



Article Accommodating Employees with Impairments and Health Problems: The Role of Flexible Employment Schemes in Europe

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Abstract: Over the past 30 years, the workplace has witnessed significant changes. The fast growth in the use of information and communication technologies and changes in working hours and agreements radically changed the nature of the job. One such change is flexible employment schemes, which can provide alternatives for employees with disabilities and health problems, giving incentives to increase their productivity and job satisfaction. This study examines the relationship between those schemes and labour outcomes, such as job satisfaction, job quality and absenteeism in this group of people. Furthermore, the objective is to explore the role of flexible employment for carers of people with impairments. The empirical analysis relies on the European Working Conditions Survey from 2000 to 2015. The findings show that employees with disabilities and health problems working under flexible employment schemes are more likely to report higher levels of job satisfaction and lower absenteeism rates than their counterparts working under fixed employment schemes. Moreover, carers' job satisfaction and organisational loyalty are significantly improved when flexible employment schemes are in place. The policy implications suggest efficient implementation at the state and corporate levels of flexible employment systems that can promote job satisfaction, reduce turnover intentions and, thus, increase productivity.

Keywords: disability; European Working Conditions Survey; flexible employment schemes; flexi-time; job satisfaction; working from home

1. Introduction

In all societies around the world, physical and mental impairment is a prevalent occurrence. At any time in life, a large proportion of a country's population may experience a temporary or permanent impairment. In addition, disability transfers the responsibility to the non-disabled family members or friends responsible for their support and caring [1–3]. According to the World Health Organization [4], roughly 1000 million individuals in 2010–15% of the world population—had some type and degree of disability. Various solutions have been suggested for people with disabilities. However, the outcome of those solutions was segregation, such as special schools. Nowadays, the policy has changed to help people with impairments to integrate into the education system and employment and enhance social inclusion. During the last 30 years, there has been a growing tendency for disability to be seen as a human rights issue, culminating in 2006 with the adoption of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) [5].

Households with family members facing health problems are more likely to experience extra expenses due to disability, which also depends, on a large scale, on its type and severity. Governments worldwide, particularly in Europe, provide disability and sickness benefits, attempting to reduce and relieve this financial burden. Unsurprisingly, these households may spend extra amounts on health care, nursing and care facilities, rehabilitative activities, food, apparel and transportation, facing excessive out-of-pocket expenditures [6–9]. In addition, the rest of the family members may be compelled to decrease their working hours



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Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). or alter or even give up their jobs to allocate time to the patient's care, depending on their disability severity. Caregivers could also be relying on carer subsidies, creating a new burden on the government budget.

Integrating people with disabilities and health problems into the labour market and society has always been a critical challenge for policymakers. This group of people is likely to stay unemployed, especially in the long run, because of potential barriers and discrimination in the labour market, associated with adverse effects not only on the wellbeing of people with special needs but also on society and the economy. The persistence of elevated unemployment at the domestic level jeopardises employment and the goals of social policy, including higher levels of standard of living and health.

There are two main policies addressing people with disabilities and health problems. The first type takes the form of active labour market policies, such as "supported employment", promoting the worker's adaptation and transition in the workplace; "subsidised employment", which eliminates barriers in the recruitment process; "vocational rehabilitation and training", aiming to enhance the job skills of people with impairments; and"quota schemes" that allow a certain minimum number of workers to be employed in a given workforce. Other policies include "anti-discrimination schemes", which ensure conditions for equal participation and treatment at work, and "flexible employment schemes", including teleworking, working at home and other flexible employment arrangements [10–13].

Passive labour market policies are initiatives where people with special needs rely on social benefits, such as disability, unemployment and injury allowances. This policy is a subject of criticism, as it may primarily prevent the unemployed from actively looking for jobs and reduce the incentives for people to return to work and re-integrate into the labour market [14,15]. The empirical evidence shows that countries characterised by efficient active labour policies, such as Sweden and Denmark, present lower unemployment rates than Italy, the United Kingdom, Greece and France [16,17].

One of the active labour market policies is flexible employment schemes. This study addresses the role of those policies in disabled workers' labour outcomes, such as satisfaction, absenteeism and job performance. Several qualitative research studies, focusing on workers with disabilities, indicate that flexible working schemes are helpful to them because of issues related to working accommodation, transportation, accessibility, physical conditions of many workplaces and possible practices of discrimination in the workplace [18–21].

The aim of this study is twofold. First, to investigate the role of flexible employment schemes in job satisfaction, absenteeism and job quality of workers with impairments. While there is a gap in job quality, especially in the wage dimension, between workers with and without impairments, we aim to explore the gap among people with impairments employed under flexible and non-flexible schemes. While we expect to find inequalities between people with disabilities and health problems and those without, the aim of extending the analysis to the group of people with impairments is to examine whether flexible employment schemes improve job satisfaction and quality. Another significant outcome we explore is absenteeism at work. While traditional employment schemes can be more efficient for non-disabled workers, this may not hold for workers with disabilities and health problems, as flexibility would improve their accessibility to work and decrease their absenteeism.

Second, we aim to explore the association between flexible employment schemes and the job satisfaction of carers looking after a family member with disabilities and health problems who cannot cope without their support. Balancing employment with caring can be challenging, causing a reduction in working hours or giving up their job [22,23]. This outcome has a cost to both the carer (worker) and the employer. It is costly to the carer, who can lose financial security, and to the employer, who may lose the skills and experience of those workers and the additional costs needed to recruit other personnel to replace them. These costs are likely to be extended to the economy, as the job loss may lead to productivity reduction and loss of tax revenues from people who are willing to work but are unable to do so because of caring responsibilities. Flexible employment schemes may provide a solution

to this issue and help carers cope with their job and caring responsibilities, improving their work-life balance.

The motivation of the study lies in the effort to eliminate disparities, which is critical to meet the principle of "leaving no one behind", adopted and supported by the United Nations Sustainable Development Goals (UN-SDG) within the 2030 Agenda for Sustainable Development (2030 Agenda for Sustainable Development and 17 sustainable development goals https://sdgs.un.org/goals (accessed on 22 November 2022)). In particular, the human rights perspective on disability and people with health problems is enshrined in the Convention on the Rights of Persons with Disabilities (CRPD) in 2006 (The Convention on the Rights of Persons with Disabilities (CRPD) was adopted on 13 December 2006 at the United Nations Headquarters in New York and entered into force on 3 May 2008). It establishes a foundation for valuing and protecting the rights of people with disabilities and promoting their full participation in society by doing so in a way that is inclusive and which acknowledges and celebrates the rich diversity among human beings. The principle of 'leaving no one behind,' which is firmly incorporated into the SDGs, was bolstered by the Convention, which affected the deliberations and adoption of the SDGs in 2015. This study is related to SDG Goal 10, which highlights efforts to reduce inequalities in income and disparities across demographic, socio-economic and cultural characteristics, such as sex, age, disability and health status, ethnicity, religion and economic status within a country (https://sdgs.un.org/goals/goal10 (accessed on 22 November 2022)). There is mutual reinforcement between the SDGs and the CRPD. The CRPD lends a human rights lens to the process of including people with disabilities in the SDGs. In addition, it explains how government agencies may help people with disabilities become more integrated into society and participate in development projects. Thus, the motivation of this study is to highlight that inequalities between workers with and without disabilities and health problems within the workplace are a persistent cause for concern and investigate whether flexible employment schemes may moderate and reduce these inequalities in terms of job satisfaction, absenteeism and job quality.

The empirical analysis relies on data from the European Working Conditions Survey (EWCS) from 2000 to 2015. The study considers the EU-28 member states and seven associated countries: Albania, Montenegro, North Macedonia, Norway, Serbia, Switzerland and Turkey. The structure of this study is as follows. Section 2 discusses the theoretical framework on which our empirical work relies. In Section 3, we describe the data and present the methodology employed in the empirical work. In Section 4, we report the main findings of our study, while in Section 5, we discuss the main concluding remarks, policy recommendations and implications.

2. Theoretical Framework

Organisations have two main motivations when they offer flexible employment schemes [24–27]. The first refers to the life-management motives, and the second to work-related motives. Both are part of work-life balance and allow employees to handle and manage their individual, family and working lives. This involves instances in which staff must meet family requirements and special needs, such as the individuals with disabilities studied here. The empirical analysis focuses on a theoretical framework in which flexible employment systems fulfil disability requirements, providing them with autonomy and job control, thereby increasing job satisfaction and the quality of employment. Moreover, caregivers can balance their work and family life by being employed in these work schedules.

Therefore, the first critical element of the theoretical framework is that flexible working schedules are designed to provide employees with greater control over their jobs, meet their requirements and improve their well-being, thus improving efficiency [28–31]. The reason is that individuals with disabilities and health problems have particular needs that could be accommodated using the flexible employment schemes we explore here [32–34]. The second component, strongly linked to the first, relates to the boundary theory, the balance

between job and family, in which the focus is on improving the quality of well-being at the workplace, at home and in personal life. Boundary theory assumes that people build fences between those realms of existence, both physically and emotionally [35,36]. Flexible working arrangements in this situation could provide individuals with impairments with tools to balance work demands and their personal needs, influence their perception of their capacity to regulate work-life boundaries and improve job satisfaction and productivity through two channels. First, by gaining control of the schedule and the workplace, and second, by improving their quality of life and allocating time to their particular needs, which has additional positive effects on their work and family.

Three types of flexible employment are explored based on data availability: work at home, teleworking and flexi-time. In this study, we distinguish between the first two types of work, even though these are often used interchangeably. In particular, teleworking involves working at home, using a laptop, the internet and information and communication technologies. The advances in technology, which are expected to become even faster shortly, have reshaped the relationship between home and work, where the flow tends to be from office to home. Such flexible jobs have become more popular globally [29,34,37–39]. Previous studies have highlighted the reasons for the development of home-based and teleworking and demonstrate that employee loyalty and firm-financial performance in different areas of jobs are beneficial to multiple individuals and workplaces. For example, organisational loyalty and absenteeism decrease, and higher levels of job satisfaction and productivity are seen [40–43], but the role of those employment schemes for workers with disabilities and health problems has not been explored.

Flexi-time is the third flexible employment scheme investigated, enabling employees to select start and end times that may vary every day. Sometimes, staff may need to work certain times over key periods upon an agreed amount of hours and decide whether to work outside these specific times. Within this contract, employees can select the starting, ending and lunch times and bear any deficit or surplus in the number of working hours during the next period. This working schedule seeks to moderate the adverse effects of a set work timetable, constraining people's needs and non-labour requirements [44–46]. It is also directly linked to individuals with disabilities, as they need this flexibility to respond to their particular requirements, health and nursing needs and medication.

The literature suggests that there are six types of disability. In particular, the study by Boman et al. [47] explored the employment status of people with different disabilities, including physical, psychological and medical disabilities, and people with communicativevision, communicative-speech-reading and communicative-hearing impairments. Some people with disabilities have physical restrictions that make it hard for them to work, but many more encounter discrimination and other obstacles related to their environment, society, attitudes and workplace [48,49]. Once hired, many individuals with disabilities and health difficulties confront negative stereotypical attitudes and expectations from their coworkers and managers, which can lead to more negative treatment from management [50]. A study surveyed 373 working persons with impairments and found that the main benefits of flexible employment schemes, such as teleworking, are removing pain- and fatiguerelated impediments of regular employment [51]. Similar to our study, Moon et al. [52] found that employees generally view telework as a way to achieve outstanding worklife balance and as a strategy for reducing pain and fatigue not formally recognised as disability-related. This finding is relevant to our research because, in addition to hearing impairments and injuries, we investigate workers with health problems such as muscular pains in the limbs, neck, and shoulders, headaches, eyestrain and anxiety.

Schur et al. [53], using data from surveys from fourteen companies in the USA over the period of 2001–2006, found that the differences in job satisfaction between people with and without impairments declined when workplaces considered the employees' needs, such as the people with disabilities. Other studies also emphasise the importance of working flexibility to successfully include people with and without disabilities [21,54,55]. If the evidence shows that the gap in job satisfaction reduces, it is pretty encouraging, as people with disabilities working

in flexible employment schemes report higher levels of job satisfaction. Thus, following the previous studies, the first hypothesis of the empirical work is:

Hypothesis 1 (H1). Flexible employment schemes increase the job satisfaction of employees with disabilities compared to their counterparts who are not employed under flexible working schedules.

The second objective is to examine the role of flexible employment schemes on job quality through a set of outcomes developed at the job level, aiming to capture the workers' job performance and working conditions. This set includes the job qualities consisting of the monthly earnings, the skills and discretion index, the social environment, the physical environment, the intensity, the prospects and the working time quality. While some of those indices are clear, such as the monthly earnings, we briefly describe the rest.

Another critical index that captures the workers' adaptability, the ability to learn and adjust to new technologies and having generic soft skills that improve their productivity is the skills and discretion index [56]. The particular index refers to skills obsolescence, adaptability and autonomy. These characteristics are important because the workers that do adapt to the job requirements and the possible changing demands for skills are at less risk of being unemployed. Moreover, skills obsolescence may improve their prospects of becoming more productive. A good social environment implies social support and the absence of abuse in the workplace, while the physical environment refers to health and safety. The prospects indicator refers mainly to job security and career advancement. This is important, as we aim to explore whether flexible employment schemes are associated with higher prospects and job security.

The next indicator is the working time quality, an index measuring the balance between personal and working time, and it refers to night work, long working hours and unsocial hours. A higher value of each component implies higher quality, except for the intensity, whereas higher intensity levels at work are negatively associated with job quality. This dimension refers to the demands of a specific job and its performance related to the quality of working time, including long working hours. In addition, this indicator is related to limited social support and tight deadlines. The European Commission [57,58] has identified ten dimensions of job quality, including the skills and discretion index, the social and physical environment and other indicators examined in this study. Previous studies show a positive link between flexible working arrangements and job quality, measured by productivity or performance ratings and indicators of quality, including customer complaints [59–62]. However, while teleworking and working from home may be helpful for some workers, some co-workers working from home may report negative individual and team performance. Nevertheless, little is known about the association between flexible employment and the job quality of workers with disabilities and health problems. Thus, based on these findings, we test the second hypothesis.

Hypothesis 2 (H2). Flexible employment schemes improve the job quality of employees with disabilities compared to their counterparts not employed under flexible working schedules.

The third objective is to explore the role of flexible employment on the absenteeism of workers with disabilities, compared to the same group of workers employed under traditional and fixed working schedules. Flexible arrangements at work allow people to cluster personal needs and appointments by gaining control of time and place of work. According to the expectancy theory [63], people will have more motivation to perform better for valued goals they think they can reach and achieve. Therefore, people with impairments in flexible working schedules will have additional resources in terms of time, place and comfort, extra support, and higher perceived job benefits. Thus, they will be more likely to perform better by reducing the incidence of absenteeism at work [64–69].

Earlier research shows that employees may engage in higher extra-role performance when flexibility is available. Lambert [64] and Greenhaus and Powell [65] argue that flexible employment schemes may improve workers' loyalty and positively affect both job

satisfaction and their personal life. Choi [66], using longitudinal data from the U.S. Office of Personnel Management (OPM) congressional reports on telework implementation in the federal government and the Central Personnel Data Files (CPDF), found that teleworking is associated with less voluntary turnover, which is when an employee leaves a job. Another study shows that flexible working arrangements reduce stress and improve job satisfaction, reducing absenteeism and enhancing organisational commitment [69]. However, to the best of our knowledge, there is no large-scale study exploring the link between flexible employment schemes and absenteeism, as the current study uses surveys from workers with disabilities in 35 countries. Following the arguments from previous studies, the third hypothesis is:

Hypothesis 3 (H3). *Flexible employment schemes reduce the incidence of absenteeism of employees with disabilities compared to their counterparts not employed under flexible working schedules.*

The second aim is to explore the carers of people with disabilities. Thus, we aim to examine whether flexible employment schemes improve job satisfaction and reduce work hours or days of absence, according to the theoretical considerations discussed earlier. However, we do not account for the job quality in this case. The reason is that carers mainly would like to choose an employment type that allows them to arrange their family obligations, which is caring for family members with health problems in our case, and be able to cope with those demands. In other words, they will willingly select this type of employment, even though they may earn less or have fewer career prospects. While we can argue for the opposite, we do not further explore job quality. In particular, we are mainly interested in whether carers employed in flexible employment schemes are more satisfied with their job and reduce their work hours or days of absence. The findings will provide valuable insights from two aspects. If flexible employment improves job satisfaction and carers' well-being, then we may assume that this finding suggests an efficiency, up to some degree, of the flexible employment schemes. Second, an improvement in both job satisfaction and absenteeism implies an increase in productivity and a reduction of potential loss for the employer, for the reasons we have discussed before.

Previous studies show that organisations and companies offering flexible working arrangements are essential in helping carers to combine work and care and reduce absenteeism [70–75]. For instance, the study by Carersuk [72] found that flexible working arrangements were the most critical factors influencing employee retention and reducing absenteeism. Furthermore, the study suggests that UK businesses could save up to £4.8 billion annually in unplanned absences and a further £3.4 billion in improved employee retention by adopting flexible working policies to support those with caring responsibilities. Furthermore, in the absence of flexible employment schemes, carers may experience increased absenteeism and reduced productivity [73,74]. Following the previous literature, hypothesis 4 is:

Hypothesis 4 (H4). *Flexible employment schemes improve job satisfaction and reduce the absenteeism of carers compared to carers who are not employed under flexible working schedules.*

The assumptions of hypotheses 3–4 lie in the fact that flexible employment arrangements can reduce work-life conflict and enhance the work-life balance. This includes the time allocated for caring for disabled family members, organising family commitments and devoting the time that people with impairments need, including home care, hospital and nursing services and reducing, if not eliminating, commuting time to work. Earlier studies show that workers who experience work-to-life conflicts report lower levels of job satisfaction and loyalty to the organisation, resulting in a reduction in performance and an increase in absenteeism [75,76]. Furthermore, special attention should be given to the fact that employees have different preferences in work-life practices, and thus, employment schemes may not be efficient if they do not meet workers' needs [35,68–70,74,76]. Therefore, we assume that flexible employment arrangements can reduce the absence rates at work, since these allow workers to manage disability, chronic illnesses and long-term health conditions, and support their stress, anxiety and mental health, and caring responsibilities [77–80].

Overall, our study aims to examine hypotheses 1-4 in a sample of workers with disabilities and health problems and on carers of people with impairments. The theoretical framework is related to the study by Crisp [81], who reviews 75 empirical studies and shows that the employment outcomes varied in 6 disability groups. These groups include people with traumatic brain injuries, spinal cord injuries, amputations, chronic pain, myocardial infarction/coronary artery bypass grafting and psychiatric diagnoses such as psychosis and long-term major depression. However, our study differs, as it aims to explore the role of flexible employment arrangements in the absenteeism, job quality and job satisfaction of people with disabilities and health problems and carers of family members with health problems. Specifically, we consider workers with disabilities, such as those with hearing impairments, chronic fatigue syndrome (CFS), as well as injuries and anxiety that depend on whether and to what degree they prevent the workers from performing their job fully (https://www.gov.uk/when-mental-health-condition-becomes-disability (accessed on 18 August 2022). https://www.ssa.gov/policy/docs/ssb/v65n4/v65n4p31.html (accessed on 18 August 2022)). On the other hand, we examine health problems that are not considered disabilities, including headache and eyestrain, muscular pain in limbs and shoulder and backache.

3. Materials and Methods

3.1. Data Sources

The data used for the empirical work are derived from the European Working Conditions Survey (EWCS), and the period of our analysis is 2000–2015. EWCS is conducted by the European Foundation for the Improvement of Living and Working Conditions (Eurofound) every five years, and it covers the EU-28 member states and seven associated countries. The survey asks a range of questions to workers concerning employment status, health status and incidence and presence of impairments, work organisation and environment, working time and schedule, earning and financial security and perceptions, including job satisfaction. The EWCS draws information at work across countries, age groups, occupations and sectors. The survey aims to provide information and input for research to quantify working conditions and to analyse relationships between different aspects of those conditions.

Furthermore, we aim to use the EWCS to identify at-risk groups for research analysis. Using the EWCS, the findings can provide valuable insights into European policy development on employment issues and quality of work and highlight actions for policy decision-makers to address the challenges that workers across Europe face today. A questionnaire is administered face-to-face to a random sample of employed individuals representative of the working population in each country. The survey's target population refers to the residents aged 15 or older, but 16 or older in Bulgaria, Norway, Spain and the UK. According to the International Labour Organization (ILO) definition, EWCS considers people to be employed if they have worked at least an hour in the week preceding the interview.

The sample was based on the multi-state collection, using stratified and random samples. The sampling was carried out using individual-level, household-level and address-level registers or through enumeration using a random-walk approach. In the first stage, the samples were stratified by region and the urbanisation degree in each country. In the second stage, primary sampling units (PSUs) were randomly selected in each stratum, proportional to size. Next, a random sample of the household was drawn from each PSU. The last step included randomly selecting an individual in each household, based on birth date. The target sample size in the majority of the countries was 1000, but the sample was increased to 1200 in Poland, 1300 in Spain, 1400 in Italy, 1500 in France, 1600 in the UK and 2000 in Germany and Turkey to reflect the workforce in large countries (Eurofound, https://www.eurofound.europa.eu/surveys/european-quality-of-life-surveys (accessed on 20 November 2022)).

3.2. *Methodology*

Based on the type of outcomes explored, we will employ two regression methods. The first outcome is job satisfaction, and since it is an ordered variable and not continuous, we will estimate the following Ordered Probit model [82]:

$$JS_{ijt}^* = \alpha + \beta_1 F E_{ijt} + \beta' X_{ijt} + \mu_j + \theta_t + e_{ijt}$$
⁽¹⁾

where JS^* is the unobservable dependent variable, which evaluates the job satisfaction of the individual *i* in country *j* and year *t*. JS* is an ordered variable taking the values 1 for not at all satisfied, 2 for not very satisfied, 3 for satisfied and 4 for very satisfied. Variable FE denotes the flexible employment scheme explored, and vector X includes various individual and firm characteristics. Following the earlier literature, it is common to control for various characteristics [41,43]. This includes the respondent's gender, age, education level, country and workplace size, proxied by the number of employees. Other variables include the professional class, defined by the International Standard Classification of Occupations (ISCO-88) and the industry, expressed by the Statistical Classification of Economic Activities in the European Community and whether the workplace belongs to the public or private sector. The purpose of including these additional individuals and workplace characteristics is to control for possible confounding bias, as these may affect both the outcomes explored and the main independent variable of our interest, the type of flexible employment explored. This will allow us to net out the effect of those schemes on the outcomes explored. Set μ_i denotes the country fixed effects, and θ_t is the time-year fixed effects. While the EWCS is a repeated cross-sectional survey regarding the individual dimension, we cannot consider the individual fixed effects. The error term is denoted by e_{iit} , and we assume it follows a normal distribution. We should notice that, employing an Ordered Logit Model, the concluding remarks remain the same and, thus, we limit our analysis to the Ordered Probit.

Similarly, we will estimate an Ordered Probit model for absenteeism, as it is a categorical variable measured on an ordered scale. In particular, it answers the question, "in the past 12 months, how many days have you been absent due to sickness or health-related leave?", and it takes the following values: 1 for never, 2 for 1–4 days, 3 for 5–9 days, 4 for 10–19 days, 5 for 20–49 days and 6 for more than 49 days. Thus, a negative sign of the estimated coefficient will imply a lower probability of being absent due to health-related issues. We will apply the ordinary least squares (OLS) method for job quality, since the indicators of job quality examined are continuous variables [82]. Equation (1) remains the same, and vector **X** includes the variables mentioned before and is presented in the empirical results section.

Table 1 reports the control variables and confounders employed in the regressions. In particular, we report their association with flexible employment arrangements, with the primary outcomes in Table 2 and their estimated coefficients in Table 3. We do not report the definitions of the flexible employment schemes and the outcomes explored, since we provided more information in the previous sections. Furthermore, gender, age and years of experience are fairly straightforward; thus, we do not provide more details on those variables.

Variables	Categories
	1. Pre-Primary education
	2. Primary Education
	3. Lower Secondary
International Standard Classification of	4. Upper Secondary
Education (ISCED)	5. Post-Secondary Non-Tertiary Education
	6. First Stage of Tertiary Education
	7. Second Stage of Tertiary Education
	1
Warkelano Siza	2–9
Workplace Size	10–249
	250+
	1. Armed Forces
	2. Managers
	3. Professionals
	4. Technicians
	5. Clerical Support
International Standard Classification of	6. Service and Sales Workers
Occupations (ISCO-88)	7. Skilled in Agricultural, Forestry and Fis
	sector
	8. Craft and Related Workers
	9. Machine Operators
	10. Elementary Occupations
	1. Agriculture, Hunting, Forestry
Statistical Classification of Economic	2. Manufacturing
Activities in the European Community	3. Services
(NACE)	4. Public Administration
Sector	1. Private Sector
occioi	Public Sector

 Table 1. Control Variables Employed in the Empirical Analysis.

 Table 2. Correlation Matrix.

	Telework	Flexi- Time	Work from Home	Job Satis- faction	Absenteeism	Hearing Impair- ment	Backache	Muscular Pain in Upper Limbs	Muscular Pains in Lower Limbs	Headache and Eyestrain	Injuries	Anxiety	Chronic Fatigue Syndrome (CFS)	Gender	Age	Education
Flexi-Time	0.1140 * (0.000)															
Homework	0.2393 * (0.000)	0.0972 * (0.000)														
Job Satisfaction	0.0733 * (0.000)	0.1062 * (0.000)	0.0464 * (0.000)													
Absenteeism	-0.0267 * (0.000)	-0.0094 * (0.0067)	-0.0525 * (0.000)	-0.1125 * (0.000)												
Hearing Impairment	-0.0260 * (0.000)	0.0042 (0.2536)	0.0170 * (0.000)	-0.0728 * (0.000)	0.0701 * (0.000)											
Backache	0.0612 * (0.000)	0.0286 * (0.000)	0.0095 (0.0010)	-0.1780 * (0.000)	0.1352 * (0.000)	0.1310 * (0.000)										
Muscular Pain in Upper Limbs	0.0467 * (0.000)	0.0108 * (0.0033)	0.0048 * (0.0942)	-0.1702 * (0.000)	0.1318 * (0.000)	0.1196 * (0.000)	0.4560 * (0.000)									
Muscular Pain in Lower Limbs	0.0423 * (0.000)	0.0470 * (0.000)	0.0144 * (0.000)	-0.1896 * (0.000)	0.1160 * (0.000)	0.1333 * (0.000)	0.4033 * (0.000)	0.6670 * (0.000)								
Headache and Eyestrain	0.0259 * (0.000)	0.0030 (0.4137)	0.0061 ‡ (0.0347)	-0.1294 * (0.000)	0.1007 * (0.000)	0.0836 * (0.000)	0.2465 * (0.000)	0.2689 * (0.000)	0.2147 * (0.000)							
Injuries	0.0327 * (0.000)	-0.0132 * (0.0003)	0.0021 (0.4866)	-0.1099 * (0.000)	0.1265 * (0.000)	0.1594 * (0.000)	0.1711 * (0.000)	0.1719 * (0.000)	0.1957 * (0.000)	0.1008 * (0.000)						
Anxiety	0.0429 * (0.000)	0.0117 * (0.0015)	0.0331 * (0.000)	-0.1596 * (0.000)	0.0835 * (0.000)	0.0812 * (0.000)	0.1341 * (0.000)	0.1598 * (0.000)	0.1490 * (0.000)	0.2168 * (0.000)	0.1145 * (0.000)					
Chronic Fatigue Syndrome	0.0150 * (0.0087)	-0.0414 * (0.000)	0.0136 * (0.000)	-0.2228 * (0.000)	0.0776 * (0.000)	0.0886 * (0.000)	0.2515 * (0.000)	0.2781 * (0.000)	0.2724 * (0.000)	0.3049 * (0.000)	0.1384 * (0.000)	0.2819 * (0.000)				
Gender (Female)	-0.0276 * (0.000)	-0.0072 ‡ (0.0324)	0.0128 * (0.000)	0.0237 * (0.000)	0.0412 * (0.000)	-0.0882 * (0.000)	0.0351 * (0.000)	0.0582 * (0.000)	0.0279 * (0.000)	0.1226 * (0.000)	-0.1063 * (0.000)	0.0557 * (0.000)	0.0475 * (0.000)			
Age	0.0010 (0.8046)	0.0551 * (0.000)	0.0676 * (0.000)	0.0166 * (0.000)	0.0374 * (0.000)	0.0748 * (0.000)	0.0793 * (0.000)	0.0978 * (0.000)	0.1007 * (0.000)	-0.0029 (0.3028)	-0.0411 * (0.000)	0.0283 * (0.000)	0.0193 * (0.000)	-0.0117 * (0.000)		
Education	0.2032 * (0.000)	0.1691 * (0.000)	0.0418 * (0.000)	0.1493 * (0.000)	0.0041 (0.1759)	-0.0535 * (0.000)	-0.1371 * (0.000)	-0.1133 * (0.000)	-0.1730 * (0.000)	0.0170 * (0.000)	-0.0839 * (0.000)	0.0187 * (0.000)	-0.0428 * (0.000)	0.0889 * (0.000)	-0.0757 * (0.000)	
Work Experience	-0.0131 * (0.000)	0.0338 * (0.000)	0.0403 * (0.000)	0.0175 * (0.000)	0.0603 * (0.000)	0.0828 * (0.000)	0.0612 * (0.000)	0.0561 * (0.000)	0.0592 * (0.000)	-0.0079 * (0.0050)	-0.0066 ‡ (0.0235)	0.0171 * (0.000)	0.0103 * (0.0003)	-0.0723 * (0.000)	0.5605 * (0.000)	-0.0547 * (0.000)

p-values in parentheses, * p < 0.01, $\ddagger p < 0.05$.

Variables	Hearing Impairment	Backache	Muscular Pain in Upper Limbs	Muscular Pains in Lower Limbs	Headache and Eyestrain	Injuries	Anxiety	Chronic Fatigue Syndrome (CFS)
Telework	0.037	0.203 ***	0.215 ***	0.225 ***	0.239 ***	0.192 **	0.190 ***	0.118 **
	(0.104)	(0.053)	(0.056)	(0.056)	(0.056)	(0.097)	(0.071)	(0.053)
Sex (Female)	-0.176 ***	-0.011	-0.025	-0.023	-0.009	-0.132 ***	0.001	-0.030
eex (remaie)	(0.055)	(0.026)	(0.026)	(0.027)	(0.031)	(0.049)	(0.042)	(0.027)
Age	0.003	0.002	0.001	0.001	0.003 *	0.002	0.004 *	0.002
nge	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
Dringanz	-0.548 **	-0.081	-0.070	-0.048	-0.284	-0.178	-0.405 *	-0.061
Primary								
T	(0.267)	(0.149) 0.285 **	(0.143) 0.230 **	(0.143) 0.243 **	(0.175) 0.270 *	(0.198) 0.544 ***	(0.212)	(0.153) 0.209 *
Lower Secondary	0.169						0.455 **	
TT 0 1	(0.254)	(0.117)	(0.117)	(0.117)	(0.140)	(0.203)	(0.211)	(0.119)
Upper Secondary	0.359	0.368 ***	0.306 ***	0.323 ***	0.350 **	0.550 ***	0.565 ***	0.277 **
	(0.252)	(0.117)	(0.117)	(0.117)	(0.139)	(0.207)	(0.209)	(0.120)
Post-Secondary	0.389	0.440 ***	0.376 ***	0.392 ***	0.397 ***	0.631 ***	0.650 ***	0.325 ***
	(0.247)	(0.116)	(0.116)	(0.117)	(0.138)	(0.206)	(0.207)	(0.119)
First Degree	0.402	0.416 ***	0.345 ***	0.360 ***	0.439 ***	0.697 ***	0.687 ***	0.324 ***
ũ	(0.261)	(0.122)	(0.122)	(0.122)	(0.145)	(0.217)	(0.214)	(0.125)
Post-Graduate	0.276	0.408 ***	0.370 ***	0.374 ***	0.415 ***	0.662 ***	0.727 ***	0.343 ***
-	(0.259)	(0.121)	(0.121)	(0.122)	(0.143)	(0.217)	(0.213)	(0.124)
Work Experience	0.007	0.010 ***	0.008 **	0.007 **	0.005	0.012 **	0.013 *	0.008 *
Home Experience	(0.007)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.007)	(0.004)
Work Experience Squared	-0.0001 *	-0.0001 **	-0.0001 **	-0.0001 *	-0.000	-0.0001 *	-0.0001 **	-0.0001 **
- 1	(0.00005)	(0.00005)	(0.00005)	(0.00006)	(0.000)	(0.00006)	(0.00005)	(0.00005)
Firm Size (2-9)	-0.108	-0.111 ***	-0.118 ***	-0.128 ***	-0.104 **	-0.092	-0.120 *	-0.059
1 mm 0/2e (2))	(0.092)	(0.039)	(0.039)	(0.040)	(0.047)	(0.069)	(0.069)	(0.041)
Firm Size (10-249)	-0.195 **	-0.273 ***	-0.267 ***	-0.279 ***	-0.216 ***	-0.209 ***	-0.205 ***	-0.203 ***
Thin Size (10–24))	(0.091)	(0.040)	(0.041)	(0.042)	(0.049)	(0.071)	(0.071)	(0.042)
Eime Size (2E0)	-0.302 ***	-0.350 ***	-0.369 ***	-0.374 ***	-0.299 ***	-0.289 ***	-0.223 **	-0.325 ***
Firm Size (250+)								
	-0.108	-0.111 ***	-0.118 ***	-0.128 ***	-0.104 **	-0.092	-0.120 *	-0.059
Public Sector	-0.046	0.113 ***	0.171 ***	0.179 ***	0.100 **	0.063	0.132 **	0.149 ***
	(0.078)	(0.040)	(0.040)	(0.040)	(0.048)	(0.070)	(0.065)	(0.043)
Managers	-0.065	0.296 *	0.319 *	0.319 *	0.129	0.095	-0.117	0.116
	(0.298)	(0.172)	(0.180)	(0.181)	(0.208)	(0.248)	(0.239)	(0.180)
Professionals	0.074	0.248	0.270	0.281	0.178	0.025	-0.173	0.168
	(0.283)	(0.167)	(0.175)	(0.176)	(0.202)	(0.240)	(0.229)	(0.175)
Technicians	-0.068	0.195	0.214	0.230	0.073	0.104	-0.258	0.067
	(0.282)	(0.165)	(0.174)	(0.174)	(0.202)	(0.227)	(0.229)	(0.174)
Clerical Support	-0.101	0.115	0.183	0.198	-0.007	-0.148	-0.391 *	-0.033
	(0.289)	(0.168)	(0.177)	(0.177)	(0.204)	(0.253)	(0.232)	(0.177)
Service and Sales	-0.168	0.142	0.147	0.190	-0.071	-0.007	-0.280	-0.051
bervice and bales	(0.285)	(0.167)	(0.175)	(0.175)	(0.203)	(0.228)	(0.231)	(0.175)
Skilled Primary Sector	-0.342	0.027	-0.021	-0.021	-0.249	-0.088	-0.744 ***	-0.330 *
	(0.315)	(0.178)	(0.186)	(0.186)	(0.220)	(0.250)	(0.253)	(0.189)
Craft Workers	-0.292	-0.013	0.020	0.026	(0.220) -0.164	-0.027	-0.614 ***	-0.226
Clair WUIKEIS	(0.275)	(0.166)	(0.175)	(0.175)	(0.204)	(0.227)	(0.233)	(0.175)
Machina Operators	(0.273) -0.327	-0.005	(0.175) -0.019		(0.204) -0.309	(0.227) -0.213	-0.550 **	
Machine Operators				-0.007				-0.210
	(0.277)	(0.167)	(0.176)	(0.176)	(0.205)	(0.232)	(0.238)	(0.176)
Manufacturing	0.170	0.329 ***	0.236 ***	0.234 ***	0.300 ***	0.141	0.086	0.210 ***
a <i>i</i>	(0.137)	(0.066)	(0.068)	(0.068)	(0.085)	(0.104)	(0.110)	(0.072)
Services	0.166	0.300 ***	0.208 ***	0.194 ***	0.324 ***	0.297 ***	0.069	0.181 **
	(0.142)	(0.065)	(0.067)	(0.067)	(0.084)	(0.108)	(0.108)	(0.072)
Public	0.284 *	0.381 ***	0.283 ***	0.297 ***	0.363 ***	0.279 **	0.120	0.251 ***
Administration		(0.0(0))	(0,070)	(0.070)	(0.097)	(0.114)		(0.075)
	(0.150)	(0.068)	(0.070)	(0.070)	(0.087)	(0.114)	(0.114)	(0.075)
Observations	2369	9091	8861	8611	6272	3026	3329	8397
Wald Chi-Square	437.71	1359.94	1372.91 [0.000]	1225.95 [0.000]	991.71	445.61	465.70	989.26
and Crit Oquale	[0.000]	[0.000]	10, 2.91 [0.000]	1220.00 [0.000]	[0.000]	[0.000]	[0.000]	[0.000]

Table 3. Telework and Job Satisfaction for Workers with Disabilities and Health Problems.

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1.

The first important control variable is education; specifically, we obtain the International Standard Classification of Education (ISCED) (https://unstats.un.org/unsd/classifications/ Family/Detail/1044 (accessed on 20 November 2022)). It is a categorical variable taking values between 1 and 7. The first category is pre-primary education, which includes two groups. The first refers to programmes designed for children below the age of 3, and the second includes programmes designed for the development of children from age 3 to the start of primary education, which is the second category. It includes curriculums whose primary goal is to help pupils develop a firm grasp and fundamental skills in reading, writing and mathematics and to lay the groundwork for future success in school. The third category is the lower secondary, which follows from primary schooling by focusing more on a subjects-oriented curriculum. The fourth category, upper secondary education, is the last phase of secondary schooling, such as high schools, and includes preparation for tertiary education and/or the acquisition of employment skills. The variety of courses and concentrations tends to be broader. The fifth category is post-secondary non-tertiary education. It includes programmes designed to provide learning experiences that supplement secondary schooling and set students up for success in the workplace and/or tertiary education. Topics covered are more extensive than in secondary school but less in-depth than those encountered in higher education. The next category is the first stage of tertiary education, which refers to the bachelor's or first degree of higher education. The last category is the second stage of tertiary education, and it relates to programmes that provide advanced academic and professional knowledge, such as Master's and Doctorate degrees.

The second control variable is the workplace or firm size, which shows the number of employees in the respondent's organisation. This variable comprises four categories, where the first category is 1, and it refers to the respondent, who is the only employee or owner of the workplace. The second category includes the number of employees between 2 and 9. The third category refers to workplaces whose employees range between 10 and 249, and the fourth contains workplaces with 250 employees and more.

The third control variable is the International Standard Classification of Occupations (ISCO-88) (https://www.ilo.org/public/english/bureau/stat/isco/isco88/ (accessed on 20 November 2022)). This includes ten categories and reflects the skills of the respondent's occupation. The first includes occupations in the armed forces, the second includes managers, the third professional, and the fourth refers to technicians. The following two categories include professions related to service, sales and clerical support. The other three categories include skilled workers in the agricultural and forestry sector, craft and related trades workers and machine operators. The last category refers to elementary occupations.

The fourth variable is the Statistical Classification of Economic Activities in the European Community (NACE) (https://ec.europa.eu/competition/mergers/cases/index/nace_all.html (accessed on 20 November 2022)). This index is disaggregated into five digits. However, the survey used in the empirical analysis records the respondent's industrial occupation at one digit, and there are four categories. The first is agriculture, hunting and forestry, the second is manufacturing, the third is services and the fourth is public administration. The last control variable is the sector, which refers to whether the workplace belongs to the private or the public sector.

We should note that the regressions drop the reference category, and we interpret the results compared to that category. For instance, for the education variable, we will drop the first category, pre-primary education, and we will estimate and interpret the estimated coefficients of the remaining categories compared to the first one. In addition, due to page margins, to fit Table 3 on one page, we do not report the estimates for the elementary occupation. Nevertheless, this is not the study's primary aim, and the concluding remarks remain similar.

4. Results

4.1. Correlations

In Table 2, we report the correlations among the main variables of interest. These include the flexible employment schemes of telework, work from home and flexi-time, and the labour outcomes of job satisfaction and absenteeism. The other variables of interest are the types of disabilities and health problems. Finally, since we estimate the bivariate Pearson correlation related to continuous variables, we will not include categorical variables, such as the ISCO-88, NACE and sector. Furthermore, we recognise that the ordered and binary variables of job satisfaction, flexible employment schemes, gender and education are not continuous. However, we may derive an initial picture of their associations. In Table 2, we observe that flexible employment schemes are positively correlated with disabilities and health problems in most cases. More specifically, workers with health problems are more likely to implement some type of flexible employment. However, we also find negative relationships between flexi-time and people with hearing impairments.

In contrast, the relationship becomes positive in the teleworking scheme and insignificant in the working-from-home schedule. Similarly, we find a negative association between flexi-time and workers with injuries and CFS. Nevertheless, the study's main aim is to explore whether workers with disabilities and health problems that follow flexible employment report lower absenteeism levels and higher job satisfaction compared to their counterparts who implement regular employment schemes. In particular, we find a positive relationship between job satisfaction and the three flexible working arrangements explored in this study. In contrast, we find a negative relationship between these working schedules and absenteeism, which is significant at the 1 percent level.

The next set includes the correlations between disabilities and health problems. In this case, we observe a positive and significant relationship between them. For instance, workers with backache are also more likely to report muscular pains, headaches, eyestrain and anxiety. Moreover, workers with health problems report lower levels of job satisfaction and are more likely to be absent from work. Regarding the demographic and socio-economic characteristics, we find a positive relationship between age, years of working experience and job satisfaction and as well, that these are positively related to absenteeism.

In most cases, these variables are positively correlated with health problems, except for injuries and age, where we find a negative relationship, and working experience, which is negatively associated with injuries, headache and eyestrain. We find a positive relationship between age, working experience and the flexible employment schemes of flexi-time and working from home. At the same time, it becomes insignificant for age and negative for working experience.

Females are less likely to implement telework and flexi-time but more likely to work from home. Moreover, they are more likely to report a health problem than their male counterparts. Exceptions are workers with hearing impairments and injuries. Finally, education is positively related to flexible employment schemes we explore in this study and with job satisfaction, but there is no difference in absenteeism. In addition, in most cases, education is negatively correlated with health problems, except for headaches, eyestrain, and anxiety. However, as mentioned earlier, the Pearson correlation refers to continuous variables, and, thus, the associations among categorical and ordered variables should be treated with caution. Nevertheless, the correlations still show the expected direction and sign of the relationship. Furthermore, we will estimate the Probit regressions that include confounders. While we derive interesting findings regarding the demographic and socio-economic characteristics, we do not further explore them. The reason is that the study's main aim is to examine whether there is a positive association between flexible employment schemes and job satisfaction and a negative relationship with absenteeism.

4.2. Regression Results

As we have discussed in the theoretical framework, our main aim is not to compare the job satisfaction between workers with and without health problems, but to compare the job satisfaction in the former group between those who implement flexible employment skills and those who do not. In Table 3, we report eight columns corresponding to one regression for each type of health problem. Thus, in column 1, we have those with hearing impairments; in column 2, those with backache; in column 3, those with muscular pain in the upper limbs, neck and shoulders; in column 4, people with muscular pains in the lower limbs, in column 5, those with headache and eyestrain; in column 6, people with injuries, such as accidents; in column 7, those with anxiety; and in column 8, people with chronic fatigue syndrome (CFS).

The results clearly show the positive role of flexible employment schemes on job satisfaction for various health problems significant at 5 and 1 percent levels. The only exception is the first type of disability, which refers to workers with hearing impairments, where the estimated coefficient is insignificant, indicating that there is no difference in job satisfaction between teleworkers and non-teleworkers in this group of disabilities. It is an important finding, showing that flexible employment schemes can be promising

by improving job satisfaction and, thus, the workers' productivity and loyalty, further enhancing the firm performance [41–43].

As we mentioned, it is critical to control for additional individual and firm characteristics, since they can be confounders, influencing both flexible employment schemes and the outcomes explored [41–43,83]. For instance, more educated people can use information and communication technology tools more effectively than those with low educational attainment. In line with this, more educated people are more likely to be employed in highly skilled teleworking jobs, such as research, writing, data analysis and graphic design. Similar arguments hold for the rest of the control variables. For example, the industry within which the respondents work is an essential factor, as services are more likely to offer this type of employment than firms operating in the mining, farming and manufacturing sectors. In addition, this heterogeneity is extended within the same industries. In particular, the professional class may determine whether the respondent employed in a flexible employment scheme may affect her job satisfaction. Thus, a white-collar worker, such as a manager, analyst or scientist in manufacturing, is more likely to telework than a blue-collar worker who has to perform physical labour in the workplace.

There are no gender differences, except for those with visual impairments and injuries, where females are less satisfied with their jobs. Elders report higher levels of job satisfaction in the cases of the sample with headache and eyestrain in column 5 and anxiety in column 7. Educational attainment is associated with higher levels of job satisfaction. Earlier studies found a negative association between education, psychological well-being and life satisfaction [84–86], while other studies found a positive association [41,43,87,88]. The negative association can be explained by the fact that highly educated people have more expectations [86]. In particular, people who perform well in educational qualifications makes less difference. These may have a negative impact on job satisfaction, as people with high educational attainment have higher expectations and aspirations for their job that still need to be met. However, in this study, we find that education positively contributes to job satisfaction in Europe, which can be explained by offering more labour opportunities and higher earning potential and better matching to workers' skills.

Working experience has the expected positive sign, implying a higher perception of job satisfaction, while the quadratic term becomes negative, indicating a turning point and showing evidence of the diminishing rates of returns to satisfaction. An interesting result is that workplace size is inversely related to job satisfaction, implying that small– medium enterprises can offer a friendlier and more comfortable environment. The needs of workers with disabilities and health problems may fit better in these workplaces. In addition, we observe that people employed in the public sector are more satisfied with their jobs. Workers in the manufacturing, services and public administration in most of the health problems we explore are more satisfied with their job compared to the reference category, which is the primary sector, and, more precisely, the agriculture, fishery, forestry and mining.

The professional class, defined by the International Standard Classification of Occupations, ISCO-88, presents no significant differences in job satisfaction among people with various impairments and health problems. An exception is the managerial positions, where workers report higher levels of job satisfaction compared to the reference category, which is the armed forces. On the other hand, in some limited cases, and, in particular, in the sample of those with anxiety problems, the following professional classes are less satisfied with their job compared to the armed forces: clerical support workers, crafted and related trades workers and skilled workers in the agricultural, fisher and forestry sectors.

In Table 4, we report teleworking and job satisfaction estimates between workers with and without health problems. As we highlighted earlier, the study aims to compare job satisfaction within the former group and to evaluate the role of flexible employment schemes. However, the objective of presenting the results in Table 4 is to investigate whether there is a reduction in the gaps in job satisfaction between the two groups—workers with

and without health problems—through the flexible employment schemes offered in the workplace. The outcomes regarding teleworking are positive and significant for those with hearing impairments, headaches, injuries, anxiety and overall fatigue. At the same time, the estimated coefficient for the rest of the health problems is insignificant. The estimated coefficients of the dummies indicating whether the respondent has a specific kind of disability or health problem are negative and significant at the 1% significance level in all cases. It is an expected output, since health is one of the essential determinants of job satisfaction, and health problems adversely affect well-being [41,43,83].

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Telework	0.192 *** (0.044)	0.097 (0.061)	0.080 (0.057)	0.069 (0.057)	0.123 ** (0.056)	0.145 *** (0.044)	0.178 *** (0.048)	0.230 *** (0.058)
(1) Hearing Impairments	-0.191 *** (0.027)	(0.002)	(0.000)	(0.001)	(0.000)	(0.0)	(0.0.20)	(0.000)
(1) Hearing Impairments × Telework	-0.173 *							
	(0.113)							
(2) Backache		-0.265 *** (0.022)						
(2) Backache \times Telework		0.114 (0.078)						
(3) Muscular Pain in the			-0.235 ***					
upper limbs, neck, and shoulders			(0.021)					
(3) Muscular Pain in the			0.145 *					
upper limbs, neck and shoulders × Telework			(0.076)					
(4) Muscular Pain in lower				-0.257 ***				
limbs				(0.021)				
(4) Muscular Pain in lower				0.165 **				
limbs \times Telework				(0.077)	-0.264 ***			
(5) Headache-Eyestrain					(0.020)			
(5) Headache-Eyestrain × Telework					0.133 * (0.075)			
(6) Injury						-0.236 *** (0.025)		
(6) Injury \times Telework						0.053 (0.105)		
(7) Anxiety						· · ·	-0.413 *** (0.025)	
(7) Anxiety \times Telework							0.063 (0.084)	
(8) Chronic Fatigue								-0.319 ***
Syndrome								
(8) Chronic Fatigue								(0.022) -0.091
Syndrome × Telework								(0.076)
Observations	13,945	14,026	14,034	14,027	13,986	13,956	13,949	14,011
Wald Chi-Square	2230.64 [0.000]	2306.28 [0.000]	2312.04 [0.000]	2369.51 [0.000]	2369.74 [0.000]	2263.75 [0.000]	2449.56 [0.000]	2449.38 [0.000]

Table 4. Telework and Job Satisfaction for Workers with and without Health Problems.

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1.

However, the interaction terms of telework and health problems tell a different story. In particular, in columns 3–5, we find a significant and positive relationship between telework and job satisfaction of workers with health problems compared to those who do not implement this type of working schedule. This finding indicates the positive role teleworking may have on people with muscular pains in the upper limbs, shoulders and neck (0.145, se = 0.076), significant at 10%, and with muscular pain in lower limbs (0.165, se = 0.077), significant at 5%. Those with headaches (0.133, se = 0.075) are significant at the 10% level, and se stands for the standard error of the coefficient. On the contrary, we find a negative and significant coefficient at the 10% level for people with hearing impairments, estimated at -0.173 (se = 113). We find an insignificant relationship for people with backache, injuries, anxiety and overall fatigue. For the rest of the flexible working schedules explored, working from home (WFH) and flexi-time, we present and discuss only the results for the sample of workers with disabilities and health problems. We do not show the overall sample since it is not the main aim of our study. Nevertheless,

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the purpose of reporting the findings in Table 4 is to highlight the high importance of flexible employment for this group of workers and how they may improve their well-being compared to those who do not implement flexible employment schemes. Overall, the results indicate that, although there are still persistent inequalities between disabled and non-disabled workers due to many factors, such as productivity, skills and others, these inequalities are likely to be reduced when workers with various health problems follow flexible employment schedules.

In Table 5, we report the estimates for WFH and flexi-time for the workers with health problems, as we have presented for telework in Table 1. The findings in Table 5 confirm the first hypothesis discussed in the theoretical framework and the positive role of flexible employment on the job satisfaction of workers with disabilities and health problems. In panel A, we observe that people with disabilities and health problems working at home report higher levels of job satisfaction than their counterparts—workers with health problems who do not implement this employment scheme. An exception is workers with injuries, where we find no significant difference in job satisfaction. Similar results are reported in panel B of Table 5, where flexi-time has a significant and positive impact in all groups of health problems explored. The highest impact is noted in the anxiety group, followed by those with fatigue syndrome, headache, backache, and muscular pains in the upper limbs, neck and shoulders. At the same time, we observe the lowest effect in the workers with hearing impairments and those with muscular pains in the lower limbs.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Homework								
Homework	0.145 **	0.082 ***	0.106 ***	0.060 **	0.098 ***	0.015	0.094 **	0.071 ***
	(0.058)	(0.027)	(0.028)	(0.029)	(0.030)	(0.058)	(0.042)	(0.027)
Observations	6015	34,769	34,323	27,695	28,772	7783	11,116	32,349
	991.49	4284.80	4458.77	3334.66	3353.71	1049.12	1107.94	3163.81
Wald Chi-Square	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Panel B: Flexi-Time								
Flexi-Time	0.102 **	0.140 ***	0.148 ***	0.098 ***	0.131 ***	0.136 ***	0.194 ***	0.148 ***
	(0.046)	(0.019)	(0.019)	(0.022)	(0.020)	(0.041)	(0.032)	(0.020)
Observations	4528	25,165	24,950	19,910	21,262	5636	8071	23,531
	699.44	2676.52	2898.71	2109.72	2208.20	690.11	775.74	2036.73
Wald Chi-Square	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]

 Table 5. Homework, Flexi-Time and Job Satisfaction for Workers with Disabilities and Health

 Problems.

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, ** p < 0.05.

Next, in Tables 6 and 7, we report the estimates for hypotheses 2 and 3. The sample includes all workers with disabilities and health problems, and we estimate the regressions separately for each type of health problem. The reason is that those job quality indicators, such as earnings, social environment, and prospects, are available only in 2015. For the rest of the job quality indicators, we also consider the years 2000, 2005 and 2010. This specification limits the sample size, and we cannot estimate the regressions using an adequate sample. Furthermore, we cannot estimate the regressions for earnings, social environment and career prospects when considering teleworking due to the low number of observations.

Variables	Earnings	Social Environment	Physical Environment	Intensity	Prospects	Skills- Discretion	Quality of Time
Panel A: Telework							
Telework			-0.4469	1.4446 ***		5.5234 ***	-4.080 ***
			(0.2830)	(0.3005)		(0.4479)	(0.5369)
Observations			27,709	27,583		27,711	27,713
R-Square			0.2963	0.1459		0.2524	0.2096
Panel B: Homework							
Homework	-42.813	0.1228	0.3509 *	-2.7577 ***	0.1947	5.4214 ***	4.7652 ***
	(77.641)	(1.7498)	(0.1893)	(0.4455)	(1.0548)	(0.3924)	(0.4818)
Observations	1354	3818	29,405	29,271	4635	29,406	29,409
R-Square	0.4802	0.3868	0.2985	0.1467	0.1361	0.2539	0.2096
Panel C: Flexi-Time							
Flexi-Time	130.449 **	4.689 ***	1.8200 ***	-1.8787 ***	1.5877 *	9.1096 ***	1.6318 ***
	(63.552)	(1.3090)	(0.2175)	(0.4152)	(0.8627)	(0.3837)	(0.3649)
Observations) 929 (2777	21,989	21,902	2870	21,990	21,991
R-Square	0.5682	0.3748	0.3028	0.1367	0.1368	0.2826	0.1592

Table 6. Flexible Employment Schemes and Job Quality for Workers with Disabilities and Health Problems.

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 7. Flexible Employment Schemes and Absenteeism for Workers with Disabilities and Health Problems.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Telework								
Telework	-0.097	-0.055	-0.113 *	-0.112 *	-0.060	-0.221 **	-0.228 ***	-0.070
	(0.109)	(0.058)	(0.059)	(0.060)	(0.063)	(0.108)	(0.077)	(0.058)
Observations	2328	8917	8668	8431	6138	2974	3263	8212
Wald Chi Cauana	437.71	1359.94	1372.91	1225.95	991.71 [0.000]	445.61	465.70	989.26
Wald Chi-Square	[0.000]	[0.000]	[0.000]	[0.000]	991.71 [0.000]	[0.000]	[0.000]	[0.000]
Panel B: Homework								
Homework	-0.121 *	-0.053 *	-0.090 ***	-0.086 **	-0.106 ***	0.009	-0.115 **	-0.056 *
	(0.067)	(0.032)	(0.032)	(0.044)	(0.036)	(0.067)	(0.050)	(0.033)
Observations	5837	33,259	32,842	26,430	27,486	7481	10,614	30,873
Wald Chi Cauana	364.62	2594.78	2504.32	2134.48	2138.30	942.62	1082.47	2669.39
Wald Chi-Square	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Panel C: Flexi-Time								
Flexi-Time	-0.066	-0.054 ***	-0.031	-0.036	-0.031	-0.096 **	-0.114 ***	0.004
	(0.044)	(0.019)	(0.019)	(0.022)	(0.020)	(0.040)	(0.033)	(0.023)
Observations	4432	24,339	24,125	19,240	20,533	5474	7787	21,706
Wald Chi Causan	295.04	1793.09	1720.05	1500.51	1547.71	660.19	744.80	2250.41
Wald Chi-Square	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1.

In Table 6, we see the positive relationship between the flexible employment schemes explored in various indicators of job quality, except for telework, which negatively affects the quality of time and intensity of work. Regarding the monthly earnings, those employed in the flexi-time scheme report higher earnings than their counterparts employed in traditional fixed schemes. In addition, workers employed in this scheme report higher quality of job in terms of the physical and social environment, while WFH report a significant and positive impact only in the case of the physical environment. WFH and flexi-time reduce the intensity of the work, while, on the contrary, telework is related to extra intensity. We derive the same concluding remarks for the quality of working time. Finally, according to the skills and discretion index, the findings support that all three flexible employment schemes explored allow the workers with disabilities and health problems to have more chances of adapting and matching their skills to job requirements, while only flexi-time is positively related to the prospects.

In Table 7, we report the estimates for absenteeism. We should remind the reader that the dependent variable is an ordered variable taking the values 1 for never, 2 for

1–4 days, 3 for 5–9 days, 4 for 10–19 days, 5 for 20–49 days and 6 for more than 49 days. According to the estimates of panel A in Table 7, we conclude that teleworkers are less likely to be absent from work compared to the non-teleworkers for the following types of health problems: muscular pain in the neck, shoulders and upper limbs; muscular pain in the lower limbs; injuries; and anxiety. Meanwhile, we find no difference in the absenteeism between teleworkers and non-teleworkers for the remaining types of disability. Similarly, in panel B, we observe that WFH reduces the probability of being absent from work. Flexi-time seems to reduce the incidence of absenteeism only in three groups of disability: those with backache, those with injuries and workers with anxiety issues. The remaining cases show no difference in job absenteeism between flexi-time workers and those with fixed working schedules.

In Table 8, we report the regression estimates for the job satisfaction and absenteeism for carers, particularly for workers who are not disabled but have family obligations and are responsible for caring for family members with impairments. In this case, the objective is to test hypothesis 4, discussed in the theoretical framework section. More specifically, the assumption lies in the argument that flexible employment schemes may allow people to cope with the family demands and needs of family members with health problems by providing them additional time and flexibility. For instance, teleworking and WFH may reduce or even eliminate the commuting time from home to the employer's premises, which can be allocated to the care of people with disabilities and health problems, improving their job satisfaction and reducing the possibility of being absent from work. The results in Table 8 partially confirm hypothesis 4, where teleworkers and people who work within the flexi-time scheme report higher levels of job satisfaction. Furthermore, in panel B, we conclude that teleworking and WFH reduce the days of absence from work due to health-related issues.

Variables	(1)	(2)	(3)
Panel A: Job Satisfaction			
Telework	0.137 *** (0.050)		
Homework	(0.030)	0.040	
Flexi-Time		(0.031)	0.137 *** (0.023)
Observations	6768	21,749	15,629
Wald Chi-Square	903.63 [0.000]	2326.35 [0.000]	1310.42 [0.000]
Panel B: Absenteeism			
Telework	-0.106 * (0.057)		
Homework		-0.070 * (0.037)	
Flexi-Time		(2.301)	-0.039 (0.024)
Observations	6619	20,691	15,062
Wald Chi-Square	428.33 [0.000]	1578.70 [0.000]	1179.11 [0.000]

Table 8. Flexible Employment Schemes, Job Satisfaction and Absenteeism for Carers.

Robust standard errors in parentheses, *p*-values in brackets, *** p < 0.01, * p < 0.1.

5. Discussion

This study examined potential differences in job satisfaction, absenteeism and job quality as critical determinants in motivating and maintaining people with health problems

and impairments in the workforce [89]. Our findings suggest a positive relationship between the flexible employment arrangements and the labour outcomes explored. In particular, we found a positive effect on the job satisfaction of workers with disabilities and health problems compared to their counterparts employed under fixed working schedules. Additionally, we found that the job satisfaction differences between workers with and without health problems reduce when flexible employment schemes are in place. Workers employed under flexible employment schemes report higher levels of job satisfaction, quality and organisational loyalty.

The findings of this study are consistent with previous research. For instance, Schur et al. [53] found that differences in job satisfaction between workers with and without disabilities reduce in companies that implement flexible working schedules. In particular, as in the Schur et al. [53] study, workers with health problems report lower levels of job satisfaction and are more likely to be absent from work. However, flexible employment schemes moderate this relationship, enhance job satisfaction and reduce absenteeism and turnover retention of workers with impairments compared to their counterparts who do not implement flexible employment. Similarly, the study by Baumgärtner et al. [89] found that flexible working arrangements improve the job satisfaction of workers with disabilities, indicating the need for companies to adapt to the needs of people with impairments by creating flexible working schedules. Moreover, their findings highlight that flexible employment schemes moderate the relationship between having a disability and job satisfaction. Similarly, Haile [90] found that the job satisfaction of workers with disabilities improves when flexible working arrangements are introduced.

Companies need to understand not only the variations in job attitudes but also their causes and the ways these can be addressed. Introducing flexible working schedules and creating a more decentralised organisational structure seems beneficial for the overall workforce, as evidence suggests that excessive centralisation is negatively related to job satisfaction across the board and notably among individuals with disabilities and health problems. This finding lends credence to prior research linking adaptable human resource practices such as flexible employment arrangements with increased job satisfaction and reduced absenteeism [53–71,89–91].

Nevertheless, our study extends the analysis by also investigating job quality. In this case, our findings show a negative relationship between flexible employment and absenteeism for workers with health problems and a positive association with job quality. In particular, telework, working from home and flexi-time improve the job quality of workers with health problems, except for telework regarding the working time quality and intensity. This finding confirms previous studies that telework can be associated with extended hours. Still, at the same time, it is also related to higher productivity and job performance [92–94]. However, the relationship between telework intensity, working hours and productivity is curvilinear, implying that, after some point, telework adversely affects productivity [92]. Nagata et al. [93] found that high intensity of telework, such as four or more days per week, is associated with low job engagement, while low to medium intensity for telework, ranging between three days per week to once per month, is related to high job engagement. Similarly, Rodríguez-Modroño [94] found that telework's low and medium intensities improve working time quality, skills and discretion, career prospects and earnings.

Finally, the study aimed to explore the job satisfaction and absenteeism of the carers of family members with disabilities. The finding can be explained by the fact that flexible employment schemes allow them to balance their responsibilities and rewards of competing roles, such as caring for a family member with impairments [75–77]. The provision of work-family programmes and flexible employment arrangements may indicate that the organisation cares about the well-being of its employees and their families, thereby recognising the strong interdependence between work and family. Therefore, creating a supportive organisational culture will reduce turnover and absenteeism and improve the job satisfaction of carers of people with impairments.

Organisations and firms need to comprehend the diversity of their workforce and realise that employees from different backgrounds with different needs may desire to adopt flexible agreements for multiple purposes. One way to accomplish this is by utilising employee surveys when flexible systems are absent. This will allow them to identify the demographic and key drivers of staff and employees, design schedules and execute flexible agreements tailored to each group and individual's particular needs. If flexible employment is unavailable, companies should conduct experiments as pilot systems to guarantee similar features, choosing a randomly treated sample used in flexible schemes and a control group employed in fixed-conventional employment schemes. Then, they can test different outcomes, such as job satisfaction, productivity and efficiency, stress, allegiance, employee loyalty and absenteeism.

Overall, the suggestions, recommendations and policy implications discussed so far suggest that effective implementations of flexible employment systems at the state and corporate levels should be addressed and designed. It is challenging to make concrete and practical proposals for better-integrating persons with disabilities and health problems into the labour market because of the diverse European setting. In terms of financial and economic incentives and subsidies, the government, including local authorities and educational institutions, should support companies if they face financial limitations. In addition, these organisations should provide advice and relevant information to companies regarding the potential advantages of flexible employment, but are particularly sceptical of these systems in the case of executives and employers. At the company level, employers and staff should agree on the type of flexible work, identifying the workers' unique requirements and providing them with long-term assistance.

Moreover, it enables them to report on the findings and take action to enhance their loyalty, performance and productivity on an ongoing basis. Organisations and Human Resources departments in private and public sectors must implement procedures incorporating distinct individual demands to keep employees satisfied and loyal to the institutions. Decentralisation could be an initial step, as delegating decision-making power to lower levels permits greater flexibility in performing daily tasks. This may increase responsiveness to the requirements of all employees, particularly those of certain employee categories, such as older employees with disabilities and health problems.

In part, evaluations of competence in the workplace are based on the capacity to synthesise data from many sources. There must be open lines of communication between all parties and all relevant systems. When all parties are involved, such as the employee, medical expert, employer, supervisor, and union representative, they can conclude reasonable means and accommodations for workers with impairments [95,96]. Solutions could include a gradual adjustment in the workplace, a shift in the nature of the work being done, the provision of assistive technology in the workplace or any combination of these. Having reliable communication protocols in place between the doctor's office and the workplace is also essential for this [96]. In this case, the supervisor's knowledge of the employee's diagnosis is not relevant, but rather the supervisor's knowledge of the employee's functional impairment is. Therefore, concepts for workability descriptions based on capability rather than symptoms are essential in occupational health practice [96–98].

Initiatives that seek to create jobs for people with disabilities and health problems, as opposed to adhering to existing functions that are difficult to staff with people with disabilities, are also crucial. The term "Inclusive Redesign of Work" describes a new approach, which is designed for those who face significant barriers to entering the workforce [96,99]. These people are characterised by mental or physical limitations that prevent them from fully participating in the labour market without support. The approach's goal is to help persons with disabilities and health limitations to find regular, non-complex work in organisations. Work process analysis and redesign concepts form the basis of this approach, which helps businesses make the most of their available human resources. The idea behind this is "task differentiation", which means that tasks are being created with

varying degrees of difficulty and skill requirements for people with various levels of needs and capacities [96,99].

In addition, as another recommendation regarding the employment scheme of telework, organisations should consider the intensity of the particular scheme and its relationship to job satisfaction, productivity and quality. In particular, while our study found that telework improves job satisfaction, presenteeism and components of job quality, it also increases work intensity and deteriorates working time quality. Therefore, organisations need to consider the intensity and frequency of telework and identify the frequency of this scheme that maximises job performance and quality.

However, the study has drawbacks. The main issue lies in the empirical analysis and the use of cross-sectional data. In particular, the survey does not follow the same individuals across time, which makes it difficult to establish causality, but the results can present merely a correlation. Future studies and surveys should be designed considering longitudinal data. Furthermore, the survey covers the period from 2000 to 2015, where more recent data, especially during the COVID-19 pandemic, are unavailable. The data will be made available at the end of 2022.

Nevertheless, we suggest that future studies explore the role of flexible employment schemes in labour outcomes of people with physical impairments and health problems using data from the COVID-19 and post-COVID-19 periods. As we mentioned earlier, another drawback of the study is that we have yet to consider the workers with communicative-speech-reading and communicative-vision impairments. However, due to the available data, we examined only the workers with hearing impairments and those with chronic fatigue syndrome and injuries. Furthermore, the study aimed to explore the role of flexible employment schemes on workers with disabilities and other health problems.

We should notice that a worker may belong to more than one minority group, such as a member of an ethnic minority group who also happens to have disabilities and health problems. Previous studies [100] indicate that employees who belong to more than one minority group may be more likely to have unfavourable work experiences, including discrimination perceptions, and, consequently, report feeling less satisfied with their jobs and higher levels of absenteeism. Therefore, future studies should look into the double or even triple "whammy" effects of factors combining age, gender, sexual orientation and race in addition to disability. Therefore, another limitation is that the study has not investigated the "whammy" effects of flexible employment on the well-being of workers with impairments and carers' job satisfactions and absenteeism across age, gender, occupation and ethnic group.

6. Conclusions

This study aimed to explore the role of flexible employment schemes in job satisfaction, job quality and absenteeism of people with disabilities and health problems. The study's first hypothesis was that the working schedules improve the job satisfaction of workers with health problems more than their peers who employ regular and traditional employment schemes. The findings support hypothesis 1, and we found that workers with health problems who employ flexible working arrangements, such as telework, flexi-time and working from home, report higher levels of job satisfaction. Furthermore, the results show that, even though workers with health problems report lower levels of job satisfaction than their non-disabled counterparts, flexible employment schemes moderate the negative effect of health problems and reduce the gap in job satisfaction between workers with and without health problems.

Based on the results, we accept hypothesis 2, where flexible employment schemes improve the job quality of workers with health problems, such as the physical and social environment, and the intensity and quality of working time. However, hypothesis 2 is rejected when we consider telework and its relationship to the intensity of the job and quality of working time for the reasons we explained in the previous section. Regarding hypothesis 3, our results support the negative link between flexible employment schedules and absenteeism. Finally, we accept hypothesis 4, where carers of people and family members with disabilities and health problems employed in flexible employment schemes, and, in particular, telework and flexi-time, report higher job satisfaction levels. In addition, working from home and teleworking reduce absenteeism.

The study concludes that workers with disabilities are not inherently less satisfied with their jobs but require adequate organisational flexibility. If organisations successfully implement decentralised organisational structures, they will have satisfied employees and enjoy multiple benefits, both for themselves in terms of qualified personnel and the public, by reducing the burden on social security systems and fostering an inclusive society.

As mentioned earlier, the motivation of the study was to explore the role of flexible employment schemes and whether they can reduce inequalities between workers with and without disabilities and health problems and improve well-being. This lies with the UN-SDG goals, specifically SDG Goal 10, aiming to identify inequalities across income, age, sex and disability, among others, and provide relevant support and solutions. Therefore, the findings of this study have important research and social implications for workplaces, governments and workers with health problems. However, as highlighted in the previous section, the study has not explored the double or triple "whammy" effects. Specifically, we have not explored the inequalities in job satisfaction and quality among more than one group of SDG Goal 10, such as gender, age, disability and ethnicity, and the role of flexible employment schemes.

It is recognised that flexible employment schemes cannot be implemented in all cases. Their success, as our discussion indicates, strongly depends on the professional class, education, industry, the product and service offered by the workplace, the worker's experience, the infrastructure and the ability of the workplace to offer this type of employment. Therefore, a policy recommendation that the state, industry and managers should consider is to provide training and education to firms to offer flexible employment arrangements in case these are absent. Hence, future research should consider whether workplaces offer flexible employment and the main factors hindering their implementation. Some firms may not be aware of the potential benefits, are very sceptical about their success or are unable to offer them due to possible financial constraints that information and communication technology tools may require. This includes data storage and processing of relevant large databases in some cases, and other possible obstacles.

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