviors consistent with these roles and negatively to deviance from them (Eagly & Wood, 2012).
In a meta-analysis of 61 experiments on the evaluation of male and female leaders, Eagly, Makhijani, and Klonsky (1992) found that “women who adopted an assertive, masculine leadership style were evaluated more negatively than men who adopted the same style, whereas women and men who adopted a more democratic and participative style were evaluated equally” (p.18).
In Byron's (2007) study, 112 managers were rated by their subordinates. Female managers who were better at reading non-verbal emotions received higher performance ratings from their supervisors and higher satisfaction ratings from their subordinates, while women in supervisory roles were penalized for expressing angry emotions or performing excellently in roles considered masculine (Heilman, Wallen, Fuchs & Tamikins, 2004; Eagly & Wood, 2012).

Eagly and Karau (2002) propose a role congruence theory of bias against women in leadership, which complements Eagly's (1987) social role theory. Role congruence theory considers the

congruence between gender roles and other roles, particularly leadership roles, and suggests that bias and discrimination against women leaders stem from the incongruence that many people perceive between gender roles and the role expectations associated with leadership positions. People tend to associate leadership with traditionally male behaviors such as assertiveness, confidence, and independence, while communal qualities such as warmth, compassion, and caring, which are associated with women, are considered less important or even incompatible with leadership (Eagly, 1987; Ritter & Yoder, 2004).

Role congruence theory identifies two types of bias. The first type stems from descriptive norms of gender roles, i.e., consensus expectations about what members of a group do. It predicts a less favorable judgment of women's leadership potential than men's, because leadership ability is more stereotypically associated with men than with women. Women in leadership positions thus encounter a cultural incongruence between people's beliefs about what it takes to excel in those roles and stereotypes about female characteristics. The second type of bias stems from the injunctive norms of gender roles, which activate beliefs about how women should behave. When female leaders violate stereotypically feminine attributes by fulfilling the requirements congruent with the leadership role, they may be evaluated negatively for these violations, even though they may be evaluated positively for fulfilling the leadership role. If a female manager/leader is perceived to be very similar to her male counterpart, this may result in a disadvantage due to gender role violation (Eagly & Wood, 2012).

In sum, women's leadership experience is constrained by threats from two directions: fitting into the gender role does not meet the requirements of the leadership role, and fitting into the leadership role does not meet the requirements of the gender role (Eagly & Karau, 2002).

The two forms of bias identified by role congruence theory have three main consequences: (i) attitudes toward women leaders are less favorable than those toward male leaders; (ii) it is harder for women to hold leadership positions; and (iii) it is harder for women to be accepted as effective in these roles (Eagly and Karau, 2002).

## 2.3 Gender difference in work stress

Studies on the relationship between gender and stress have reported conflicting and inconclusive conclusions, but most research agrees that women tend to experience higher levels of stress (Michael et al., 2009). A LinkedIn survey of nearly 5,000 Americans found that 74 % of women reported feeling very or slightly stressed for work-related reasons, compared to only 61% of employed male respondents (Cox, 2022).

While men and women may share some stressors, such as role conflict, overload, and ambiguity, women managers experience unique sources of stress (Burke & Richardsen, 2004). Offerman and Armitage (1993), Davidson and Fielden (1999), Langan and Fox (1998) argue that the stress experienced by women managers is caused by a combination of factors emanating from three sources (i) society at large (work-family balance, prejudices, discrimination); (ii) organizations (on-the-job support, misconduct, tokenism, gender discrimination); and (iii) women themselves (personal control, self-esteem) (Burke & Richardsen, 2004).

Two hypotheses were advanced to explain why there are gender disparities in mental health (Marchand et al., 2016). According to the *vulnerability hypothesis*, women tend to react more intensely to stressful conditions and thus perceive them more strongly. Women's greater vulnerability to stress is explained by a biological predisposition and a higher physiological susceptibility to stress, which makes women less able to cope with it (Marchand et al., 2016).
Instead, the *exposure hypothesis* suggests that the difference in the experience of stress between men and women depends on the difference in the level of stress exposure (Marchand et al., 2016). According to this hypothesis, women experience unique sources of stress compared to their male counterparts and are therefore more exposed to stress (Michael et al., 2009). In particular, household responsibilities and minority status contribute to increased stress for women. Men have the privilege of being able to say no to extra tasks and focus on themselves; women, on the other hand, are pressured by societal expectations to take on all the expected roles and associated responsibilities (including housework and caring for others) (Ghorayshi, 2002; Armstrong & Armstrong, 1990).
Numerous studies suggest that differences in stress between men and women are not due to biological or genetic differences (vulnerability hypothesis) but rather appear to reflect social and psychological differences (exposure hypothesis) (Michael et al., 2009; Pugliesi, 1999).
Lundberg and Fankenhaeuser (1999) point to more favorable working conditions for men than for women. In their research of 21 female and male managers, it appears that both men and women found their work stimulating. However, women were more stressed due to unpaid workloads and greater responsibility for household and family duties.
Gadinger et al. (2010) examine the effect of model dimensions - Demand Control Support (DCS) - on the health of managers. Working conditions influence employees' well-being. Following the DCS model, higher job demands and less control and support reduce employees' psychological and physical well-being. Women experience unique stress conditions that affect

all dimensions of the model. The minority status of women managers and gender role stereotypes make them particularly visible within organizations, which can lead to disproportionate performance pressures and higher performance expectations for women managers (Michael et al., 2009; Gadinger et al., 2010). Job control is complicated by the incongruence between gender and leadership roles: when female managers adopt a masculine style, they are devalued, and when they adopt a feminine leadership style, they are judged negatively and ineffectively because it does not resemble the "typical male" leadership style (Eagly, 2007). Social support may be limited if male managers are influenced by gender bias and wish to maintain the status quo in management (Fielden & Cooper, 2002). According to the DCS model, women are more likely to suffer from stress-related health disorders due to greater job demands, less job control, and less social support than their male counterparts (Gadinger et al., 2010).

Finally, many studies have found differences in the sources of stress perceived by men and women. Vagg, Spielberger and Wasala (2002) examine the effects of gender on sources of job stress as assessed by the Job Stress Survey with a sample of 1'791 working adults (860 females, 931 males). Men perceive higher levels of stress related to role conflict in an organization's power structure, while variables such as inadequate pay or conflict between work demands and family relationships are perceived by women as more frequent and related to job stress.

## 2.4 Hypothesis

This thesis explores the relationship between gender and stress. The existing literature suggests that there are significant differences in stress perception between males and females. Professional women face unique stressors that are related to their gender and minority status, which contribute to higher stress levels compared to their male counterparts. Some of the primary sources of stress for women include the higher level of performance expectations, the burden of household and caregiving responsibilities, and the pressures resulting from the incongruence between the characteristics associated with the female gender and those associated with the managerial role (Michael et al., 2009; Gadinger et al., 2009).

Previous studies allow us to formulate the first hypothesis on which the following study is based:

**Hypothesis 1:** *Women managers report higher levels of stress than men.*

The case literature indicates that women in male-dominated occupations tend to report higher levels of distress, anxiety, and levels of stress-related disorders (Hunt & Emsilie, 1998; Evans & Steptoe, 2002; Davidson & Cooper, 1983). Kanter (1977) defined tokens as individuals who

belong to a social category that constitutes less than 15% of the total group composition (Gardiner & Tiggemann, 1999; McDonald, Toussaint & Schweiger, 2004). In male-dominated industries, minority women are often referred to as "tokens" because they are seen as representatives or symbols of their gender. Many studies suggest that women who are "tokens" tend to feel isolated, experience tension with their male colleagues, and face higher performance pressure, both when they are members of a male-dominated work group and when they are asked to lead that group (McDonald et al., 2004).

Gardiner and Tiggemann (1999) identified three consequences for minority women that can increase their level of stress experienced: (i) increased visibility, (ii) exaggeration of differences, and (iii) stereotyping. Increased visibility puts women under greater pressure to perform, which can lead to increased feelings of stress, while the exaggeration of differences leads women to isolate themselves from the dominant group (men) and thus receive inadequate support, leading to higher levels of stress. Finally, stereotypes have several negative consequences that affect the stress experienced by women. Incongruence between female-stereotypical behaviors and the characteristics considered necessary for leadership in male-dominated occupations leads to high role conflict and higher levels of stress (Michael et al., 2009). Eagly and Johnson (1990) suggested that when male leaders are numerically dominant, women's orientation toward interpersonal relationships weakens. This is because women in male-dominated industries are more prone to adopt a more "masculine" leadership style in order to be perceived as successful leaders (Gardiner & Tiggemann, 1999). However, this attitude violates gender roles and therefore triggers negative reactions toward women (Eagly, 2007). Role incongruence is exacerbated for women working in typically male-dominated work environments compared to women in gender-neutral or female-dominated work environments (Purvanova & Muros, 2010). Gardiner and Tiggermann's (1999) empirical study analyzed the influence of working in a male- or female-dominated field on the leadership style, stress levels, and mental health of 60 female and 60 male managers. Consistent with predictions, women in male-dominated industries reported the highest levels of discrimination pressure. In addition, women in male-dominated industries behaved more like men, reducing their interpersonal orientation to the level of men. In female-dominated sectors, however, women valued interpersonal relationships more than men did. The study also found that women in male-dominated industries who adopted a more interpersonal leadership style reported having poorer mental health. This supports the hypothesis that when women in male-dominated industries follow leadership styles considered feminine, it has a negative impact on their mental health. A woman in the minority who uses

an interpersonal style is subject to gender stereotyping and is consequently seen as less likely to be a successful leader (Gardiner & Tiggemann, 1999).

Sexual harassment - which includes hostile behavior based on gender, unwanted sexual attention, and sexual coercion - is also a pervasive issue in the workplace that can influence the experiences of stress (Burke & Richardsen, 2009). Generally, sexual harassment in the workplace affects women three times more frequently than it does men (Thomson, 2022). Furthermore, several studies suggest that women working in male-dominated industries are more likely to experience sexual harassment in the workplace (Catalyst, 2022). In their empirical study of 1,300 individuals in the United States, Ray, Johns, and Jose (2020) found that men in male-dominated occupations and women in female-dominated occupations had lower rates of workplace harassment than those with gender parity. Additionally, women in male-dominated industries face the highest risk of being harassed (Raj et al., 2020).

Finally, pay can also be a source of frustration for women in male-dominated occupations. Research has shown that lower salaries are linked to higher levels of stress and poorer mental health in general (Cox, 2022). According to an analysis conducted by the Pew Research Center, women in the United States earned only 82% of what men earned in 2022 (Kochhar & Greenwood, 2023). In Switzerland, female managers earn 16.8% less than their male counterparts. The difference is less pronounced among jobs with less responsibility, with a difference of 9.3% (Bundesamt für Statistik, 2022). The pay gap between men and women is significantly greater in male-dominated occupations than in female-dominated occupations. The ratio of women's earnings to men's earnings in male-dominated occupations is 75.25%, compared to 90.18% in female-dominated occupations (Bureau of Labor Statistics, 2006).

It follows that gender differences in job stress hypothesized in H1 (female managers perceiving higher levels of stress) are likely to be more pronounced when women work in occupations considered to be male-dominated (Purvanova & Muros, 2010).

Therefore, I formulate the second hypothesis:

**Hypothesis 2:** *Women managers in male-typed occupations report the highest levels of stress.*

# 3. Methodology

## 3.1 Research design

The data used in this study is from the eighth edition of the Swiss Human Relations Barometer (HR Barometer) conducted in 2014. The HR Barometer is a joint project of ETH Zurich and the University of Zurich that focuses on employees in Switzerland and regularly measures their attitudes, perceptions, moods, and opinions based on a representative sample from all sectors. This edition was funded by the Swiss National Science Foundation and was conducted in collaboration with the social and market research institute LINK between March and June 2014.
The conceptual basis of the HR Barometer is the psychological contract, which captures the mutual offers and expectations between employer and employee that go beyond the legal employment contract agreements (Doden et al., 2014).
The eighth edition of the HR Barometer examines working conditions, working relationships, and attitudes and behaviors in German-, French-, and Italian– speaking Switzerland. Its central theme of "work experience and job crafting" analyzes the interaction between job crafting, job design measures taken by companies, and work experience. Job crafting includes all measures taken by employees to improve their personal work situation (Doden et al., 2014).
A representative sample was drawn from the sample register of the Federal Statistical Office, which contains personal data of people from all three linguistic regions included in the survey. In addition to German, the questionnaire was also available in Italian and French. To increase respondent compliance, a mixed approach was used where respondents could choose whether to complete the survey online or on paper. The questionnaire consisted of 43 items, including both objective (age, percentage of work, gender, gross salary, sector, etc.) and subjective (meaning of work, perceived stress level, level of satisfaction, etc.) questions. The average time to complete the questionnaire was 25 minutes.

## 3.2 Sample

To be eligible to participate in the HR Barometer survey, employees had to be between the ages of 16 and 65 at the time of the survey, employed at least 40% of the time, and speak at least one of the three national languages in which the questionnaire was available (Italian, French and German). Apprentices were also interviewed, while the self-employed and the inactive were excluded from the survey. Screening (online, by phone, and in writing) was used to ensure that the respondents belonged to the target group.

The results of the HR Barometer are based on the responses of 1'401 employees from French (21%), German (71%), and Italian (8 %) Switzerland.
For this study, a sub-sample (N = 470) was selected consisting of (i) employees in the family businesses (N = 23), (ii) directors or board members (N = 52), and (iii) employees with supervisory functions in the company (N = 395). Only participants who reported their stress level and gender were included.
Job position was collected with the question "*What is your job position*?" and offered six category alternatives: self-employed, employee in the family business, director or board member, employee with a supervisory function in the company, employee without supervisory function in the company, and apprentice.
The average age of the subsample is 44 years, and the respondents were 161 women (34%) and 309 men (66%).

Some characteristics of the sub-sample are listed below:

- For 1% of respondents (including apprentices), the annual gross income is less than CHF 25,000; for 8%, between CHF (Swiss francs) 25,000 and CHF 50,000; for 17%, between 50,001 and 75,000 Swiss francs; for 24%, between CHF 75,001 and CHF 100,00; for 19%, between CHF 100,001 and CHF 125,000 and for 26% over CHF 125,00. 5% of respondents did not answer.
- 80% of respondents work full-time (at least 90%), and 20% work part-time.
- 16% of respondents live in a single-person household, 30% in a couple of households without children, 43% in a couple of households with children, 5% in a single-parent household with children, 2% in a non-family household, and 3% in another type of household.
- 73% of respondents come from German-speaking Switzerland, 22% from French-speaking Switzerland, and 5% from Italian-speaking Switzerland.
- 80% of respondents have Swiss nationality.
- 16% of respondents work in micro-enterprises with 10 or fewer employees, 40% in small and medium-sized enterprises with 11 to 249 employees, and 43% in large enterprises with more than 250 employees. 1% of respondents did not provide information.

## 3.3 Measures

The study first examines the relationship between gender and stress and then the role of the moderator of typically male occupations.

The measures of the variables considered in the quantitative analysis are listed below.

### 3.3.1 Gender

In this study, gender is the independent variable, that is, the variable used for prediction (Stock & Watson, 2019).

In item number 36 of the survey, respondents are asked about their gender (“woman”, “man”, “no answer”). In the analysis, the gender variable is called Sex and is coded as 1 for women and 0 for men. Only observations of people who indicate their sex are included in the study.

### 3.3.2 Stress

Work stress was measured using the Copenhagen Psychosocial Questionnaire (COPSOQ) scale. The COPSOQ was developed and validated by Kristensen and Borg from the Danish National Institute of Occupational Health in Copenhagen.

The questionnaire represents a comprehensive achievement and is designed to be "*theory-based without being based on a specific theory* [of work strain]" (Kristensen et al., 2005, p.447). Conceptually, it incorporates the main dimensions of the most influential psychosocial theories of work, including the Job-Stress, Demand-Control-Support and Effort-Reward-Imbalance models, as well as ideas from other theories, such as emotional demands or role clarity. Nübling, Stöbel, Hasselhorn, Michaelis and Hofmann (2006) describe the COPSOQ as a valid and reliable tool for workplace surveys, analytical research, interventions, and international comparisons (i.e., Cronbach's alpha mostly > 0.7). The original Copenhagen Psychological Questionnaire was available in three versions: long, medium, and short. The long version consisted of 30 scales with a total of 141 items, the medium-length questionnaire consisted of 95 questions forming 26 scales, and the short questionnaire consisted of 44 questions forming 8 scales (Kristensen, Hannerz, Hogh & Borg, 2005). Initially, the short and medium versions were used in practice and the long version in research. It was later found that there was also a need for shorter versions in research and that the medium version had sufficient reliability (Burr et al., 2019).

The stress scale in the COPSOQ contains 4 items, answered on a five-point Likert scale from seldom/never to almost always/always, with an option to select “no indication”. According to

the second version of the Copenhagen Psychosocial Questionnaire, employees in the HR Barometer survey were asked how often in the last 3 months: they had difficulty relaxing (Stre1), felt irritated (Stre2), tense (Stre3), or stressed (Stre4) (Doden et al., 2014).
To calculate the stress variable in the data analysis, only the mean score calculated from the three responses (Stre1, Stre2, Stre3) is considered. The stress variable is referred to as *Stre.*
In this article, occupational stress is the dependent variable and its value is determined by the value of the independent variable (Stock & Watson, 2019).

#### 3.3.3 Moderator: Male-dominated occupations

The second aim of the study was to assess whether occupational gender typing moderates the relationship between gender and stress. Moderation analysis is used to determine whether the strength and/or direction of a relationship between two variables depends on a third variable, known as the moderator (Hayes, 2013). In the questionnaire, respondents were asked about their occupation. Eight options were provided, with also the option to write down their occupation (other boxes) or to select "no indication".
Male-dominated occupations are those in which women make up 25% or less of the workforce (Catalyst, 2021). The Male-dominated occupations variable is referred to as *Male*. Following the 75-25% rule, male-dominated occupations (code = 1) are separated from typically female or neutral occupations (code = 0) (Campuzano, 2019).
Among the choices provided in the questionnaire, the male-dominated occupations appear to be (i) agriculture, forestry, and animal husbandry occupations, (ii) industry and craft occupations, (iii) engineering and information technology occupations, and (iv) construction (building and civil engineering) and mining occupations (ILO, 2022).

## 3.4 Statistical procedure

The aim of this paper is to analyze the relationship between gender and stress among managers in Switzerland. The data are prepared in Excel, and then the statistical analysis is carried out using the R statistical software.
The sample consists of 470 employees, of which 161 are female and 309 are male.
To investigate the influence of gender on the perception of stress, linear regressions were conducted. Linear regression describes the relationship between two variables, with the relationship running from the independent variable to the dependent variable (Stock & Watson, 2019). First, a regression is conducted with a dummy variable for gender as the independent variable (1 = female, 0 = male) and stress as the dependent variable. Second, the same regression is run

but introduces the dummy variable for typically male occupations (1 = typically male occupation, 0 = typically female occupation or neutral) as a moderator.

In summary, the main regression model is as follows:

$Stre = \beta 0 + \beta 1 Sex + \beta 2 Male + \beta 3 MaleSex + \mu$ [ii]

Sex represents the independent variable, with female coded as 1 and male coded as 0. Male represents the moderator, with typically male occupations coded as 1 and typically female or neutral occupations coded as 0. Both the independent variable and the moderator are dummy variables. β3 denotes the interaction term between the independent variable Sex and the moderator Male. Stress (Stre) is the dependent variable and is measured on a five-point Likert scale. The dependent variable is treated as continuous. The μ error term captures the part of the relationship between the independent and dependent variables that cannot be explained by the dependent variables.

The next chapter reports the beta values, standard errors, R-squared, and significance level of the regressions. To test the statistical significance of gender differences in stress levels (Hypothesis 1), a Student's t-test analysis is conducted.

The use of the OLS model makes a number of basic assumptions: the distribution of errors is multivariate normal, with zero mean and constant variance (homoscedasticity), and errors are not autocorrelated. Through the specification tests, the basic assumptions are tested (Appendix 1).

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[ii] $Stre$ = *Dependent variable*
$Sex$ = *Independent variable*
$Male$ = *Moderator*
$\beta 0$ = *Intercept*
$\beta 1, \beta 2$ = *regression coefficient*
$\beta 3$ = *interaction coefficient*
$\mu$ = *unexplained error*

# 4. Results

## 4.1 Descriptive statistics

Table 4.1 displays the number of observations, mean, standard deviation, median and mode for the stress variable among all data. The stress variable is measured on a Likert scale from a minimum of 1 (almost never/never) to 5 (almost always/always). There are 470 observations, with a mean of 2.904 and a standard deviation of 0.79. The mode is 3 which accounts for 17.9 % of responses, and the median is 3.

Table 4.2 displays the number of observations, mean, standard deviation, median and mode for the stress variable among men. There are 309 observations for men, with a mean of 2.97 and a standard deviation of 0.80. The mode is 3, which accounts for 18.8% of responses, and the median is 3.

Table 4.3, on the other hand, describes the data for the stress variable among women. There are 161 observations for women, with a mean of 2.78 and a standard deviation of 0.78. The mode is 3, accounting for 16% of responses, and the median is 2.75.

Table 4.1: Mean, standard deviations, median, mode

| | **Mean** | **SD** | **Median** | **Mode** | **N** |
|---|---|---|---|---|---|
| Stress (Stre) | 2.90 | 0.79 | 3 | 3 (84) | 470 |

Table 4.2: Mean, standard deviations, median, mode
Stress in men

| | **Mean** | **SD** | **Median** | **Mode** | **N** |
|---|---|---|---|---|---|
| Stress (Stre) | 2.97 | 0.80 | 3 | 3 (58) | 309 |

Table 4.3: Mean, standard deviations, median, mode
Stress in women

| | **Mean** | **SD** | **Median** | **Mode** | **N** |
|---|---|---|---|---|---|
| Stress (Stre) | 2.78 | 0.78 | 2.75 | 3 (26) | 161 |

Figure 4.4 displays the boxplot for the Stress variable for males (sex = 0) and females (sex = 1). The minimum value for stress is 1.00, and the maximum is 5.00. Among men, 25% of the values are less than or equal to 2.5 (first quantile), and 75% of the scores are less than or equal

to 3.5 (third quantile). Similarly, for women, 25% of the scores are less than or equal to 2.25 (first quantile), and 75% of the scores are less than or equal to 3.25 (third quantile).

Figure 4.4: Boxplot

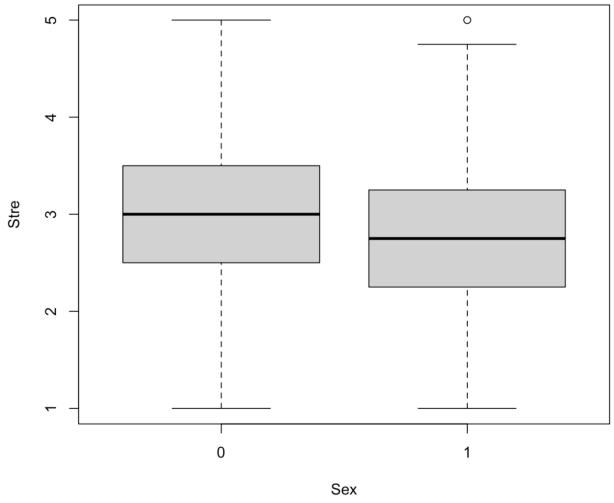


Table 4.5 shows the average of the control variables: age, education, and salary of women and men. It's important to check that the groups of women and men do not differ significantly in other characteristics that are not of interest for the purposes of the study, but which could influence the values of the dependent variable.

To be eligible to participate in the HR Barometer survey, employees had to be between the ages of 16 and 65 at the time of the survey. Respondents are asked their year of birth and those born before 1949 or after 1998 are not included in the survey.

Education is measured by the question, "What is your highest level of education?" The alternatives are (1) no or incomplete compulsory schooling, (2) compulsory schooling, (3) transitional education, (4) general education without maturity, (5) basic vocational training or vocational apprenticeship, (6) maturity, (7) higher vocational training, (8) polytechnic or university, (9) doctorate, and (10) other.

Salary is defined as the expected gross annual salary at 100% employment. Respondents select one of the following options: (1) less than CHF 25'000, (2) CHF 25'000 - CHF 50'000, (3) CHF 50'001 - CHF 75'000, (4) CHF 75'001 - CHF 100'000, (5) CHF 100'001 - CHF 125'000, (6) more than CHF 125'000.

The two groups do not appear to differ significantly in age, education and salary.

Table 4.5: Means of Age, Education, and Salary.
Standard errors reported in parentheses

| | Age | Education | Salary |
|---|---|---|---|
| Men | 44.92 (10.12) | 7.25 (7.60) | 4.87 (1.48) |
| Women | 42.06 (10.87) | 6.44 (1.65) | 4.04 (1.82) |

Table 4.6 describes the number of observations, mean, standard deviation, median, and mode of the stress variable for women in male-dominated occupations (Male = 1) and for women in female-dominated or neutral occupations (Male = 0). The table shows that there is no significant difference between the average stress of women working in male-dominated occupations and the perceived stress of women working in female-dominated or neutral occupations. The latter reported slightly higher stress levels (2.797 vs. 2.670).

Table 4.6: Mean, standard deviation, median, mode.
Women in *male industries/* no *male* industries

| | Mean | SD | Median | Mode | N |
|---|---|---|---|---|---|
| Stress (*Stre*) Sex = 1, Male= 1 | 2.670 | 0.5793 | 2.750 | 2.5, 2.75 | 22 |
| Stress (*Stre*) Sex = 1, Male = 0 | 2.797 | 0.8079 | 2. 750 | 3 | 139 |

## 4.2 Hypothesis testing

Table 4.7 shows the results of the regression analysis carried out to determine whether there is a significant difference between women and men in terms of stress levels. The intercept for stress is 2.96 and is significant at the 0.001 level. It refers to men's average perceived stress level (Sex = 0). Women are less stressed than men ($\beta 1$ = - 0.19) and the result is significant at the 0.05 level. The variables age, salary, and education are not included in the results as control variables, as they are found to be insignificant ($p > 0.1$). The multiple linear regression with the control variables is shown in Appendix 2.

The regression on stress level gives an $R^2$ value of 0.013 (adjusted 0.011). The value is close to 0, so there is still a large amount of variance in the dependent variable (stress) that is not explained by gender.

Table 4.7: Regression output (1)

| Independent Variable | Coefficient | Std [1)] |
|---|---|---|
| Intercept | 2. 9684*** | 0.04497 |
| Sex[2)] | - 0.18894* | 0.07683 |
| $R^2$ | 0.01276 | |
| Adjusted $R^2$ | 0.01065 | |
| Residual Standard Error | 0.7905 (df [3)] = 468) | |
| F statics | 6.048** (df [3)] = 468) | |

Significance code *** 0.001 ** 0.01 * 0.05 (*) 0.1

[1)]Std = Standard error
[2)] Female =1, Male = 0
[3)] df = degrees of freedom

Table 4.8 shows the results of the regression analysis conducted to determine the role of working in the typically male industry (Male) in the relationship between gender and stress.
The intercept for stress is 2.97 and is significant at the 0.001 level. Women are less stressed than men ($\beta 1$ = - 0.18) and the result is significant at the 0.1 level. Moderation does not seem to be significant (p > 0.1). The regression on the level of stress gives an $R^2$ value of 0.013 (adjusted 0.074).

Table 4.8: Regression output (2)

| | Coefficient | Std [1)] |
|---|---|---|
| Intercept | 2. 97424*** | 0.06140 |
| Sex[2)] | - 0.17748(*) | 0.09115 |
| Male | - 0.01244 | 0.09029 |
| Sex:Male | - 0.11387 | 0.20287 |
| $R^2$ | 0.01382 | |
| Adjusted $R^2$ | 0.07472 | |
| Residual Standard Error | 0.7917 (df [3)] = 466) | |
| F statics | 2.177** (df [3)] = 466) | |

Significance code *** 0.001 ** 0.001 * 0.05 (*) 0.1
[1)]Std = Standard error
[2)] Female = 1, Male = 0
[3)] df = degrees of freedom

Table 4.9 shows the t-test for gender differences in work stress.
Hypothesis 1 is not supported by the data and the opposite effect is found. Indeed, the t-tests show that women experience significantly lower levels of stress than men ($p < 0.05$).
Hypothesis 2 is also not supported by the data. There are no significant differences between women managers working in male-dominated industries compared to women in female - or neutral-dominated industries (t-value = 0.561, p = 0.5749).

Table 4.9: Results of the t-test

| | Mean | Mean diff. | t-Value | p-Value | df | 95% confidence interval Lower | Upper |
|---|---|---|---|---|---|---|---|
| Men | 2.9684 | 0.1899 | 2.4744 | 0.0138 | 468 | 0.0387 | 0.3392 |
| Women | 2.7795 | | | | | | |

## 4.3 Supplementary analysis

The study conducted additional analysis to investigate the reasons for the stress gap between men and women. It was found that not only do women report lower levels of stress than men (2.77 vs. 2.97, t (468) = 2.47, $p < 0.05$), but they also report higher levels of job satisfaction (7.89 vs. 7.46, t (468) = 2.66, $p < 0.01$). Job satisfaction was measured using a 10-point Likert scale, with respondents being asked to rate their overall job satisfaction on a scale of 1 to 10.
The regression analysis revealed that job satisfaction fully mediates the relationship between gender and stress. When job satisfaction was included in the regression between gender and stress, gender was no longer significant ($p > 0.1$), but job satisfaction was found to be significant at the 0.001 level of significance. This suggests that the effect of gender on stress is completely mediated by job satisfaction. The results of the mediation analysis can be found in Appendix 3.
Another interesting finding that could explain the result contrary to the hypothesis is the difference in the composition of the group of men and women with regard to their professional position. The sample used included those working in the family business, members of management and directors, and employees with supervisory functions. Women outnumbered men as far as the percentage of employees in family enterprises was concerned, while men were more likely than women to be directors and members of management. There was no significant difference in the percentages of supervisory employees (84.7 % vs. 82.6 %). Table 4.10 shows the percentages of positions held by women and men in the sample.

Table 4.10: Percentages of professional positions,
in parentheses the numbers (N)

| | **Employee in a family business** | **Director or member of management** | **Employee with supervisor function** |
|---|---|---|---|
| Men | 2.6% (8) | 12.6 % (39) | 84.7% (262) |
| Women | 9.3% (15) | 8.1% (13) | 82.6% (133) |

# 5. Discussion

## 5.1 Theoretical implications

The aim of this paper is to investigate the perceived difference in stress levels between men and women in leadership positions. Although prior research has yielded mixed findings, most studies suggest that women experience higher levels of job stress compared to men (Doyle & Hind, 1998; Lengua & Stormshak, 2000; Matud, 2004; McDonough & Walters, 2001; Osorio et al., 2003; Pines & Zaidman, 2003; Tytherleigh et al., 2007; Ryland & Greenfeld, 2016; Herrero et al., 2012).

Female leaders experience various stressors, including their minority status in top positions, balancing work and family responsibilities, and discrimination and abuse in the workplace. They also face bias arising from the role incongruence between the characteristics associated with the female gender and those associated with leadership roles (Eagly, 2007).

Based on the existing literature, it is hypothesized that women leaders will experience higher levels of stress than men (Hypothesis 1) and that the highest levels of stress will be found among women leaders working in male-dominated industries (Hypothesis 2).

The study analyzed responses from 470 managers, of whom 34% were women and 66% were men. The mean total stress score was 2.904 (SD = 0.79).

The results of the study are interesting and contrary to the initial predictions. The statistical analysis reveals that women perceive lower levels of stress than men; therefore, Hypothesis 1 is not supported by the data. In this chapter, the possible reasons for this outcome are discussed.

One possible explanation for these findings is the phenomenon of self-selection. The term *glass ceiling* refers to the vertical segregation that prevents women from reaching top positions and responsibilities in the workplace (Federal Glass Ceiling Commission, 1995). Lyness and Scharder (2006) conducted a study on gender differences in job movement and found that among managers in staff positions, women were less likely than men to move to line positions or different organizational functions within the company. In addition to *the glass ceiling*, the first step on the career ladder itself poses challenges for women to advance into management positions. There is a bottleneck at the entrance to the C-suite that obstructs women's career advancing in the workplace: for every 100 men, only 72 women are promoted to the first level of management (Porrovecchio, 2020). The bottleneck metaphor implies that women have to undergo a more stringent selection process than men due to the "*think manager, think mal*e"

stereotype. The difference between the number of men and women in management and supervisory roles is also evident in our study, where women account for only 34% of the sample. Barriers to women's access to senior positions are likely to create a characteristic bias between women who reach certain levels and men who reach the same level. It is easy to assume that women who are more susceptible to stress are less likely to reach managerial positions than men who are more susceptible to stress. In fact, if men are more likely than women to be given "leadership roles", then the men selected for top positions may include those who are not really ready for the role and not highly qualified, while the few women selected are likely all high profile and, on average, have better stress management skills than their male counterparts. The fact that women who perceive high levels of stress are less likely to reach management positions than stressed men may distort the distribution of stress. It is worth noting that if gender parity were achieved in leadership roles, the average levels of perceived stress might differ from those found in this study.

Moreover, research indicates that men tend to overestimate their potential performance to a much greater extent than women, leading them to apply for roles for which they are not adequately prepared (Avolio & Waldamn, 1994). A statistic from a Hewlett Packard internal report, suggests that "Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100% of them" (Mohr, 2021, para.2). Mohr's (2021) survey of over a thousand men and women shows that women are less likely to apply for a job for which they do not meet all the criteria, because they are more afraid of not being hired than men. It also appears that women are more used to following 'the rules' and this is a barrier for women when applying for jobs for which they do not meet all the requirements.

The respondents' job satisfaction index may also play a role. The supplementary analysis shows that women are significantly more satisfied than men (7.89 vs. 7.46, $t(468) = 2.66$, $p < 0.001$). Job satisfaction appears to mediate the relationship between gender and stress levels. According to Clark (1997), women's higher job satisfaction than men's can be attributed to their lower expectations of work. Clark argues that women's higher job satisfaction reflects the fact that they have had much worse jobs in the past. Therefore, despite holding jobs that may be "objectively worse" than men's, lower expectations may translate into higher job satisfaction for women (Redmond & McGuinness, 2020). This interpretation suggests that women's higher job satisfaction may be a temporary phenomenon that results from their improved position in the labor force relative to their expectations. As women's working position improves, their expectations presumably will also rise.

Analysis by Redmond and McGuinness (2020), based on information from 48,000 workers in 28 EU countries, shows that the gender gap in satisfaction can be explained by work preferences. Given similar job characteristics to men, women would be less satisfied with their jobs, suggesting that the gender gap in job satisfaction is related to selection into certain jobs based on different preferences (Redmond & McGuinness, 2020). When preferences are controlled for, the gender gap in job satisfaction disappears. Women are, in fact, more likely to choose jobs that provide intrinsic job satisfaction and a good work-life balance and value both more than men when choosing a job. Intrinsic job satisfaction and work-life balance are, in turn, associated with higher job satisfaction (Redmond & McGuinness, 2020).

The lower stress levels reported in the study may also be explained by women's greater ability to cope with stress. Some research suggests that women are more likely than men to take charge of their stress and manage it (Wong, 2018). Women are better at relating to others in their lives, seeking social support, and engaging in activities that reduce stress (2010 Stress in America: Gender and Stress, 2012). Additionally, many studies also suggest a biological difference in the reaction to stress between men and women. In men, stress activates what is known as the 'fight or flight' mechanism. Some men get angry and fight (fight), while others are overwhelmed by feelings of helplessness and isolate themselves (flight). Thanks to the hormone oxytocin, women do not experience fight or flight symptoms. Oxytocin has anti-stress effects, including a reduction in cortisol levels and blood pressure, and helps to relax the body. Women tend to respond to stress by choosing instead to care and share their feelings with others. This ability to share would make it easier for women to cope with stress (Skipic, 2022; Verma, Balahra & Gupta, 2012).

The difference between the findings of this study and those supported by previous literature may also be due to the data collection period. The data in this study are more recent (2014) than in previous research, suggesting a positive trend toward equality in the workplace and in domestic work. Felsten (1998) suggests that differences in stress levels are decreasing due to societal trends toward equality.

Finally, occupational gender typing does not appear to moderate the relationship between gender and burnout. Therefore, the second hypothesis is also not supported by the available data. However, the small subsample size does not allow for generalizing conclusions: only 22 women in the female group belong to the classified group with male occupations. Furthermore, previous studies have examined differences within specific occupations, whereas this paper divides

different occupations into two broad categories (Purvanova & Muros, 2010). Within the category of non-male-dominated occupations, a further division should be made between typically female occupations on the one hand and gender-neutral occupations (jobs that are not gender-typed jobs) on the other. Regarding the moderation hypothesis, it is important to consider that further studies on this issue are necessary.

## 5.2 Limitations and future research

The results of this study contradict the initial hypothesis suggested in the literature, providing valuable insights for comparison with previous research.

All female and male participants in the study were assessed using the same instrument, the Copenhagen Psychosocial Questionnaire. This eliminates any error due to disparate data collection for the two sexes. However, there are some limitations that must be considered when interpreting the result. Firstly, the data are the result of self-assessments by the respondents, which can be subject to several biases such as social desirability bias, condescension bias, or bias due to the influence of the participant's emotional state when completing the questionnaire. The latter in particular may have significantly influenced responses to the question about perceptions of stress. The emotional state of the participants at the time of the survey may have influenced their responses regarding their perception of stress and job satisfaction. In future studies, it may be useful to replicate the study using additional assessments to the self-report questionnaire. Observational, physiological, and repeated measures allow for a more in-depth exploration of the phenomenon (Michael et al., 2009).

From a statistical point of view, a limitation of the study is the non-normal distribution of the stress scores and the difference in the number of people in the two groups (161 women vs. 309 men). Additionally, the external validity may be questioned due to the small sample size: 470 employees may not represent the entire Swiss managerial population. In particular, the small number of female managers (N =161) limits the research in terms of subdividing the group and investigating additional factors that could explain the difference in stress (such as age, gender, type of contract, salary, etc.). In fact, this study does not allow us to say which group of women or men feels more stressed. Regarding the group of part-time workers, it is easy to imagine that shorter working hours in favor of more free time and easier reconciliation of work and family life could have an impact on the stress experienced. The small sample size of the part-time workers included in the study does not allow for significant results if it is included as a control variable, but it could lead to a bias in the results (all part-time workers are in the women's group, which can lead to a distortion). Future research needs to explore this further by assessing

whether women are less stressed than men for the same workload.
To test the moderation of typical male industries on women's perceived stress, the subsample size of women in typical male employment needs to be large enough to draw generalizing conclusions. Future research should replicate the study with a larger sample that allows for a more in-depth investigation of the phenomenon under study. In addition, for the moderation analysis, a further distinction between specific occupations and between typically female and gender-neutral occupations should be made instead of combining a wide range of occupations into two broad categories (typically male occupations and female-dominated or neutral occupations).

The control variables included in the regression (age, education, and salary) did not reach a significant level, but there may be other variables with an explanatory power that need to be included in the regression to improve the internal validity of the study and to prevent research biases like omitted variable from affecting the result (Bhandari, 2022). Examples of control variables are marital status, children, the workload at home, health, etc.
A large body of research suggests that differences in stress between men and women do not result from biological or genetic differences but rather appear to reflect social and psychological differences (Michael et al., 2009). Further research examining the role of mediating variables such as coping strategies, job characteristics, and personality will provide a more complete picture of how job stress affects men and women.
The heterogeneity of the sample may also be a limitation. The study refers to men and women in different positions, including those who work in the family business, members of management/directors, and employees in managerial positions. The different roles differ in terms of responsibilities, and women may be in lower managerial positions than men and therefore less stressed due to different workloads. Indeed, in the sample studied, there is a higher percentage of women working in family businesses than men, while in the group of men, there is a higher percentage of directors and members of management than in the group of women. Additionally, even within the same occupational group, there may be different positions and, therefore, different responsibilities. Gardiner and Tiggeman (1999) highlight the importance of studying men and women in the same roles. Future studies should, therefore, compare men and women according to their positions.
Another limitation is the time period for which the data were collected. The data date back to 2014 and may not reflect the current situation. The proportion of women in management or supervisory positions in Switzerland has remained relatively constant, with only a slight increase from 35.3% in 2014 to 35.7% in 2021 (Federal Statistical Office, 2022). However, the

implementation of gender quotas in many companies may lead to a shift in the coming years and make it easier for women to enter certain management positions, potentially reducing the self-selection phenomenon observed in this study.

Additionally, the global COVID-19 pandemic has had a significant impact on work-related stress and work-life balance. During and after the pandemic, the stress caused by uncertainty about the future increased, and with the increase in remote working over the last two years, work-life balance has also become less evident (McCord, 2022).

For these reasons, it is necessary to repeat the study with more recent data that capture these changes. A longitudinal study could provide valuable insight into changes in stress levels over time for both individuals and groups.

It would also be interesting for future research to include a comparison between employees and the self-employed. These latter were excluded from this study. On the one hand, self-employed workers who face higher levels of income volatility, uncertainty, and social isolation are more likely to experience mental health problems such as anxiety and depression (Jun, 2020; Hessels, Rietveld & Van Der Zwan, 2017). On the other hand, the self-employed may enjoy decision-making power, more control, and a better work-life balance (Hessels et al., 2017). These factors would make the self-employed group more satisfied and less stressed (Bris, n.d.). The comparison would make it possible to determine, firstly, whether the self-employed are more or less stressed than employees and, secondly, which group of women and men experience higher levels of stress.

Finally, the questionnaire only includes Swiss employees. Future research should replicate the study in other countries to improve the validity of the results beyond Switzerland.

## 5.3 Practical implications

In the current literature, it's widely accepted that stress can have negative effects on both, individuals and organizations. It can negatively impact physical and mental health, increasing the risk of chronic diseases such as cardiovascular disease, diabetes, and depression. Stress can also affect workers' performance and productivity, leading to absenteeism, turnover, and conflict in the workplace, as well as reduced job satisfaction and commitment (Härmä, Kompier & Vahtera, 2006). The economic costs associated with low productivity, high turnover, and absenteeism can be significant for organizations. Therefore, it's important for individuals and organizations to manage stress proactively and to provide stress management programs to all employees (Gardiner, 1999). Strategies to reduce stress can include meditation and exercise, as

well as promoting work-life balance, flexible working hours, social support, and stress management training (Stress Management, 2022).

Charlotte Fritz, the co-author of a study on managerial stress published in the Journal of Business and Psychology, recommends that companies not only restructure managers' jobs to reduce constant time pressure but also include strategies for detachment as part of management training (Debus, Fritz & Philipp, 2019).

Job sharing at the management level, which involves dividing a full-time position between two or more managers, can also be an effective tool for improving well-being. Introducing and promoting job sharing can help to share the workload, increase flexibility, take better care of oneself, balance work and family commitments, and thus reduce perceived stress among managers. Moreover, many companies are introducing the four - day week, which can improve employees' mental and physical well-being and benefit the business through greater flexibility and autonomy at work. A study led by researchers at the University of Cambridge, in collaboration with Boston College in the US, tested the four-day week in 61 companies with a total of 2,900 employees across a wide range of sectors. The results confirmed that there was no negative impact on business productivity: 71% of employees reported a reduction in burnout, there was a 65% reduction in sick days, and a 57% reduction in the number of employees leaving participating companies (Would You Prefer a Four-Day Working Week?, 2023).

As Mark McCord (2022) writes in an article for the World Economic Forum, "When leaders take responsibility for the well-being of their employees, the result is not only productive organizations, but thriving individuals, families, and communities" (para.6).

At the policy level, there is a need to invest in policies that help families balance work and private life, such as maternity and paternity leave, childcare, and elderly care, which can increase the well-being and productivity of the whole society (Purvanova & Muros, 2010).

In addition to the importance of reducing managers' stress levels to improve their well-being and organizations' economic outcomes, this study highlights the need to rethink stress as a phenomenon not necessarily exclusively associated with females.

The majority of the consulted literature suggests that women experience higher stress levels (Maslach et al., 2001). The results of this study are in contrast with previous literature and point to a necessary reflection on the changing role of women in society and the important resource for organizations that women promoted to management levels now represent. The findings of this study are significant because they can help correct the common perception that men are more resilient to stress than women (Puranova & Muros, 2010).

The common belief that women are more susceptible to stress can have dangerous consequences for the individual, the organization, and society as a whole. Firstly, the perception that stress-related disorders are a purely female experience can reinforce prejudices and stereotypes that prevent women from advancing to management positions. If managers believe that women are more susceptible to stress-related disorders than men, they may exclude women from challenging roles and promotions. This attitude leads to further discrimination against women (Purvanova & Muros, 2010). Secondly, the fact that stress-related disorders are labelled as purely female experience is also damaging to men, as their experience of burnout may not be recognized. Men may not receive the appropriate attention and care if they suffer from stress-related disorders and they may find it difficult to seek help and support when experiencing high levels of stress (Wilcox, 1992).

Nowadays, women are a crucial resource for organizations, and their ability to handle stressful situations and assume leadership roles should be acknowledged in academia, the workplace, and society as a whole. Prejudices act as barriers, preventing women from feeling confident enough to apply for leadership positions, and even if they do, they often get excluded from top positions in favor of male managers. According to Steve Hatfield, Global Future of Work Leader at Deloitte, women in leadership positions are essential role models (Cox, 2022).
In this scenario, mentoring by female leaders plays a crucial role. Women who are in leadership positions and make themselves available to guide and support other women in their careers are a valuable resource and inspiration for women who underestimate their ability to cope with stressful situations (Burke & McKeen, 1990).
Additionally, the introduction of opportunities for women to take on a management role for a limited period (*test leadership*), together with job sharing in organizations, can help to overcome the barriers women face in applying for a management role and give them confidence in their ability to join a management team. This approach allows women to broaden their knowledge, perspectives, and visibility within the company (Advance, 2021).
It is vital to spread awareness that women can take on leadership roles and pass it on to aspiring female leaders who find themselves in a society where there is still a common perception that women are too vulnerable and sensitive for this role.

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# Appendix

## A.1 Appendix 3: Specification Tests

In order to be able to interpret the results of the OLS regression, it is necessary to check that a number of basic assumptions are valid: the error distribution is multivariate normal, with zero mean and constant variance (homoscedasticity); the errors are not autocorrelated. I check the hypotheses by testing the specification of the model.

1. I check that the mean of the errors is not significantly different from zero.

```
> residui <- residuals(reg1)
>
> t.test(residui)

        One Sample t-test

data:  residui
t = -7.7363e-15, df = 469, p-value = 1
alternative hypothesis: true mean is not equal to 0
95 percent confidence interval:
 -0.07157211  0.07157211
sample estimates:
    mean of x
-2.817769e-16
```

2. I check the normality of the error distribution with the Shapiro-Wilk test:

```
> shapiro<-shapiro.test(residui)
> shapiro

        Shapiro-Wilk normality test

data:  residui
W = 0.9918, p-value = 0.01075
```

3. I test the homoscedasticity of the residuals using the Breusch-Pagan t-test.

```
        studentized Breusch-Pagan test

data:  modello
BP = 0.11213, df = 1, p-value = 0.7377
```

4. I test that the errors are not autocorrelated.

```
        Durbin-Watson test

data:  modello
DW = 2.096, p-value = 0.8482
alternative hypothesis: true autocorrelation is greater than 0
```

All specification tests were positive; therefore, I can state that the OLS regression model's assumptions are valid.

## A.2 Appendix 2: Regression with control variable

In this study, the variables age, education and salary are considered as control variables and are included in the regression to check if they influence the level of perceived job stress.

```
Call:
lm(formula = Stre ~ Sex + Education + Lohn + Age, data = Mydata4)

Residuals:
     Min       1Q   Median       3Q      Max
-1.98875 -0.51946  0.02102  0.53977  2.22012

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  3.004826   0.184854  16.255   <2e-16 ***
Sex         -0.188700   0.079651  -2.369   0.0182 *
Education    0.001652   0.006121   0.270   0.7873
Lohn         0.003785   0.024311   0.156   0.8763
Age         -0.001487   0.003607  -0.412   0.6803
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7928 on 465 degrees of freedom
Multiple R-squared:  0.01335,   Adjusted R-squared:  0.004866
F-statistic: 1.573 on 4 and 465 DF,  p-value: 0.1802
```

*Figure 1. Regression with control variables*

## A.3 Appendix 3: Moderation Analysis

I show the moderation analysis, which consists of 3 steps.

In the first step, I find the effect of the independent variable *Sex* on the dependent variable *Stre*. In the second step, I analyze the effect of the independent variable *Sex* on the moderator Satisfaction (*Sat*). In the third step, I find the effect of the mediator on the dependent variable, controlling for the effect of the independent variable.

Finally, a bootstrapping analysis is performed to show the significance of the direct and indirect effects (Shrout & Bolger, 2002).

The mediation effect is - 0.0752 and appears to be significant at the 0.01 level of significance.

Step 1: lm(Stre ~Sex ,Mydata4)

```
Call:
lm(formula = Stre ~ Sex, data = Mydata4)

Residuals:
     Min       1Q   Median       3Q      Max
-1.96845 -0.52950  0.03155  0.53155  2.22050

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.96845    0.04497  66.012   <2e-16 ***
Sex         -0.18894    0.07683  -2.459   0.0143 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7905 on 468 degrees of freedom
Multiple R-squared:  0.01276,   Adjusted R-squared:  0.01065
F-statistic: 6.048 on 1 and 468 DF,  p-value: 0.01429
```

*Figure 2. Regression 1*

Step 2: lm(Sat~ Sex, Mydata4)

```
Call:
lm(formula = Sat ~ Sex, data = Mydata4)

Residuals:
   Min     1Q Median     3Q    Max
-6.466 -0.466  0.534  1.112  2.534

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   7.4660     0.0930  80.276  < 2e-16 ***
Sex           0.4222     0.1589   2.657  0.00816 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.635 on 468 degrees of freedom
Multiple R-squared:  0.01486,   Adjusted R-squared:  0.01275
F-statistic: 7.058 on 1 and 468 DF,  p-value: 0.008159
```

*Figure 3. regression 2*

Step 3: lm(Stre~Sat + Sex, Mydata4)

```
Call:
lm(formula = Stre ~ Sat + Sex, data = Mydata4)

Residuals:
     Min       1Q   Median       3Q      Max
-1.97942 -0.51542  0.00549  0.55462  1.94860

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.29751    0.16085  26.717   <2e-16 ***
Sat         -0.17801    0.02080  -8.557   <2e-16 ***
Sex         -0.11379    0.07205  -1.579    0.115
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7357 on 467 degrees of freedom
Multiple R-squared:  0.1466,    Adjusted R-squared:  0.1429
F-statistic: 40.11 on 2 and 467 DF,  p-value: < 2.2e-16
```

*Figure 4. regression 3*

```
Causal Mediation Analysis

Nonparametric Bootstrap Confidence Intervals with the Percentile Method

               Estimate 95% CI Lower 95% CI Upper p-value
ACME            -0.0752      -0.1407        -0.02   0.008 **
ADE             -0.1138      -0.2397         0.02   0.104
Total Effect    -0.1889      -0.3309        -0.04   0.008 **
Prop. Mediated   0.3978       0.1233         1.35   0.016 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Sample Size Used: 470


Simulations: 500
```

*Figure 5. Moderation Analysis*

## Declaration of Independent Work

I hereby declare that I completed this thesis independently and only used the sources and aids stated. I further declare that I have not previously submitted the thesis elsewhere.

Place: Lucerne Date: 17.05.2023 Signature of the author: