

Hidden discrimination: What you do not see in a gender equality plan or report

Anja Vervoorts^{1,*}, Christine Kreißl², and Selma Gündogdu¹

¹Heinrich-Heine-University, Equal Opportunity Office, 40225 Duesseldorf, Germany

²Heinrich-Heine-University, Medical Faculty, 40225 Duesseldorf, Germany

Abstract. Increasingly precarious working conditions are a common phenomenon among scientists at universities in Germany. Gender Equality Plans (GEP) usually include an assessment of current data relating to the (under)representation of women at different stages of their scientific career. We performed a quantitative study on the working conditions for scientists at a Medical Faculty in Germany. We analyzed the employment contracts over a period of four years (2012-2015) and collected data regarding contract duration (CoD), weekly working time (WWT), age, gender and parental leave. During this postdoc phase the specialist training for physicians for a medical career and “Habilitation” for an academic career take place. These are the critical stages on the path to leadership positions for women in the field of medicine. Men and women are on equal terms when it comes to fixed-term contracts. Men and women are on equal terms when it comes to fixed-term contracts. Men receive contracts with longer working hours than women which leads to a gender pay gap and prospectively to a gender pension gap. Men are also twice as likely to perceive a permanent contract as women. Gender has the greatest influence on the claim and the duration of parental leave.

1 Introduction

GEPs specify how universities will promote gender equality by elaborating the structural gender dimensions along with relevant indicators for measuring success within a particular time scale. An equality plan comprehends measures to reduce the underrepresentation of women, to recruit young talents and to improve work-life balance.

Many GEPs implement gender equality-quotas based on the so-called “cascade model” in order to elevate the proportion of women: quotas are established for female participation on the different levels of an academic education or career. A quota for one specific level is reverting to the level directly below it. If, for example,

* Corresponding author: vervoort@hhu.de

the percentage of female students is 43 %, the goal would be to at least align with this proportion on the next level of the academic career, the graduation, or achieve equality (50 %).

In the Gender Reports the proportion of women graduates on different career levels and the employees are charged. Based on these surveys, the objectives of GEPs are formulated. These targets are usually a higher share of women by a certain percentage within a defined period. To achieve these goals appropriate university-specific measures are planned and carried out.

This approach reflects the status quo at a university or institution. To identify hidden discrimination and other obstacles, more data needs to be available, for example, about the working conditions.

Young researchers in the life sciences are mostly employed in the context of their academic and/or clinical career. The contracts provide insight into the basic conditions. Young scientists often have to make decisions for first career steps even though their knowledge about the scientific system is still very limited [1]. Thus, the career paths differ not only dramatically between desire and reality, but particularly between men and women [2].

We performed a quantitative study on the working conditions of scientists at a Medical Faculty in Germany. We intended to gain data according contract duration and to identify hidden key hurdles and potential gender gaps disadvantageous for women.

In order to improve work-life balance, GEPs define specific measures of support. In the past female academics were primarily obligated to care for their families at the expense of their career. Nowadays mothers and fathers in Germany are granted the same leave rights allowing both parents to devote large periods of time – up to 36 months of parental leave (*Elternzeit* – EZ) – to both family and career. Parents can even take parental leave individually or simultaneously.

Since 1 July, 2015 parents can take 36 months of parental leave up until the child's third birthday. Alternatively they can divide the entire parental leave into three periods between the child's birth and the completion of the child's eighth birthday. 24 months parental leave can be claimed between the ages of three and eight (before July 2015: up to 12 months). During parental leave employees have full employment protection and cannot be terminated. When the parental leave period expires, the employer must offer the employee the former job or an assignment of equal standing.

In addition, mothers have six weeks of mandatory paid leave before the birth and eight weeks afterwards (maternity protection). This is extended to 12 weeks following premature or multiple births. The reasons for the underrepresentation of women in scientific careers are manifold [3]. The explanations vary as well: depending on the standpoint they focus on the individual and his or her skills or on external influences and structural and cultural barriers. [4, 5, 6].

But the main question remains: is family life compatible with an academic career? And as their leave rights as parents extended, do men and women engage equally in family responsibilities? So in a second step we analyzed the duration of parental leave (without part time work) according to age, gender and academic status.

2 Methods

We performed a quantitative study on the working conditions for scientists at a Medical Faculty in Germany. We analyzed the employment contracts over a period of four years (2012 – 2015) and collected data regarding contract duration (CoD), weekly working time (WWT), age and gender.

Table 1. Database

Type of contract	Female	Male	Total
Fixed term	1530	1120	2650
	58 %	42 %	
Permanent	47	77	124
	38 %	62 %	5 %

2.1 Manova

A MANOVA was performed with the test statistic Wilks' lambda and the factors gender and contract type. Dependent variables were contract duration and weekly working time (WWT). Due to the exploratory question Bonferroni correction of level of significance was omitted. We analyzed 2774 contracts from the years 2012 – 2015. We divided the contracts into two groups based on the variable contract duration [A: contract duration < 70 months; B: contract duration >70 months].

2.1.1 MANOVA for fixed-term contracts

For group A a MANOVA was conducted with the test statistic Wilks' lambda and the factors gender and type of contract (initial contract or extension). Dependent variables were contract duration and weekly working time. The sample consisted of all fixed-term contracts between 2012 and 2015 (2650 persons, of whom 1530 were women and 1120 were men).

2.1.2 MANOVA for permanent contracts

For group B a MANOVA was conducted with the test statistic Wilks' lambda and the factors gender and type of contract (initial contract or extension). Dependent variables were age and weekly working time. The sample enfolds 124 persons, of whom 47 were women and 77 were men.

2.2 Analysis of the reconciliation of family and career

We performed a gender analysis for all scientific staff of the Medical Faculty examining weekly working time and parental leave.

The analysis of the duration of parental leave was performed with ALSTAN based on Excel. This tool gives a review of the demographic composition of an institution. There is no specific evaluation of individual persons.

For the academic and clinical career we analyzed different groups. The groups are defined as follows: postgraduates, graduates/postdocs and scientists with a postdoctoral lecture qualification (Habilitation) including all employees of the Medical Faculty. For the medical career group we included only the physicians. They are divided into assistant physicians (Ä1), medical specialists (Ä2) and senior physicians (Ä3). A look at the use and duration of EZ within these groups might render it possible to draw conclusions about work-life-balance. For a comparison between men and women we only considered parental leave (EZ) without working

time or mandatory maternal protection periods. For the analysis of the reconciliation of family and career we collected 265 data sets about parental leave regarding gender, age, duration of parental leave and academic status from 178 persons.

Table 2. Overview of the data collected

	Analysis of Employment Contracts 2012-2015	Reconciliation of family and career 2013-2015
Type of Contract (first or continued employment)	+	
Gender (m/f)	+	+
Academic Title		+
Contract Duration (CoD) in months	+	
Weekly working time (WWT) in %	+	+
Tariff Classification	+	+
Age	+	+
Maternity protection y/n		+
Parental leave without Working y/n		+

3 Results

3.1 MANOVA for fixed-term contracts

There is a main effect between the parameters gender ($F(2/2645)=12.647$; $p<.001$, $\eta^2=.009$) and contract type ($F(2/2645)=74.195$; $p<.001$, $\eta^2=.053$) and there was one interaction ($F(2/2645)=3.184$; $p=.042$, $\eta^2=.002$).

Gender has no effect on contract duration but on weekly working time in fixed-term employments. Contract type has in contrast to previous findings [7] a main effect on the variable weekly working time ($F(1/2645)=25.207$, $p<.001$, $\eta^2=.009$), and not on the variable contract duration anymore ($F(1/2645)=1.627$, $p=.202$, $\eta^2=.001$). Men have longer weekly working times ($M=.838$, $SD=.008$) than women ($M=.787$, $SD=.007$). An interaction between the two variables was observed.

The main effect contract type affects the variable contract duration ($F(1/2646)=146.895$; $p<.001$, $\eta^2=.053$) as well as the variable weekly working time ($F(1/2646)=6.811$, $p=.009$, $\eta^2=.003$).

Generally newly employed persons have longer contract durations ($M=25.438$, $SD=.531$) and longer weekly working times ($M=.826$, $SD=.008$) than retained employees (contract duration: $M=17.379$, $SD=.401$; weekly working time: $M=.799$, $SD=.006$).

An interaction between both variables has been observed.

In contrast to men, the contract duration of women who have been newly employed and those who were retained differ strongly from each other (women: arithmetic mean new hire= 28.812 ; arithmetic mean retained= 16.157 ; men: arithmetic mean new hire= 25.065 ; arithmetic mean retained= 18.601).

The same circumstances become apparent with regard to the weekly working time: on average newly hired women work 80,8 % of a full-time job (retained female employees work 76,6 %). Newly employed men work 84,3 % of a full-time week (retained male employees 83,2 %).

During early academic and clinical career men and women are on equal terms when it comes to fixed-term contracts. But men receive contracts with longer working hours than women (men: 84 %; women: 78 %) which leads to a gender pay gap and prospectively to a gender pension gap.

3.2 MANOVA for permanent contracts

The sample comprised contracts from 124 persons, of whom 47 were women and 77 were men.

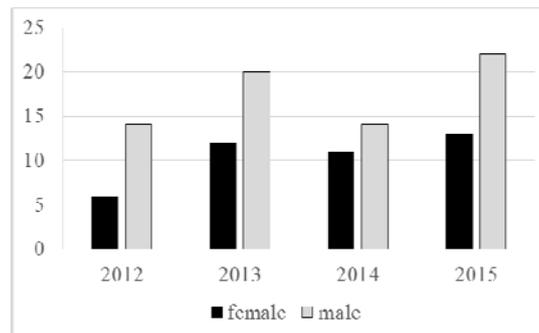


Fig. 1. Number of all permanent work contracts by gender

Only a main effect of the factor gender ($F(2/119)=8.132$; $p<.001$, $\eta^2=.012$), but no main effect of the parameter contract type ($F(2/119)=1.697$; $p=.188$) was found. As a main effect gender has an influence on the variable weekly working time as well as on the variable age. In general men have longer weekly working times ($M=.973$, $SD=.021$) than women ($M=.888$, $SD=.026$) and they are older at the beginning of their employment (men: $M=42.565$, $SD=.651$; women: $M=39.708$, $SD=.789$).

Table 3. Results from MANOVA, p : α - error margin, bold: significant effect, italic: insignificant

	Factors/parameters	Gender	Contract type	Interaction
Fixed-term	CoD	<i>$p=.202$</i>	$P<.001$	
	WWT	$P<.001$	$P=.009$	
	total	$P<.001$	$P<.001$	$P=.042$
Permanent	age	$P=.006$		
	WWT	$P=.013$		

	total	P<.001	<i>P=.188</i>	<i>P=.006</i>
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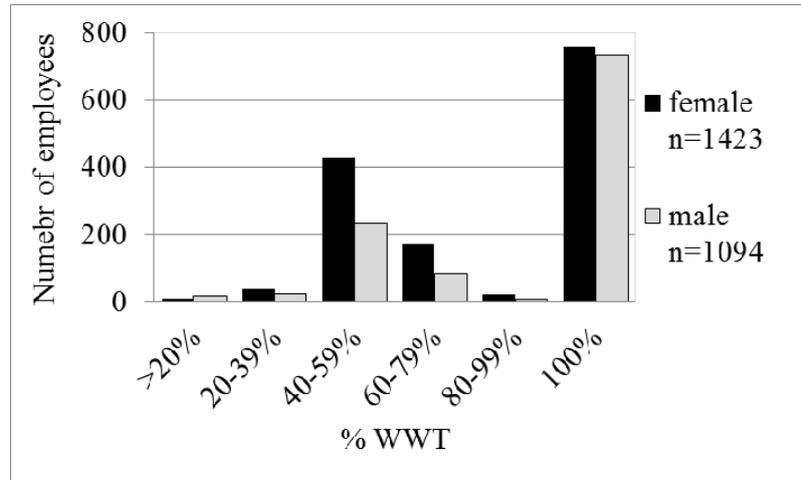


Fig. 2. Distribution of weekly working time by gender (1=100% WWT, i.e. full time)

Men are also twice as likely to perceive a permanent contract as women. This leads to a better planning of career and family formation for men.

3.3 Parental leave and academic career

Gender analysis as well as the age structure analysis show the age and gender distribution of an aging workforce with a gender imbalance [7].

In this work we analyzed the gender differences due to the acceptance of parental leave.

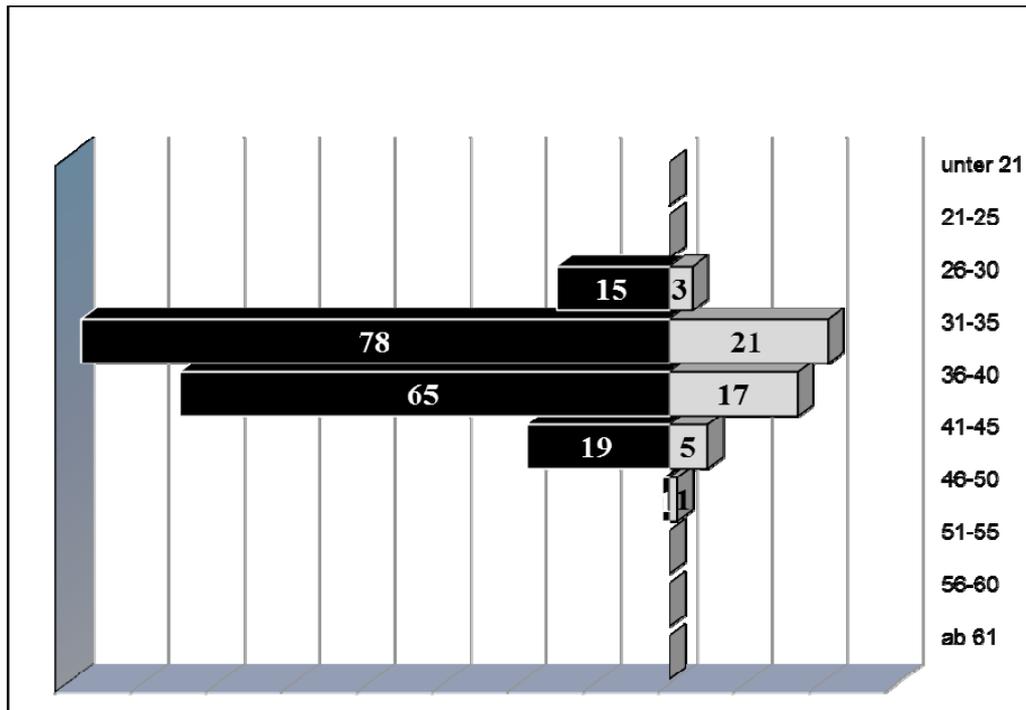


Fig. 3. Number of employees in parental leave per age group and gender (right: male, left: female)

From 2013 to 2015 women exercised their right of parental leave about 178 times and men 47 times. On average women took 170 days of EZ and men 47 days (medium age for both gender 35,5 years). EZ is most commonly used between the ages of 31 and 35 (m/f).

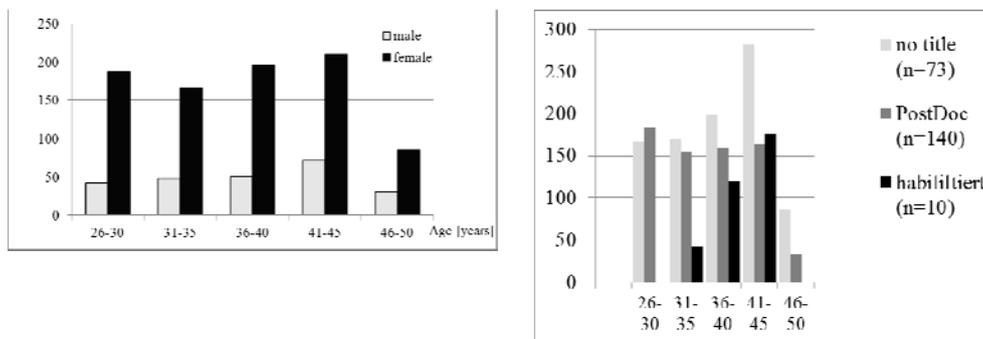


Fig. 4. Average duration of parental leave [days] according to age (a) and career (m/f) (b)

In conclusion, male scientists in comparison to female scientists take parental leave infrequently and for shorter periods of time. In general the duration of parental leave is almost independent of the age of the mothers and fathers.

But the duration of EZ increases with age (m/f) among employees, who have no doctorate and those who have received a postdoctoral lecture qualification (Habilitation). Whilst latter group takes a significantly shorter parental leave between the ages of 31 and 35 years (< 50 days), this duration more than triples between the ages of 41 – 50 years (175 days).

There is hardly any difference between fixed-term and permanent employees or the stage of the clinical career with regards to the duration of EZ.

These results lead to the conclusion that of all analyzed factors gender has the greatest influence on the claim and the duration of parental leave.

4 Discussion

These statistical tests show that the given conditions of women's careers in universities in Germany need to be improved drastically in order to give the women a fighting chance to be truly emancipated in respect of career. Our tests show that GEPs do not depict all hurdles and hidden gender inequalities thoroughly. In order to achieve lasting results, a structured process and gender-sensitive procedures in recruiting permanent employees must be realized.

The legal situation has never been better for mothers and fathers: Parents are not obliged to work during EZ but they have the right to work part-time up to 30 hours per week. So even with simultaneous parental leave, both parents can be employed with a total of 60 hours per week (30 + 30) to secure the family income to some extent. This way parental leave offers both men and women the opportunity of looking after their child(ren) whilst allowing them to maintain contact with their working life.

But female academics are still primarily obligated to care for their families at the expense of their career. This is supported by our findings: female scientists have shorter weekly working times, are more often employed on fixed-term contracts and take longer parental leave. The difficulty of balancing the duties of motherhood with the demands of an academic career increases the risk of many women ending their career before they reach senior ranks. The uneven distribution of EZ between male and female employees with family responsibilities has the potential of excluding female academics from pursuing a career.

Only 4 to 7 % of all female employees took parental leave in the given period (men: <1%). Merely a few women did not make use of EZ right after mandatory maternity leave. According to the Federal Statistical Office 70 % of all female scientists in Germany have at least one child [8].

In consequence universities and university medical centers in Germany have to reckon that prospectively almost 70 % of their young female academics will take parental leave eventually.

GEPs should enunciate goals and measures relating to weekly working time, the duration of contracts and the claiming of EZ. Men should be encouraged to use parental leave more often and for longer periods in order to create more acceptance for parental requirements. Female applicants and employees are still being treated unfavorably when it comes to appropriate contract conditions. Some employers even avoid hiring young female academics for fear of maternity and parental leave. If both men and women would get equally involved in child care and spend a similar amount of EZ with their children, it would be impossible for employers to ignore their employee's family commitments.

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Short presentation of the authors

Dr. Anja Vervoorts

Dr. rer. nat. Anja Vervoorts is equal opportunity commissioner of HHU Dusseldorf and is particularly committed to the reconciliation of family and career in medicine, the implementation of gender aspects in curriculum teaching and the promotion of young scientists.

Christine Kreißl

Christine Kreißl is a student of psychology. Her research for her Bachelor Thesis is on "discrimination against women at work on the example of a University Hospital - self-perception and reality".

Selma Gündogdu

Selma Gündogdu M. A. works as a coordinator at the equal opportunity office of the Heinrich-Heine-University Dusseldorf.