



Evaluating the expected returns and measurement methods of well-being programs

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ABSTRACT

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Organizations are investing in the well-being of their employees in many ways. Often, the fundamental driver for improving well-being is better use of human resources. However, there are often significant challenges in evaluating the impact of well-being programs. In general, it is unclear whether they add value to companies, as the programs vary widely. Over the last few years, people management has become increasingly important in companies as employee well-being has declined and turnover has increased. This underlines the urgency and importance of this research topic.

The purpose of this thesis is to find out whether investing in well-being is financially profitable, how it should be measured and what factors explain individual differences in well-being and performance. The study consists of two parts: a literature review and an empirical part. The literature review provides a theoretical basis on individual and organizational well-being, well-being programs, their measurement and cost-effectiveness. In the empirical part of the thesis, quantitative and statistical analyses are used to investigate individuals' differences in health behaviors, using survey data collected from Hints Performance databases.

The results of the study are in line with previous studies. There is no agreed methodology for measuring well-being, as it is difficult to quantify the impact. Attempts have been made to build accurate models, but even these have problems, which is why companies have started to use the value on investment method. It describes not only the financial impact but also the non-financial impact on the organization. The profitability of different programs varies widely, but meta-analyses show that in many cases investing in mental well-being is financially worthwhile. The analyses also show that mental well-being is moderately correlated with different aspects of well-being. In general, the empirical part of the study found that high performers also perform better than average in other areas of well-being. The survey questions that best explained individuals work performance and changes in it are life enjoyment and the individual time management at work.

TIIVISTELMÄ

Lappeenrannan–Lahden teknillinen yliopisto LUT

School of Engineering and Science. Industrial Engineering and Management

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Hyvinvointiohjelmien odotetun tuoton ja mittaamenetelmien arviointi

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Yritykset panostavat työntekijöiden hyvinvointiin monella tapaa. Usein hyvinvointiin panostamisen fundamentaalisenä draiverina toimii henkilöstöresurssien tehokkaampi käyttö. Ohjelmien vaikutusten arvioiminen muodostaa kuitenkin usein merkittäviä haasteita. Yleisesti on epäselvää tuottavatko ne yrityksille lisäarvoa, sillä ohjelmat ovat hyvin erilaisia. Ihmisten hyvinvointiin panostamisen merkitys on kuitenkin noussut viime vuosina, sillä hyvinvoinnin laskun ja henkilöstön kasvavan vaihtuvuuden myötä, henkilöstöön liittyvät kustannukset ovat nousseet. Tämä korostaa tutkimusaiheen ajankohtaisuutta ja tärkeyttä.

Tämän diplomityön tarkoitus on selvittää, onko hyvinvointiin panostaminen taloudellisesti kannattavaa, kuinka sitä tulisi mitata ja millaiset tekijät selittävät yksilöllisiä eroja hyvinvoinnissa ja tehokkuudessa. Tutkimus koostuu kahdesta osiosta; kirjallisuuskatsauksesta ja empiirisestä osiosta. Kirjallisuuskatsaus luo teoreettisen pohjan työhyvinvoinnista, yksilöiden hyvinvoinnista, hyvinvointiohjelmista, niiden mittaamisesta sekä hyvinvointiohjelmia kannattavuudesta. Työn empiirisessä osassa selvitetään yksilöiden välisiä eroja terveystäytymisessä määrällisten ja tilastollisten analyysien avulla. Analyysit perustuvat kohdeyritys Hintsan Performancen tekemistä kyselyistä kerättyihin tietoihin.

Tutkimuksen tulokset ovat linjassa aikaisempien tutkimusten kanssa. Hyvinvoinnin mittaamiseen ei ole yhtenäistä tapaa, ja vaikutuksia on vaikea muuttaa rahamääräisiksi. Tarkkoja malleja on pyritty rakentamaan, mutta niihinkin liittyy ongelmia. Tämän vuoksi hyötyjä kuvataan usein sijoitetun pääoman arvon menetelmällä, jossa rahallisten vaikutuksien lisäksi kuvataan myös ei rahallisia vaikutuksia organisaatioon. Eri ohjelmien kannattavuudet vaihtelevat paljon, mutta meta-analyysien perusteella henkiseen hyvinvointiin panostaminen on useissa tapauksissa taloudellisesti kannattavaa. Henkinen hyvinvointi korreloi analyyseissä myös melko voimakkaasti eri hyvinvoinnin osa-alueiden kanssa. Yleisesti ottaen empiirinen osa osoitti hyvinvoivien yksilöiden olevan tehokkaimpia. Yksilöiden kokemaa tehokkuuden muutosta selittivät parhaiten taas tyytyväisyys elämään ja ajan käyttö töissä.

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Abbreviations

PWB	Personal Wellbeing
PsyCap	Psychological capital
ROI	Return on investment
VOI	Value on investment

1 Introduction

This introductory chapter sets out the background to the research and lays the foundations for the research problems that the research questions aim to answer. It also presents the methods and limitations of the study and the methodology used. Finally, the chapter describes the structure of the report before moving on to the research itself.

1.1 Background

The way organizations look after workers' well-being has changed in recent years. At the same time mental health problems have skyrocketed, as the nature of work has moved from physical to more data-intensive and people increasingly sit behind their laptops. As a result, companies have increasingly started to offer a range of wellbeing programs to promote well-being. However, there are several barriers, such as cost of programs, employee interest and demonstration of results, which affect the uptake (CDC, 2017). The aim of this thesis is to explore the benefits that companies can derive from well-being programs, how to measure them and which individuals would be most likely to benefit from them.

During last few years, the coronavirus that has affected the organisations' operating environment and reshaped workplace practices and culture, perhaps permanently. There is unlikely to be a return to the old way of working as people want to continue working remotely (Sparato, 2022). At the same time, individuals' lifestyles have changed as a result of rising living standards in Western countries. Nowadays, individuals are increasingly suffering from various lifestyle diseases that affect, among other things, employee well-being, health care coverage, and work efficiency (Mattke, Liu, Caloyeras, Huang, Van Busum, Khodyakov & Shier, 2013). Companies are beginning to understand the importance of maintaining the well-being of their employees, which has led them to think more holistically about their role in the lives of their employees (Mercer, 2022b). Mattke et al, (2013) point out that companies have started to design their well-being strategies more carefully and offer their employees various well-being programs to prevent illness. According to Deloitte (2020), employee

well-being will be an important part of companies' working lives in the future and a major factor in their success.

Over the last decade, absenteeism due to mental health problems has increased dramatically. In Finland, the increase in mental health-related absenteeism was 43% between 2016 and 2019 (Kela, 2020). It is also the most common reason for disability retirement in Finland today (Eläketurvakeskus, 2022). During the coronavirus, mental health problems got even worse. Two-thirds of young people and adults experienced mental health problems getting worse and 26% of adults experienced mental health problems for the first time during the pandemic (Mind, 2021). Although a major change in individuals' life such as a pandemic can trigger a mental health problem, it is often influenced by many factors (Nolen-Hoeksema, Fredrickson, Wagenaar, Loftus, Atkinson & Hilgard 2009, pp. 553-556). By taking care of these other factors, we can probably avoid mental health problems in many cases.

Part of the reason for the growing number of mental health problems can also be attributed to the changing nature of work. Work is nowadays often perceived as more stressful and demanding (Manka, M. & Manka, M. 2016, 29), which is often raises as a risk for mental health problems (Wheatley, 1997). Ojala and Ahonen (2003) claim that the more knowledge-based the work is, the greater the impact on the employee's well-being. Supporting well-being and preventing illness is important in terms of costs, as the costs of illness and its treatment are often higher afterwards. Supporting well-being has also been shown to strengthen individual resources and prepare individuals for adversity (Bakker, Demerouti & Schaufeli, 2003).

As work becomes knowledge-based, companies' capital is no longer tied to institutions or machines, but to individuals and their capabilities. The contribution of workers thus has a greater impact on the company's activities and its performance. Today, companies are more willing to invest money in the well-being of their employees (Mercer, 2022a). The use of various wellness programs has grown exponentially in the last decade. A major factor behind this growth might be the availability of various web-based well-being platforms. These have become increasingly popular among many companies due to the low threshold for

purchasing them. In recent years, the well-being market has grown by around 7% per year (Deloitte, 2020). However, it is sometimes unclear how companies benefit from well-being programs (Astrella, 2017). According to Deloitte (2020), only 61% of organizations measure the impact of well-being on business performance, which may be one reason why companies are not aware of its benefits.

Individuals' interest in well-being has also increased in recent years, especially during the covid-19 era (Deloitte, 2022b). According to Deloitte (2022b), the rise in illness and mental health problems has been seen as a wake-up call to people about the importance of well-being. Now employers and managers say that investing in well-being will be even more important than career advancement in the coming years (Deloitte, 2022b). Many of employees have started to set themselves well-being goals that they want to achieve. However, almost 80% face barriers related to their work that prevent them from achieving these (Deloitte, 2022a). Although employees demand organizational support for these goals, only a few companies do so at a sufficient level. Up to 57% of employees and around 70% of managers are considering leaving for a more supportive workplace (Deloitte, 2022a). According to CFOs and executives, the employment situation shows no signs of easing, with only a third expecting the skills shortage to ease this year (PwC 2022a, PwC 2022b). PwC (2022a) highlights talent recruitment and retention as the most critical issues for growth. The importance of engaging and promoting well-being cannot be therefore underestimated. According to PwC (2022a) companies are currently making significant efforts in this regard. Organizations have started to offer various incentives, such as higher salaries, better benefits and more career development opportunities to retain their employees (Sparato, 2022).

According to McKinsey (2020b) and Deloitte (2020) articles, better well-being benefits and career support are important things for the employees, but supportive leaders and a positive organizational culture are at least as important. Understanding the employee's well-being and providing support can be seen to be weak in many companies, as Deloitte (2022a) found that employees do not perceive managers caring about their well-being. Only 56% of employees believe their managers care about their well-being, while 91% of managers believe they care about their employees' well-being.

There is a strong and growing demand for corporate wellness programs, and employees expect companies to take action. If companies do not invest more in well-being, many are prepared to change jobs (Deloitte, 2022a). At the same time, health care costs have continued to rise, and recent COVID-related mental health problems are plaguing workplaces (KFF, 2021; Deloitte 2022b). In addition to showing macro trends, measuring the business impact of individual well-being programs has proved difficult (Song & Baicker, 2021). Many organizations may legitimately ask: "Is what we are doing to support the health of our employees really worthwhile? And which of our ten initiatives are the most effective?" Thus, it is not surprising that companies see "high costs" and "demonstrating impact" as the main barriers to wellness programs (CDC, 2017).

Individual and organizational commitment to workplace wellness programs is fragile, often resulting in participation rates below 50% (Person, Colby, Bulova & Eubanks, 2010), but with the right communication, company culture, and staff engagement, it can however be as high as 80% (Äikäs, Absetz, Hirvensalo & Pronk, 2019). However, some may argue that participation rates are less important than reaching the people who need the program, as often the people who would benefit most and have the greatest potential return do not participate (Song & Baicker, 2021; Berry, Mirabito & Baun, 2010).

Companies with high levels of well-being can also be seen to perform better in stock markets. According to Goetzel, Fabius, R., Fabius, D., Roemer, Thornton, Kelly & Pelletier (2016), companies that have won the Koop Health Prize has increased the value of their shares by 325% over 14 years, while the SP 500 index returned 105% over the same period. However, that says little about individual well-being initiatives (not to mention other organizational factors that correlate with 'better health'). Many scientific articles argue that positive returns from investments in well-being programs can be expected (Baicker, Cutler & Song, 2010; Toker, Heaney, & Ein-Gar, 2015), but these can often only be observed years after the start of the program (Astrella, 2017). Recent studies are somewhat skeptical that positive returns can be achieved at all (Song & Baicker., 2021). Thus, in this study we ask: How can we robustly measure the impact of wellness programs and if we can do, they generate positive return of investment?"

1.2 Research objectives and research questions

The aim of the thesis is to present, based on previous literature, what kind of returns or cost savings can be expected from well-being programs. It seeks to critically assess the potential impacts of these programs and to identify the most appropriate method for calculating these impacts. The aim of the study is also to find out what factors top performers have in common and which target groups could benefit most from the programs. The study focuses on three questions that are presented in Table 1.

Table 1. Research questions and objectives.

Research questions	Objective
1. How can organizations evaluate and quantify the returns of the well-being program?	Identify the procedures that organizations and researchers use to find programs impact.
2. What is the evidence on the financial effectiveness of well-being at work programs?	Examine the different well-being programs and how their impact has been realized
3. What factors explain individuals' wellbeing and changes in it?	Evaluate which individuals are the most profitable and who would benefit most from the programs.

The first question of the study aims to find out the different ways in which companies measure well-being. It seeks to find out how measurement has changed over the years and to assess what might be the best way to do it. The second question seeks to find out what tangible benefits the company has experienced as a result of implementing the programs. However, the question is not limited to direct financial impacts, as many well-being impacts are difficult to convert directly into monetary terms. The third question consists of two parts. The first part tries to explain what kind of well-being characteristics explain, for example, our work performance and its change. The second part seeks to understand the characteristics that explain which people should participate in the programs.

The work focuses on well-being/health programs at work, where programs consist of disease prevention and lifestyle management, which can be further broken down into smaller components. Disease management targets people with chronic diseases, while lifestyle management aims to influence the health behavior of individuals.

1.3 Methods and limitations

The research method used in this thesis can be divided into two parts, quantitative and qualitative. It can be seen as constructivist research. Constructivism uses a normative approach and seeks to answer practical problems and to develop models, template, blueprint, etc. (Kasanen, Lukka, Siitonen, 1993, 305-306). The research method is based on a theoretical framework, which seeks to outline possible solutions and relate the solution to be developed to previous theory. The solution to the problem is created by gathering understanding of the topic and innovating models/solutions, which are analyzed and tested, and their applicability and usefulness is demonstrated by comparing them with previous theory (Kasanen, Lukka, Siitonen, 1993, p. 306; Oyegoke 2011, 574-576).

The study aims to investigate qualitative questions using quantitative methods. As Jansen (2010) points out, the primary objective of surveys is to decompose the numerical distribution of variables into a population of variables. This study uses statistical methods to analyze and illustrate the construct model for testing and comparison with previous studies. The first part of the study consists of a qualitative literature review, which aims to provide the reader with adequate understanding of the concepts and illuminate previous research on well-being programs. Although well-being at work and its importance is much discussed, the terms are often misunderstood and there are fundamental knowledge gaps. This underlines the importance of the literature section. The second half of the paper is empirical. The data used in empirical part consists of people who have found the questionnaire on the Hintsu Performance website and people whose employer has ordered a program from them. The survey questions are divided into different domains of well-being, which provide a range of information on individuals' health behaviors.

As the study survey is structured based on companies' idea of well-being areas, the respondent's freedom to express their opinions is limited. Thus, the empirical part of the study is limited by the response options and questions in the questionnaire. In addition, people may not be completely sure of the wording and answers to the questions, which may affect the results. The literature part of the study is limited to well-being programs and the impact of individuals' personal characteristics on them. The data used in this work consists of a previously created Excel file and data collected from the company's database. It covers individuals who responded to the company's survey between 2018 and 2022 and gave their consent for data analysis.

1.4 Structure of the report

The study consists of six chapters. The first is an introduction, which describes the background to the topic, the research problem, the research questions, and the limitations of the work. It also describes the research methodology and methods used and the research process. The second chapter discusses well-being at work and its changing role, as well as the factors affecting individuals' and companies' well-being and performance. The third chapter outlines what work wellbeing programs are and what their strengths and weaknesses are. This is followed by a discussion of how well-being is measured and how companies should measure it. Chapter four also assesses how the studies were conducted and what benefits/disadvantages of the programs can be found. The empirical part of the thesis begins in chapter five. This chapter uses data analysis to outline the characteristics of different groups of people and the factors that influence their development and decline, for example in job performance. Chapter 6 is the final chapter of the thesis, which summarizes the answers to the research questions and draws conclusions. The chapter also assesses the reliability of the results and considers recommendations for further research. The structure of the study is presented in input-output Figure 1.

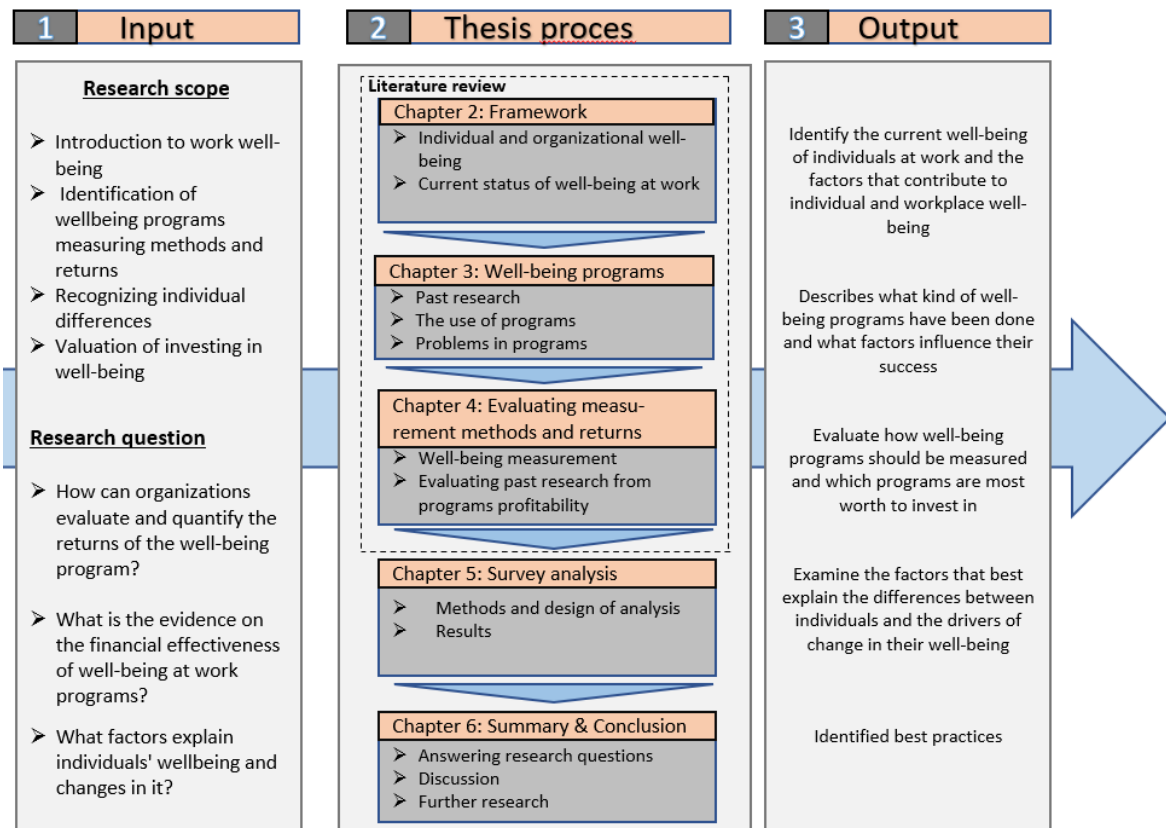


Figure 1. Thesis structure.

The overall structure of the thesis is as follows: the literature review provides the reader an overview of the empirical part and presents the prevailing theories. The reader is then able to perceive the implications of the theory for the research problem. The empirical part aims to find explanatory techniques for the research questions and to create a model to identify the links between the issues.

2 The changing well-being and the role of work

This chapter presents what well-being at work and individual well-being are and what their current status is. The chapters also aim to describe the factors and drivers that influence individual well-being. The first part of the chapter examines the attitudes of individuals and organizations towards well-being at work and its current state. The following section focuses on the definition of well-being at work and its implications to examine the impact of this phenomenon. Most of the information in the section has been found from Robertson & Cooper (2018), book "well-being, productivity & happiness at work". The final section of the chapter highlights the individual factors that influence well-being at work and performance.

2.1 The meaning of work

The well-being of individuals has declined in recent years. According to Deloitte (2022a), 43% of workers feel exhausted, 42% stressed, 24% lonely and 23% depressed and among C-suites, 36% feel exhausted, 41% stressed, 30% lonely and 26% depressed. Many of the workers find it difficult to prioritise their well-being. Only one in three say that work has a positive impact on their physical, mental, and social well-being. However, according to a study by Mercer (2022a), 63% of workers feel they are thriving (feeling positive about their wealth, health, and career) in their job and it has increased by 16% from 2018. At the same time, the number of people who feel energized has decreased and the number of people who feel exhausted or at risk of burnout has increased (Mercer, 2022a).

The importance of well-being in companies has increased, and more and more people want their companies to invest in their well-being. According to Deloitte (2022a), 62% of employees and 82% of managers would be more likely to stay with a company if their organisation better supported their wellbeing. Employees have high expectations that companies will promote their well-being in the future, but C-suite executives are less likely to believe this. However, promoting well-being is not always straightforward, and it does not

necessarily improve the well-being of individuals, as it often increases the workload of managers. 17% of managers are reporting that it has made their wellbeing worse, but 34% report that it has made their job more rewarding. This is likely to be particularly rewarding for young managers who, according to Deloitte (2022a), are increasingly focused on the well-being of their companies. Deloitte (2022a)

According to ONS (2021), absence rates have fallen several years in a row before covid, among UK Labour. However, in 2021 the number of lost days due to sickness per worker rose by 0.8 days, largely due to illness caused by Covid-19. Covid has also affected the mental health of individuals. Even before Covid, mental health-related absenteeism increased every year, and in 2020 it accounted 16% of absences in the UK. Deloitte (2022b) estimates this to have been even higher, up to 28% in 2020. Kela (2020) also reports an increase in mental health-related absences in Finland. Particularly long sickness absences have risen. Individuals' wellbeing deteriorated during the corona, with many individuals experiencing mental health problems for the first time (Mind, 2021), (Figure 2).

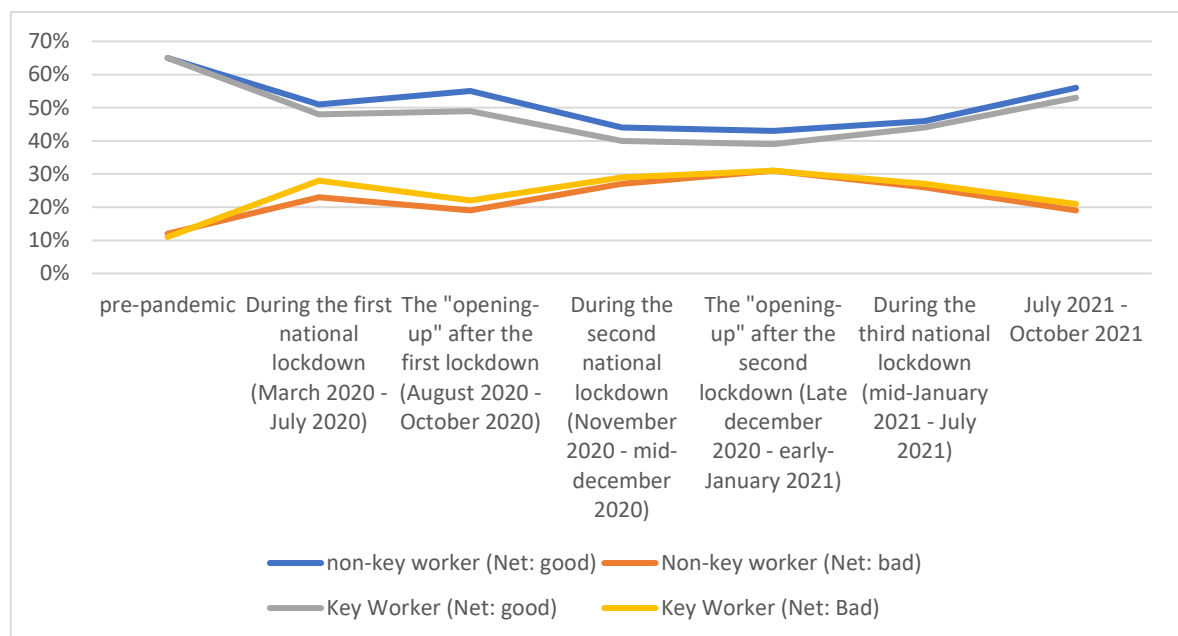


Figure 2. Mental health perception over the pandemic: key worker versus non-key worker (Deloitte, 2022b).

According to Figure 2, individuals' well-being declined significantly during the covid, but has improved as the restrictions and the disease have eased. However, the latest data on the effects of covid are not yet available. According to Mercer (2022a), individuals will

increasingly want companies to invest in their well-being. People have started to think more about their own well-being and the meaning of their work, leading to a new "revolution" in the workplace. According to Mercer (2022a), a third major shift in the meaning of work is underway (Figure 3).



Figure 3. Evolution towards lifestyle contract (Mercer, 2022a).

In the 20th century, workers were happy and stayed in business when they were paid for their work and their basic needs were met. In the recent past, the trend has shifted to meeting employees' psychological needs, such as providing a sense of purpose to increase employee engagement. Today, the idea has broadened to include the well-being of employees and their needs. The focus is no longer on job or tasks, but has broadened to focus on the whole person, including purpose and equality. Mercer (2022a) estimates that in the future, work will no longer be just a job, but rather a life experience for individuals, which fulfils their needs. 51% of employees describe: "**The work of the future will be a balance** between redesigning work to allow time for family, hobbies, work, health, and learning" (Mercer, 2022a).

For many workers, remote work has already enabled better self-fulfilment, improved time management and increased well-being. More and more people today are working remotely and plan to continue to do so (PWC, 2022a). According to Mercer (2022a), half of executives believe that top talent workers do not return to the workplace in-person to work. Many leaders are concerned about how this will affect individual productivity and well-being (PWC, 2022a; Mercer, 2022a). However, according to (Mercer, 2022a) 59% of men and 54% of women feel that remote working has had a positive impact on their well-being, while only 12% report it has had a negative impact.

Deloitte (2022b) shows in their study that, mental health-related absenteeism and presenteeism costs have remained pretty much constant during the pandemic, but staff costs have almost tripled. One of the main reasons for this is an increase in staff turnover. In particular, individuals who have experienced poor mental health are willing to change jobs. 61% of those who have deliberately left or plan to leave, cite poor mental health as a reason, either wholly or partly. At the same time almost 40% of total turnover costs are attributed to mental health and poor mental health accounts for 46% of all anticipated costs in the UK. This makes it even more important for companies to take steps to promote employee well-being, especially for key employees, who often make a significant contribution to the organisation. According to Deloitte (2022b), key employees are more likely to report that they have an intention to leave their job in the next 12 months. This is not surprising, as key workers are 12% more likely to experience burnout due to the higher demands/expectations of the job.

As a result, presenteeism is also 8% more common among key workers than among non-key workers. (Deloitte, 2022b). Presenteeism is often the largest contributor to mental health costs, which is why there is great potential for improving mental health. Health and Safety Executive (2019) suggests "54% of all working days are lost due to illness caused by work-related stress, depression and anxiety." McKinsey (2020b) research also shows that employees can achieve a 55% improvement in engagement by addressing the need for employees to be recognised for their work through non-financial means.

2.2 Work well-being

Well-being at work is often treated as a holistic concept, for example through the working capacity house (Figure 4). Working capacity house lowest layer reflects the foundation of workability and consists of physical, mental, and social workability and health. The second layer consists of learning and emphasizes the importance of learning over the years, as workability requirements and new types of skills are constantly emerging. The third floor of the house consists of valuable attitudes and motivation. It describes the attitude towards work and its effects on work ability. The fourth floor, on the other hand, deals with management, the work community, and working conditions. The layer deals with the workplace at a concrete level and its functions and responsibilities. All the lower layers together with the upper ones form the pillars of well-being at work. In this study we will focus on the lowest part of the working capacity house and how it links to the other parts (Työterveyslaitos, 2022)

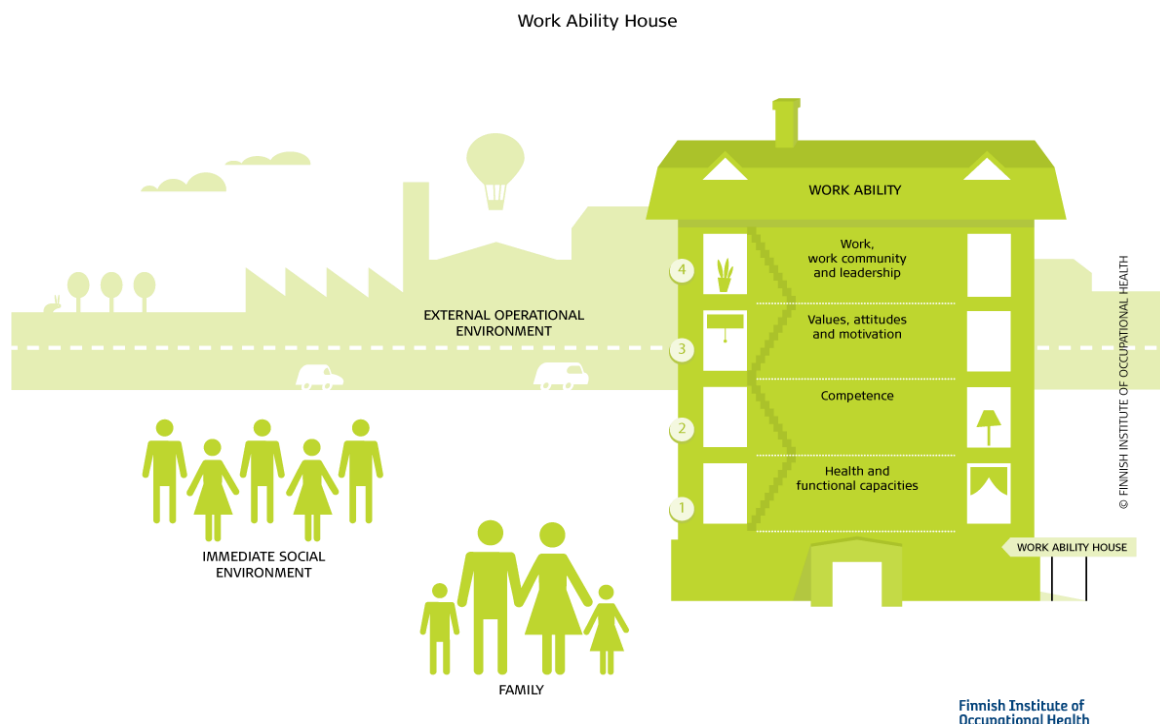


Figure 4. Work Ability House (Finnish Institute of Occupational Health)

Occupational health has traditionally been studied and addressed from the perspective of psychology and related aspects. These include general mental health, physical ability to work, and individual motivation (Grawitch, Gottschalk. & Munz, 2006, 134). According to Schulte and Vainio (2010), today's well-being at work consists of both the well-being of the individual and the individual's satisfaction with life and work. Well-being at work is a broad description of the quality of working life, which includes aspects of occupational safety and health. Well-being is also assumed to be a significant factor in the profitability of the individual and the company. (Schulte & Vainio, 2010)

Well-being at work has been for a long time described only through job satisfaction and has focused on the study of work-related nausea (such as stress) rather than well-being. In recent decades, however, the focus has widened, and today well-being at work is seen in a broader aspect, which includes not only well-being at work and nausea but also engagement and happiness at work (Grawitch, et al, 2006; Manka, M. & Manka, M. 2016, 54). However, the experience of well-being is highly subjective, as individuals' own abilities and history

influence how they experience it. The well-being of individuals also affects others. Studies have found that when organizational well-being is higher, individuals' subjective well-being is also better (Albrecht, 2012, 840-841; Sobocan, 2011).

Individuals' well-being at work is also influenced by the expectations and demands that the workplace places on its employees. Different rewards and higher salaries can reward individuals up to a certain point, but after that, according to Johnson et al. (2018, 90), the extent to which people feel that they are rewarded, especially compared to others, is important. Individual goals are also important, as they can help people find purpose and support individuals to achieve the things they want in life, such as career progression. There are many motivational theories that are explaining this, but perhaps the most well-known is the Locke and Latham (2009) goal-setting theory. Its premise is that individuals' goals influence their actions. Motivation can also be addressed more through the nature of the job, such as the Job Characteristics Model. According to the model, for work to be motivating and satisfying, it must be meaningful to the job holder - and it must lead to results that are important for them and to others (Johnson et al. 2018, 102). According to Johnson et al. (2018, 102) managers play an important role here, acting as a link between employees and leaders.

Studies have shown that managers' well-being has great importance to their organizations. The quality of interactions between workers and their managers has been identified as an important predictor of turnover and retention (Gilbreath et al. 2000). According to studies managers and leaders' style to lead effects for example to perceived stress, strain, burnout (Sosik & Godshalk 2000) and health complaints (Landeweerd & Boumans 1994). Johnson et al. (2018, 104) also points out that the behavior of managers may have an impact on the perception of barriers by individuals, such as lack of resources in daily basics (Snelgrove and Phil, 2001).

Evans, J., Brewis, H. and Robertson, I. (2021, 34-35) suggest that the personality of leaders and managers can affect the well-being of teams. For example, managers whose achievement-seeking side is high in conscientiousness have poorer work-life balance (Robertson, Healey, Hodgkinson, Flint-Taylor & Jones, 2014). According to a comprehensive analysis

of managers and executives, 77% have a balanced style, 11% are at risk of burn-out and 12% are at risk of rusting (Evans et al., 2021, 35). Evans et al. (2021, 35-36) also found that personality traits and differences between groups had an impact on performance. In terms of personality traits, women were more likely to be balanced than men, which they argue could explain why women leaders are thought to be better than men. They also found that young leaders were three times more likely to experience burnout than older ones. Maintaining managers' well-being is important, as individuals who have low well-being have more negative behavior (Skakon, Nielsen, Borg and Guzman, 2010). However, it is not only worthwhile to consider managerial well-being, since according to Van Dierendonck, Hayne, Borrill & Stride (2004), the well-being of the team also affects the well-being of managers. Organizations should therefore think holistically about well-being at work and create different strategies for emotional well-being, which, according to Johnson et al. (2018, 96-98), can be used to influence the behavior and well-being of individuals.

Engagement

Employee engagement and PWB (personal well-being) interact with each other, and their development can benefit organizations in many ways. Robinson, Perryman & Hayday (2004) describe engagement as it focuses on positive employee behaviors and attitudes and is quite closely related to the well-established psychological concepts of organizational citizenship, commitment, and attachment. Globally, employee engagement has been low, with only 21% of employees willing to go the extra mile to make a company successful, while 38% of employees are partially or fully disengaged (Towers and Perrin, 2007). This is significant thing for companies, as the more engaged employees are, the more they are willing to demonstrate and extra role performance (Reijseger, Peeters, Taris & Schaufeli, 2016; Harter, Schmidt, Kilham & Agrawal, 2009). Shimazu, Schaufeli, Kamiyama and Kawakami (2015) found that in addition to the link between engagement and performance, they are also associated with well-being. When comparing business units with more engaged and less engaged employees, significant differences can be observed (Harter, Schmidt, Kilham & Agrawal, 2009):

- 12% in customer ratings
- 16% in profitability

- 18% in productivity
- 25% in turnover (high-turnover organizations), 49% in turnover (low-turnover organizations)
- 49% in safety incidents
- 37% in absenteeism
- 41% patient safety
- 60% in quality

However, increasing company engagement alone is not enough, even if it creates positive intentions in companies (Figure 5). For example, improving PWB can have a significant impact on productivity (Johnson et al., 2018, 40).

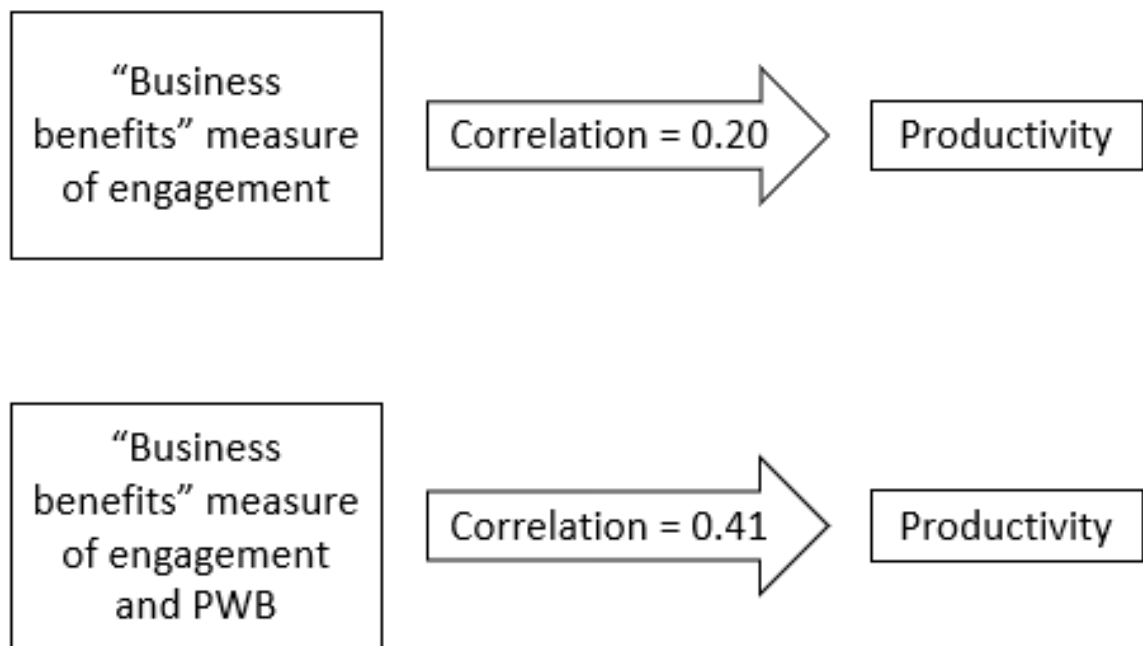


Figure 5. The benefits of including PWB as well as engagement (Johnson et al., 2018, p.40)

A narrow focus on worker engagement can miss many of the problems and lead astray. For example, in the case of presenteeism, people may come to work even when they are sick. Companies should focus on investing in individual engagement, as organizations with higher levels of engagement often outperform their competitors in many areas (Table 2).

Table 2. Key benefits from high engagement for organizations (Johnson et al., 2019, 33).

Key benefit to organizations	Evidence
Better return for investors	Results from magazine's 100 best companies to work for showed that these companies returned five times as much to investors as the market in general. (Russell investment group, 2007)
Increase in operating income	Companies with high levels of employee engagement had a 19% increase in operating income over a three-year period. Those with low levels of employee engagement had declines of 33%. (Towers Perrin, 2008)
Lower levels of sickness-absence	Actively disengagement employee misses more than 6 days of work per year. Engagement employees miss fewer than three days on average. (Flade 2003) As engagement increases sickness absence duration and frequency decreases. (Schaufeli et al., 2009)
Advocacy of organization as a good place to work	Sixty seven percent of engagement employees actively advocate their organization as a place to work compared with only 19% of non-engagement employees. (Fladr, 2003)
Customer satisfaction/loyalty	Customer data collected across 24 different studies and 20 different organizations showed positive relationships between employee engagement scores and customer perceptions. (Harter et al., 2002). Similarly, engagement has been linked to good customer service. (Viljevac et al., 2012)
Productivity	Engaged employees are more productive (e.g., revenue generated per person). (Harter et al., 2002). The more engaged an employee is the more they will display in and extra-role performance. (Reijseger et al., 2016)
Potential impact on organization's products and services	Eighty-eight percent of fully engaged employees believe they can positively impact the quality of their organization's products and services—only 38% of disengaged employees feel the same way. (Towers Perrin, 2007)
Better use of resources and fewer errors	Engaged workers make better use of resources, and as such make fewer errors. (Viljevac et al., 2012)

2.3 Individual well-being

While individuals are satisfied with their jobs, they may still be unhappy, for example about the social environment of the workplace or the quality of managers. It is important for companies to take care of their employees' personal well-being and motivate them, as this can lead to increased psychological benefits, such as higher PWB levels. This in turn is associated with better decision-making and satisfaction (Johnson et al, 2018, 21-25).

According to Lyubomirsky, King & Diener (2005) the three main areas of life (relationships, health, and work) are associated with better performance. Often, the poorer an individual's health, the poorer their well-being and vice versa (Johnson et al, 2018, 15). The studies indicate that if one of the three main life domains deteriorates, so does the individual's performance. Liu, Floud, Pirie, Green, Peto & Beral (2016) also point out that poor health is associated with unhappiness. Research shows that individuals' well-being is influenced by their personality (Steel, Schmidt & Shultz, 2008). Individuals who possess higher eudaimonic personal well-being behaviors have better success factors in life (Ryff, 2013). According to Ryan and Deci (2001), eudaimonic well-being refers to the purposeful aspect of one's own well-being. PWB has also been found to be associated with individuals' psychosocial processes and behaviors, such as positive self-image, life values, resilience, and performance on complex mental tasks (Lyubomirsky et al, 2006). These are influenced, among others, by the personality of the individual, which affects the well-being of individuals (Steel et al., 2008). Steel et al. (2008) found in their study that individuals' personalities have a particular impact on mental health ($p=0.43$), quite moderate effect on health behavior ($p=0.18$), but low impact on physical health ($p=0.06$). Personality traits also influence the way individuals think. According to Frederickson and Joiner (2002, 175), the mindset feeds itself. Positive emotions lead to positive mentalities and negative emotions can lead to negative mentalities.

It is therefore important for companies to maintain a positive attitude as, PsyCap (Psychological Capital) affects employee well-being, performance, and turnover (Avey, Luthans, Smith & Palmer, 2010). Luthans, Youssef & Avolio (2007) define PsyCap as a positive

psychological state of developmental and is characterized by: “having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success”. Avey et al. (2010) found that PsyCap predicted task performance regardless of whether their performance was predicted by managers, individuals themselves, or objective data. Imran & Shahnawaz (2020) also found that wellbeing at work mediates the link between psychological capital and performance. However, research examining performance tends to focus on task performance and does not consider its effects on contextual performance, such as teamwork (Newman et al., 2014).

PWB has a significant impact on the performance of individuals, which is why its development is important. Johnson et al (2018, 80) argue that person factors such as personality and situational factors such as supervision influence interpersonal behavior and PWB (Figure 6)

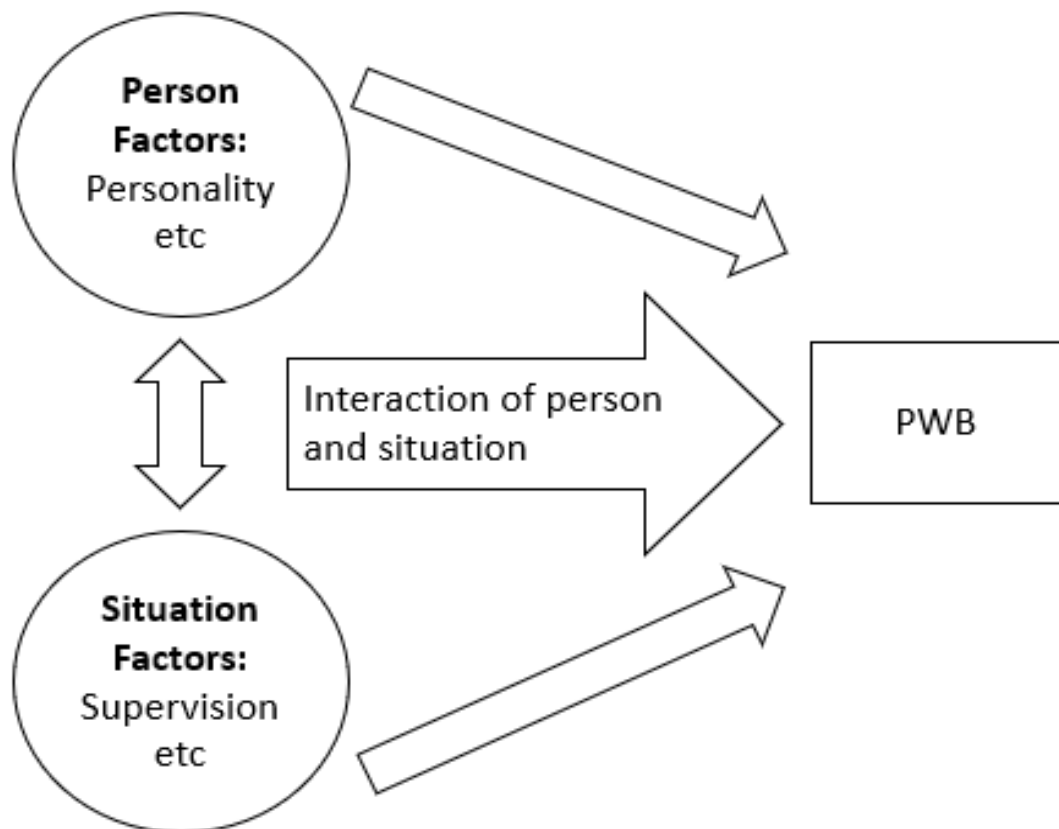


Figure 6 Influences on PWB at work (Johnson et al., 2018, pp. 80)

Figure 6 shows that PWB is influenced by many external and individual-dependent factors. According to Avey et al. (2010) PsyCap plays a role in promoting the well-being of individuals by influencing their PWB. Individuals with higher PWB have better psychological resources, have a stronger belief in the company, are more optimistic, and are more resilient in the face of setbacks. PWB also predicts performance more effectively than job satisfaction. Roberts et al. (2012) analyzed 9000 employees and found a correlation between productivity and PWB (Figure 7).

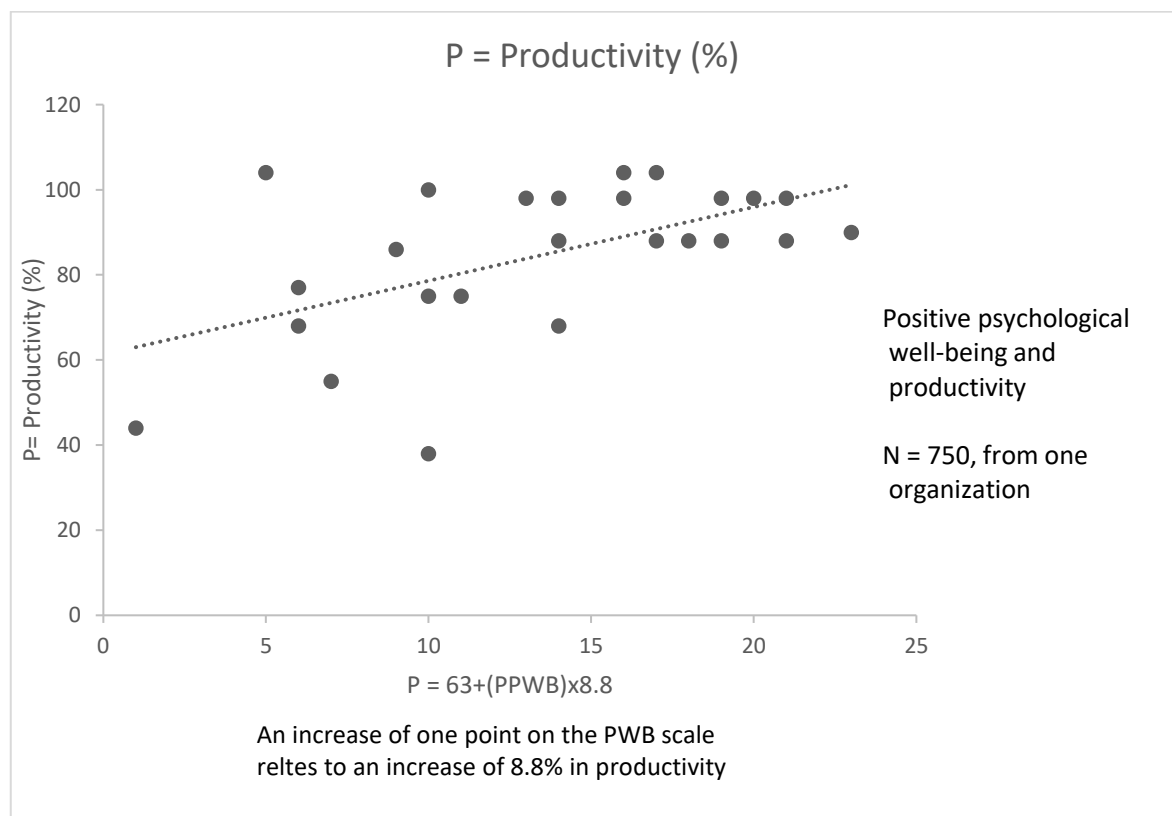


Figure 7 The relationship between PWB and productivity (Roberts et al., 2012).

Figure 7 shows that the dispersion of the scores is quite large, which reduces the reliability of the results, but it does give an indication of the effect between the components. Developing personal well-being can improve the productivity of individuals, but there are differences between individuals. There are also differences between individuals in how they experience different types of setbacks. Studies assume older people are less affected by interpersonal stressors and more by non-internal stressors. Lang & Carstensen (2002) argue that time influences what individuals strive for. (Most) young people do not think of time as having an end and focus their goals on the future, such as a career, in order to achieve future gains.

Older people, on the other hand, focus on things experienced in the moment, such as well-being and meaningfulness, and link their goals to these (Zacher, 2021, 44; Johnson et al., 2018, 85-87). However, these are also important issues for young people today (Deloitte, 2022a). Zacher (2021, 45) argues that according to Lifespan theory, older people experience less stress than younger people because they are more active problem-focused than emotion focused coping. It is therefore particularly important to pay attention to younger workers' emotions at work, as expressing emotions, especially emotions that are not natural, increases the risk of exhaustion (Goldberg & Grandey, 2007).

Resilience

The development of psychological capital can have an impact on employee well-being in organizations, performance, effective organizational change, and absenteeism. Personal wellbeing and psychosocial capital go hand in hand, so if we want to have a positive impact on the wellbeing of individuals, we need to have an impact on the psychosocial capital of individuals. According to Johnson et al. (2018, 27), there are four dimensions that contribute to overall psychosocial capital.

Self-efficacy: having the confidence to take on and put in the necessary effort to succeed at challenging tasks

Optimism: making a positive attribution about succeeding now and in the future

Hope: persevering toward goals and when necessary, redirecting paths to goals in order to succeed

Resilience: when beset by problems and adversity, sustaining, and bouncing back and even beyond to attain

Individuals' well-being is constantly changing, but personality is largely constant. Personality alone does not explain differences between individuals, but according to Johnson et al. (2018, 113) resilience, for example, may be an underlying factor. For example, people with higher resilience are more likely to maintain their well-being in difficult times. Nowadays psychological methods that have been used to treat mental health problems have been also

adapted as part of building individuals' resilience and improving PWB at work. They aim to guide individuals away from expending their psychological energy unnecessarily and redirect it towards achieving their goals (Johnson et al., 2018, 119). Studies show that people with higher resilience suffer less depression, have higher well-being, and experience less psychological and work-related stress (Burns, Anstey & Windsor; Kinman & Grant 2011). Proudfoot, Corr, Guest & Dunn (2008) suggest that individuals' attributional style (how they perceive a particular event to occur) changes with training.

Even if individuals gain more resilience and well-being during training, this is likely to decrease over time. In an eight-year study, Headey & Wearing (1989) found that people's happiness changes as a result of different events but often returns to its previous level over time. Frank Fujita & Ed Diener (2005) also found in their 17-year study that 24% of participants experienced a significant change in well-being during the study, but most participants did not. This may be the reason why the return of well-being programs diminishes over the years, as individuals tend to return to previous behavior.

3 Theoretical framework of work well-being programs

The aim of this chapter is to give an overview of well-being programmes. The first part describes the different types of wellness programmes and explains which are the most common ones used in companies. This is followed by an overview of the types of businesses that use them, and the problems associated with their use.

3.1 What are work well-being programs

Several types of well-being programs have been developed; they can be holistic programs aimed at improving the overall well-being of individuals, or they can be independent interventions, like physical activity or nutrition programs. WHO (2022) defines well-being as “a positive state experienced by individuals and societies. Similar to health, it is a resource for daily life and is determined by social, economic and environmental conditions. Well-being encompasses quality of life and the ability of people and societies to contribute to the world with a sense of meaning and purpose”. The WHO definition refers to the overall well-being of individuals. Currently, the study of wellbeing is often divided into two parts "eudaimonic" and "hedonic" wellbeing. According to Ryan and Deci (2001), eudaimonic well-being refers to the purposeful aspect of one's own well-being, whereas hedonic well-being refers to subjective feelings of happiness. Eudaimonic well-being programs are related to the physical and mental well-being of individuals, such as stress management and fitness, while hedonic programs focus more on individuals' feelings, such as satisfaction.

The commonly used method for allocating health interventions proposed by the WHO divides health interventions into three parts: primary health care, disease prevention and health promotion programs. Primary health care covers all relevant sectors working to address primary health care problems in the community (Carmichael, Fenton, Roncancio, Sadhra & Sing, 2016). Disease prevention, in turn, is often treated in three different ways (Table 3): primary (prevention); Secondary (intervention, dealing with the severity of the illness) and tertiary (dealing with a related disability or incapacity) (WHO, 2002).

Table 3. The components of disease prevention (Modified from Goetzel and Ozminkowski, 2008, 305-306).

Layer	Target	Examples of interventions
Primary	Employed populations that are generally healthy.	Programs that encourage exercise and fitness; healthy eating; weight management; stress management; use of safety belts in cars; moderate alcohol consumption; recommended adult immunizations; and safe sex.
Secondary	Individuals already at high risk because of certain life-style practices (e.g. smoking, being sedentary, having poor nutrition, practicing unsafe sex, consuming excessive amounts of alcohol, and experiencing high stress) or abnormal biometric values (e.g. high blood glucose, over-weight).	Hypertension screenings and management programs; smoking cessation telephone quit lines; weight loss classes; and reduction or elimination of financial barriers to obtaining prescribed lipid-lowering medications
Tertiary	Disease management of individuals with existing ailments e.g., diabetes, cardiovascular disease, cancer, musculoskeletal disorders, depression	Return to work interventions; specialist targeted services within the workplace

Many health promotion programs focus on primary or secondary disease prevention, with the aim of reducing health risks (Carmichael et al., 2016). Primary interventions can target, for example, people with chronic health risks (lifestyle management), and secondary prevention (disease management) to people with pre-existing diseases (Mattke et al., 2013). Lifestyle management may include smoking cessation, nutrition management and stress management, while secondary prevention may include screening, disease management and clinical interventions that may be related to chronic diseases (Mattke et al., 2013). Tertiary intervention, on the other hand, aims to affect incapacity associated with illness, such as providing help to return to work (Boyce, Peckham, Hann, & Trenholm, 2010). The third way to do health intervention is health promotion. WHO defines health promotion as "a process that enables people to increase their control over their health and improve their health. It does not focus solely on individual behaviors but focuses on a wide range of social and environmental interventions". Mattke et al. (2013) also point out that health promotion is related to disease prevention in the sense that it aims to promote better health through behavioral change.

Employers have a wide range of options for wellness programs, each with its own benefits and costs. Many studies define general well-being according to the WHO definition, but there are wide variations in the use of other health-related terms. In particular, the terms well-being, wellness and health promotion are used in very different ways and in different studies, containing different elements. For the purposes of this work, a well-being program and wellness program mean the same thing and they are defined as a program that includes at least one of the following aspects: screening, health promotion, lifestyle management or disease management. Abraham and Graham (2009) describe that workplace wellness programs are initiatives by employers to promote the well-being and health of their employees. Song and Baicker (2021) on the other hand, argue that workplace wellness aims to improve employee health and lower health care spending.

3.2 The importance of well-being programs

The popularity of work wellness programs has risen significantly in recent years as the importance of investing in employee well-being has been recognized. Nowadays executives think that overall well-being (physical, mental, social, and financial aspects) is the second most important factor in business performance after retraining, while this is the seventh most important issue in human resources management priorities (Mercer, 2022a).

Half of Americans had 2018 some form of chronic health condition (Boersma, Black & Ward). With the increase in illness, health insurance premiums have also risen by 131% between 1999 and 2009 (KFF, 2009). This may explain why many well-being programs focus on managing health risks and diseases and why many studies have focused mainly on measuring direct costs, such as absenteeism, health care and insurance costs (Goetzel, 2004; Gubler, Larkin and Pierce, 2018). Studies have found that declines in work performance due to presenteeism are associated with higher costs (Bloom, D., Cafiero, Jané-Llopis, Abrahams-Gessel, Bloom, Fathima & Rosenberg, 2011), yet relatively few studies discuss presenteeism and its impact. This is probably due to the difficulty of calculating and demonstrating its relationship with individual performance.

The profitability of wellness programs is difficult to assess, and the results often differ (Astrella, 2017). In addition to difficult subjective factors, well-being measures are influenced by factors such as the length of programs, prevailing trends, and attrition. Chapman (2012) points out that such issues perhaps reflect why the productivity of well-being programs is not often measured. However, when implemented correctly, programs can have effects on individuals' perceived health behaviors and engagement (Ott-Holland, Shepherd & Ryan, 2019). Employers' concern for the overall well-being of employees can also affect individuals' motivation and their performance (Grant, 2007) and it be perhaps promoted through well-being programs. According to Deloitte, workers perceive employer concern for their well-being as one of the most important factors at work. Employer concern for the overall well-being of employees can also affect individuals' motivation and their performance (Grant, 2007).

3.3 What type of work well-being programs have been done?

Almost half of US companies offer a range of health promotion initiatives. Larger companies are offering wider and more complex comprehensive wellbeing programs than smaller ones. According to Mattke et al. (2013), nearly three quarters of employers describe their wellness program as a combination of screening and individual interventions. They also found that 51% of employers offer wellness programs and 77% of them offer life management programs. According to CDC (2017) only 11,8% of worksites are offering a comprehensive health promotion program. The percentages of U.S. worksites with each element of a comprehensive program are health screening programs (26,6%), integration of health promotions (28.4%), health education programs (33.7%), connection to a related programs (46.0%) and supportive social and physical environments (47.8%). Of the individual programmes, physical activity is the most popular one (Figure 8) (CDC, 2017).

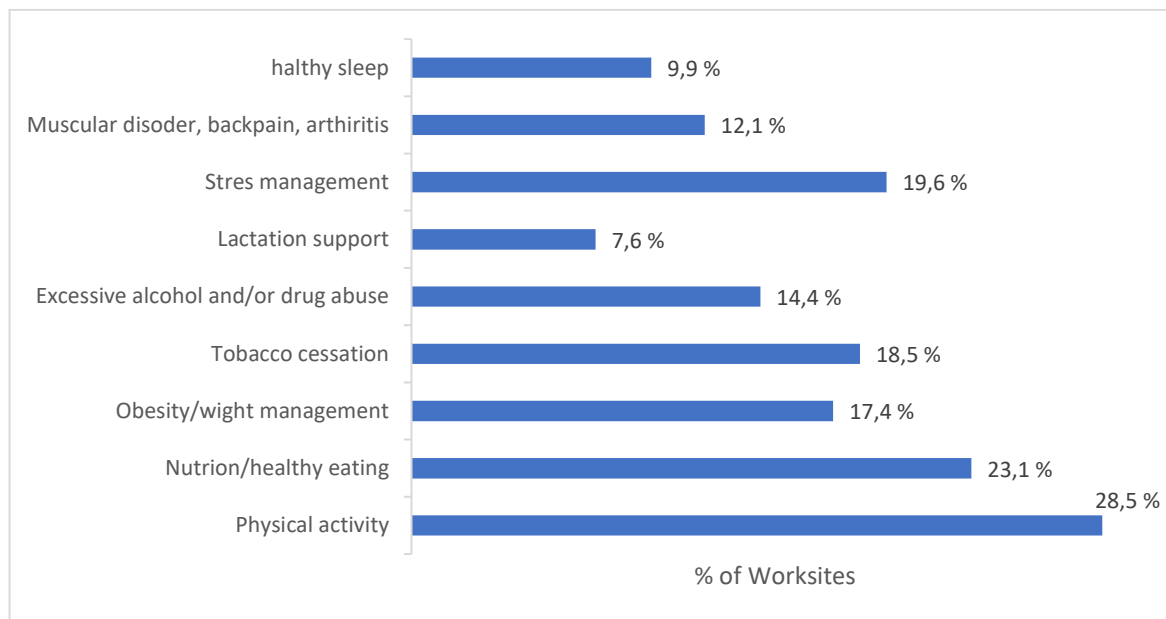


Figure 8 Worksites with specific health programs (CDC, 2017).

Figure 8 shows that many of the programs have focused on physical activity, healthy life-styles, and weight management. The situation may have changed during the last few years, due to rise of mental health problems, but after the CDC 2017 research, there has not been extensive research on the content of the programs. The participation rate of these previous mentioned programs are often pretty low. According to Mattke et al. (2013), only 46% of

individuals participate in HRA (Health Risk assessment) when offered. Of the individuals identified as having the need for intervention, only 21 percent participated in fitness programs, 10 percent participated in weight management, and 16 percent participated in disease management. Although the number of participants is small, the Individuals who participate in programs such as physical activity are often people who are already active or have healthier lifestyles (Muir, Silva, Woldegiorgis, Rider, Meyer & Jayawardana, 2019; Song and Baicker, 2021). Participation in disease management programs is often even lower. Still, 56% of companies offer disease management programmes (Mattke et al., 2013). However, high participation rates in disease management programs are not somewhat favorable for firms, as they would suggest a high burden of illness among staff (Figure 9).

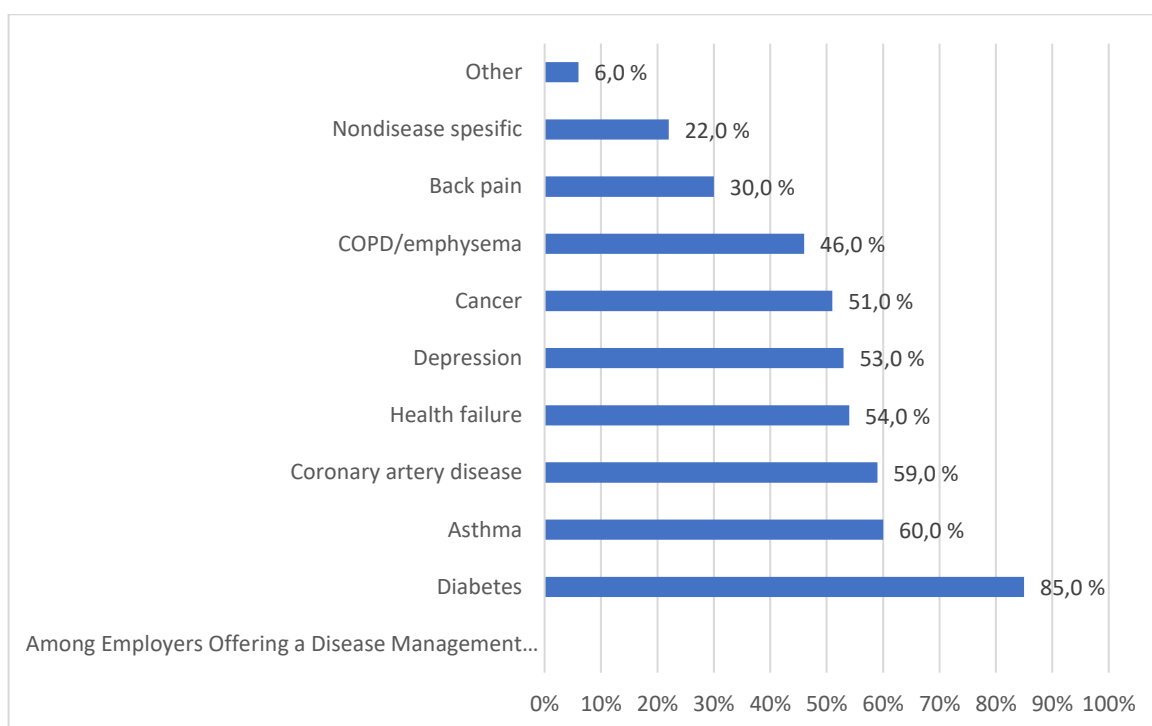


Figure 9 Among employers offering a disease management program, percentage offering programs for specific chronic conditions. (RAND Employer survey, 2012)

According to Figure 9, companies have targeted disease management activities toward the most common chronic diseases. In addition to these, employers are often offering a range of health promotion activities (86 %), which can include healthy eating habits and other well-being benefits (Mattke et al., 2013). Although these are allocated significant resources, they are poorly monitored. Less than 25% of the companies offered any type of screening for the disease management programs (CDC, 2017) (Figure 10).

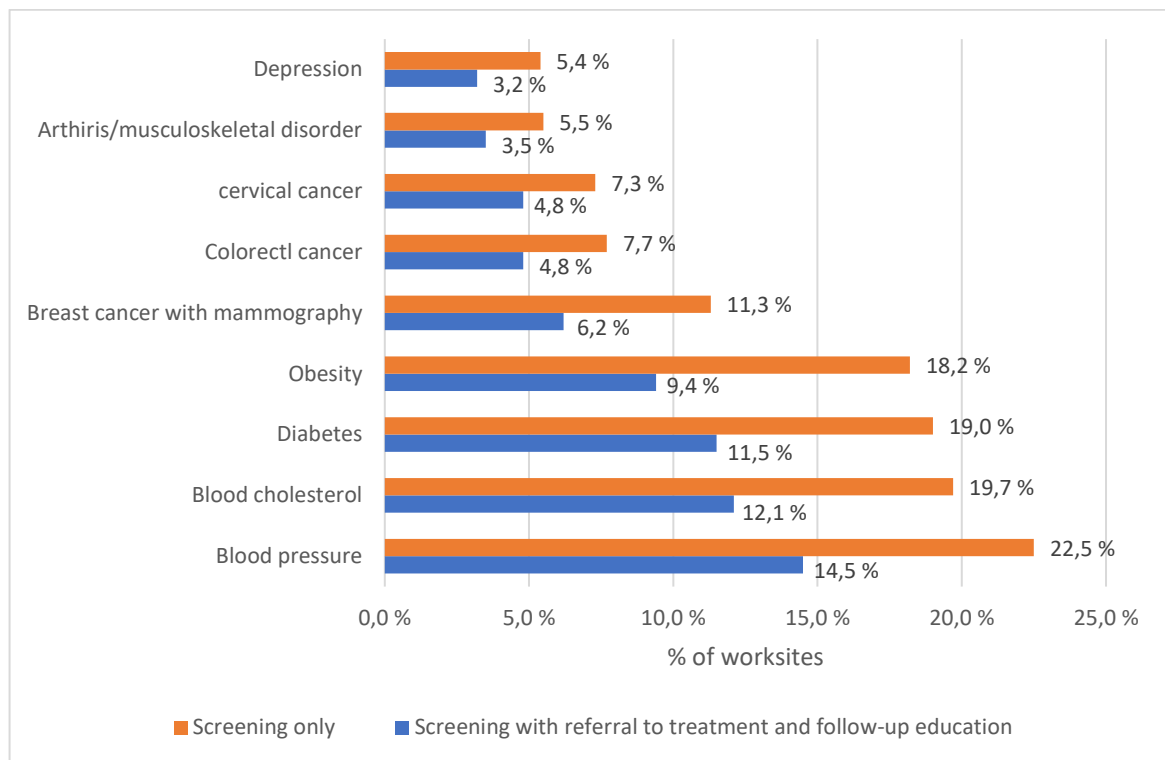


Figure 10. Percentage of U.S. worksites offering health screening and referral to treatment/follow-up education for high-risk employees, by health condition (CDC, 2017).

Figure 10 shows that even fewer companies offered additional training or care after screening. Many illnesses indirectly affect the mental well-being of individuals and can cause depression and other mental health problems. Mental health problems can also be a contributing factor to obesity, which leads to increased blood pressure and cholesterol levels. Even though depression is commonly used disease management program (Mattke et al., 2013), only a few companies have measured depression in 2017 (Figure 10), even though it has been shown to have significant effects on individuals' well-being and performance (Lerner & Henke, 2008). This figure is perhaps now a days much bigger as in recent years, companies have started to increasingly measure well-being. According to a study by WTW (2020), 16% of companies measured stress in 2019 and expect it to be 53% in 2021.

However, companies do not always seek to provide treatment even though they provide screening. Calzori and Nardotto (2017) point out that the goal of screening may simply be to remind individuals of their well-being and healthy lifestyle choices, as people may not recognize their own problems or may downplay them (Henderson, Harvey, Øverland,

Mykletun & Hotopf, 2011). In particular, people with pre-existing health problems can feel gratitude and appreciation for these things, which makes employees feel grateful and give more to the company in return (Hekman, Bigley, Steensma & Hereford, 2009).

3.4 Companies that offer well-being programs

According to a CDC (2017) 46,1 % of workplaces currently offer health promotion programs. While wellbeing programs are widely offered, there is considerable variation in their use across companies. Figure 11 shows that larger companies are offering more wellness programs than smaller ones (CDC, 2017).

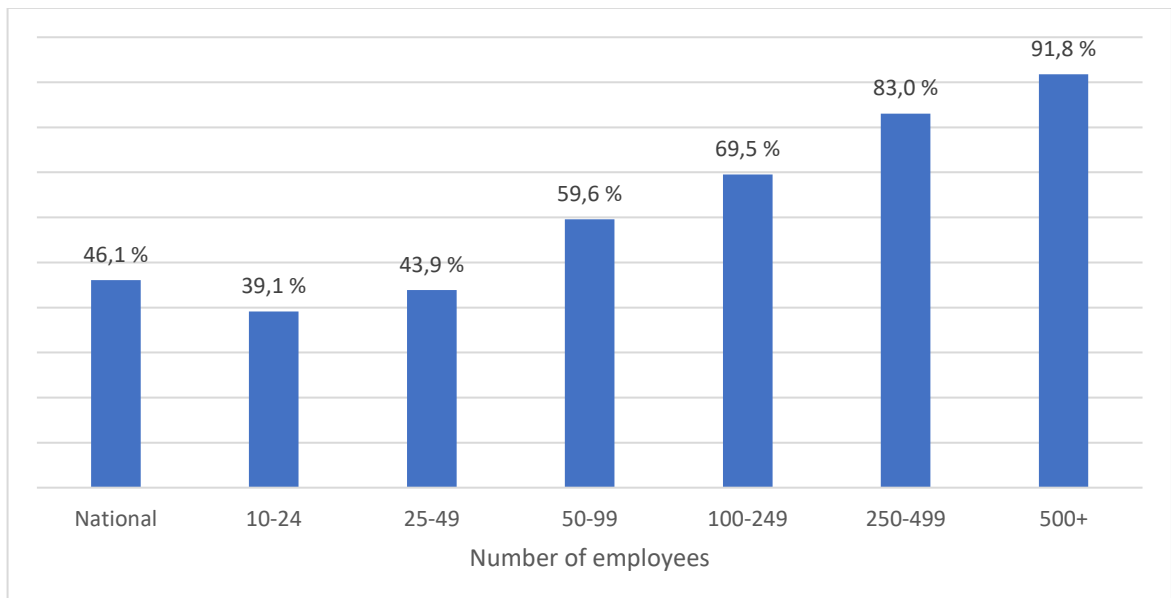


Figure 11 Percentage of U.S. worksites offering any type of health promotion program, by worksite (CDC, 2017).

The reason why smaller companies are less likely to use well-being programs is probably due to their limited resources. However, public admin, which CDC (2017) classified in the top three smallest groups, implemented the second highest number of wellness programs (Figure 12). Figure 12 shows that different sectors, such as male-dominated agriculture and industry, are less likely to implement a health promotion program.

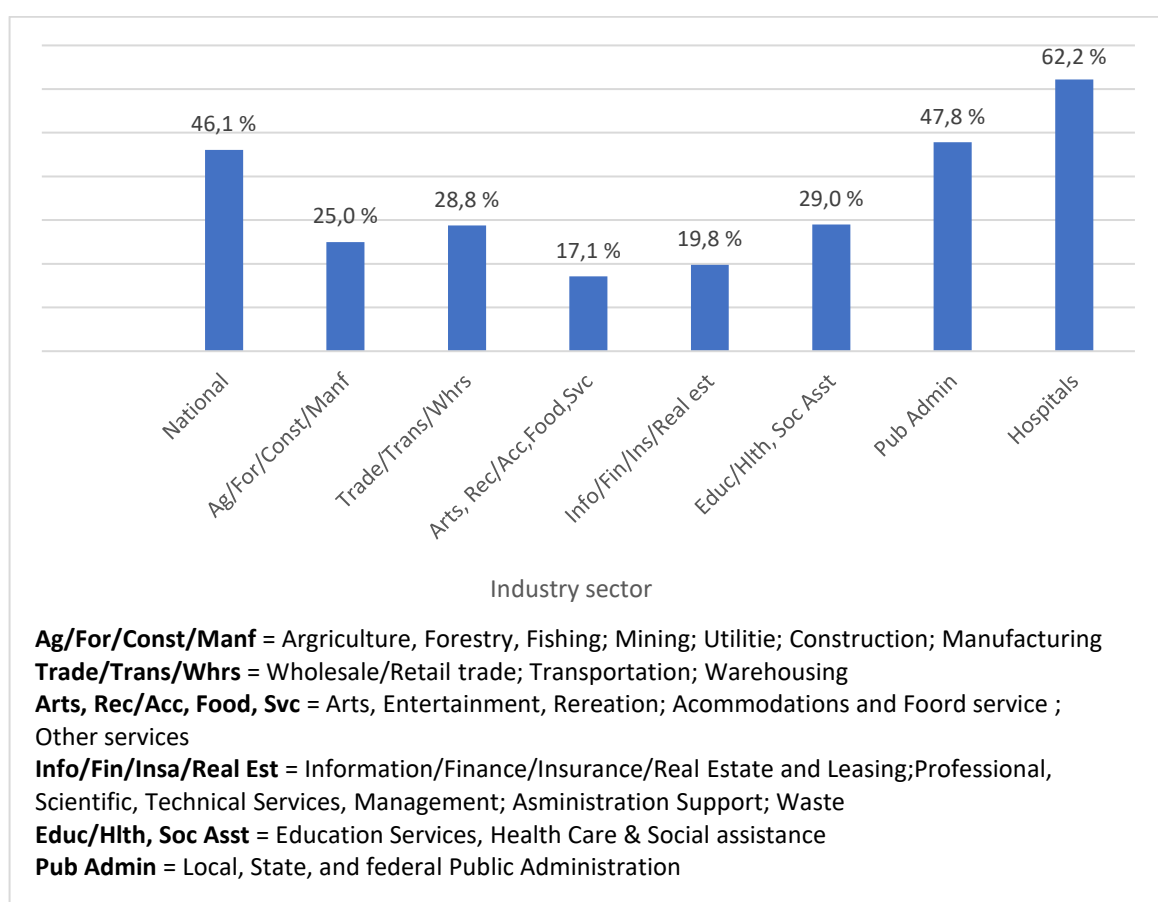


Figure 12 Percentage of U.S. worksite offering any type of health promotion program, by industry group (CDC, 2017).

Hospitals, on the other hand, offer significantly more of these, which may be largely explained by their in-house expertise in this area, and the relatively high proportion of women. In female-dominated sectors, higher investment in wellness programs can be explained by higher health care costs for women (Kaiser Family Foundation, 2019) and higher participation rate (Batorsky, Taylor, Huang, Liu & Mattke, 2016), which could motivate employees to invest more money in women's health as they have potential to generate higher returns.

Companies today offer a wide variety of wellbeing programs, focusing on both individual interventions and large-scale wellbeing promotions. Studies show that both types of programs are potentially profitable (PWC Australia, 2014; Goetzel, Henke, Tabrizi, Pelletier, Loeppke, Ballard & Metz, 2014). Goetzel et al. (2014) notes that there seems to be a general consensus that programs that include all aspects of comprehensive programmes are potentially profitable, but more research is needed. However, the same kind of results can be seen

from targeted programs (Berry et al., 2010). On the other hand, Äikäs et al. (2018) point out in their study that targeted programs did not reach the people they were intended for, but when the program content was changed to be targeted at everyone, the initial target group's participation rate improved.

In many cases, offering a variety of programmes will increase employee participation. However, Batorsky (2016) argues that there is no significant benefit from offering multiple programmes if the quality of the programmes is good. Programmes should be designed according to the company's own resources and the needs of its employees, as different companies and employees have different needs.

3.5 Barriers in well-being programs

General attitudes towards well-being programmes and their benefits for individuals and businesses have changed in recent years, partly as a result of the covid-19 pandemic. Before pandemic the participation in wellness programs was often low, but during pandemic it has probably risen. However, there is currently no extensive research on how wellness programs barriers have changed during pandemic.

According to Batorsky et al. (2016), the two biggest factors affecting the health benefits and financial returns of wellness programmes are low participation rates and participants' assumptions about the effectiveness of the programmes. Toker et al. (2015) points out that up to 50-75% of individuals do not participate even when offered wellness programs. This low participation rate makes it difficult to design wellbeing programs to meet the needs of the firms (CDC, 2017). Ott-holland et al. (2019) also suggested that an individual's beliefs about a wellbeing program play a role in its success. It is therefore important to identify the barriers that prevent individuals and organisations from participating in wellbeing programmes and getting the most out of them. CDC (2017) points out that the biggest barriers for companies are: cost, competing business demand, lack of employee interest, lack of experienced staff, lack of physical space and demonstrating results (Figure 13).

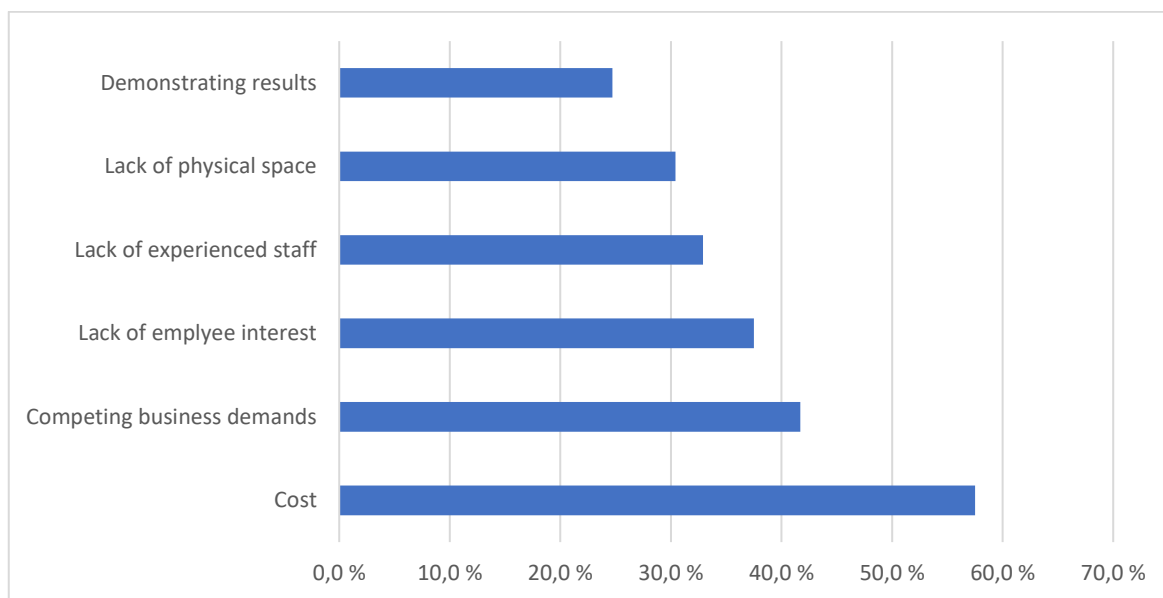


Figure 13 Percentage include US. Worksites who responded “Challenging” or “extremely challenging” on implementations of wellbeing programs. Percentage based on weight estimates (CDC, 2017).

Many companies cite cost as the main reason why they do not implement wellness programs. One of the reasons for this may be that companies do not see them as a profitable investment. Indeed, 24.7% of companies cite this as a barrier to adopting. Employees' interest in wellness programs can also influence outcomes, as Toker et al. (2015) found that people are more likely to participate in a program if they believe in its benefits. Furthermore, if the company does not believe in its benefits or in its employees, the returns are unlikely to be high.

Profitability and perceived benefits of programs can also be affected by the way they are implemented. Only 21.5% of companies in the US use a vendor or third party and 16,2 % uses insurance company to organize wellness programs. 62.3% of companies therefore implement wellness programs independently. At the same time, companies are naming the lack of experienced staff and costs as one of the biggest barriers to providing wellness programs. However, only a third of companies and an even higher proportion of small companies that implement health promotion programs have an annual budget for it. It is therefore likely that companies are implementing programs without a skilled workforce. (CDC, 2017)

3.6 Why do people participate?

Participation rates in studies are almost always lower than expected (below 50%) (Robroek et al., 2009). Studies also often have high attrition rates, which may be due to workload, lack of motivation and turnover (Soler, Leeks, Razi, Hopkins, Griffith, Aten, & Walker, 2010). Although participation rates are low, surveys often do not identify barriers to participation (Robroek et al., 2009) or collect data that would allow for a comparison between participants and nonparticipants (Soler et al., 2010). Toker et al. (2015) also points out that where comparisons are made, researchers do not address the subjective factors of individuals as barriers to participation. However, it is often difficult to ascertain the needs of workers, as individuals' participation in health screenings is poor.

Programs that last longer often achieve higher participation rates. Example in the Johnson and Johnson 5-year study achieved 76% participation rate in HRA (Health Risk Assessment) (Henke, Goetzel, McHugh & Isaac, 2011), while often these programs have participation rates below 50% (Toker et al., 2015). Researchers attribute the high participation rate of the Johnson and Johnson program largely to large financial incentives. High participation rates have also been achieved without incentives in longer programs (Äikäs et al., 2019). However, over time the participation rate of the programs often declines, and fewer and fewer people continue to participate in the program (Ott-holland et al., 2019). Henke et al (2011) show that dropouts are common, with up to one in five dropouts quitting before the next task. If incentives are targeted at such individuals, the expected returns to programs may be further reduced. Thus, initial participation rates do not have value if many people drop out. One way to influence the participation of individuals is to develop social factors, individual factors and cultural/policy factors:

Social factors

Feeling a sense of belonging and acceptance is important for individuals. According to studies social connectedness have perhaps the biggest effect on people's overall well-being (Ashida & Heaney, 2008; BeWell Stanford, 2022). Social relationships have also been found to have an impact on individuals' participation in well-being programmes (Jørgensen,

Villadsen, Burr, Punnett & Holtermann, 2016). According to Banduras's (1991) social cognitive theory, both individual and contextual factors influence an individual's performance and behavior. They also point out that individuals have the ability to direct their destiny and performance. Still, they are heavily affected by environmental factors. Yun and Silk (2011) reveal that social relationships influence health-related behaviors. Health behaviors such as anxiety also affect behavior and effect on participation (Davis, Jackson, Kronenfeld and Blair, 1984). Businesses should support the well-being of individuals, for example by creating social norms. They should be handled with care as, if they are implemented incorrectly, they can be stigmatizing, which can lead to labelling and avoidance (Ahmedani, 2011) and affect well-being outcomes.

Individual factors

Toker et al. (2015) points out that individuals have implicit barriers: age, gender, position at work, perceived health and organisational commitment to employee health. They also found that older people, men, blue collars (not in administrative positions), people in poorer health, and people with poorer health status participated less in programs than their peer group. Robroek et al. (2009) and Al-Alawi, Mahamid & Baloshi (2021) have also found similar results in their studies. Al-Alawi et al. (2021) also found in their study that the nationality and experience of workers influence participation. The more experienced, the higher the status or if the workers are foreigners, the less likely they are to participate.

According to Robroek et al. (2009) there is a gender gap in participation. They found that women are on average 1.67 times more likely than men to participate in wellness programmes. Women's participation rates were higher, particularly in education and multi-component programmes, but participation in fitness programmes were similar. Differences in participation rates between individuals can also be observed based on their health status. Individuals with higher levels of well-being and with a prior interest and knowledge of well-being are more likely to participate in programmes offered by companies (Robroek, 2009). For example, healthier people are more likely to participate in wellness programs related to physical activity (Muir et al., 2019). Obese people, on the other hand, are less likely to participate in programmes (Henke et al., 2011). Healthy people also do not always participate

in wellness programmes. Toker et al. (2015) found in their study that 7% of participants felt they already had the resources, and 28% did not believe in the benefits of the programme and therefore did not participate.

Individuals who know or think they have significant health risks may be the least likely to participate in well-being activities (Sepulveda, Goetz and Grana, 1994, 326, 333). However, by examining individuals' health risks and bringing these to their attention, employees might be more motivated to adopt better health behaviours (Soler et al., 2010). According to Caloyeras et al. (2014), lifestyle management alone is not beneficial, yet many companies offer their employees only screening for disease management (CDC, 2017). This is unlikely to be particularly motivating, as many employees report that they need help to achieve their well-being goals (Deloitte, 2022a). Motivation, on the other hand, has been found to be a key factor in program participation (Al-Alawi et al, 2021).

Cultural/policy factors

The support of organizations plays an important role in helping individuals to achieve their goals. If the organization is adaptive, it is also easier to enhance the well-being of individuals (Bennett, Hughes, Hunter, Frey, Roman & Sharar, 2015). In maintaining organizational culture, managers play a major role, as they reflect the culture through their actions and attitudes to employees, who absorb those and reflect back (Klann & Gene, 2003). Luthans (2008) reveals that organizational behavior reflects the psychological capital of employees. According to Nisula & Metso (2019) employees' psychological capital also affects their engagement and adaptation to the work environment, and thus their performance and job satisfaction.

Organizational policies and structure that support engagement and dissemination, are affecting participation rates of well-being programs (Taitel, Haufle, Heck, Loepke & Fetterolf, 2008). Al-Alawi et al. (2021) point out that beliefs and behavioral norms play an important role in the participation and that the most important policy is the organizational process. Therefore, an organization must have a culture and practices that support it. Organizations with a weak culture are argued to be less successful (Maseko & Thokozani, 2020).

According to Toker et al. (2015), individuals are 1.68-3.39 times more likely not to participate in wellbeing programs if they do not feel their organization is committed to the wellbeing of individuals. This can be expected to be a significant barrier to the success of wellbeing programs, as Deloitte's (2022a) research suggests that many employees do not feel that their organization cares about their well-being. Figure 14 summarizes the factors previously discussed as influencing individuals' participation in programs.

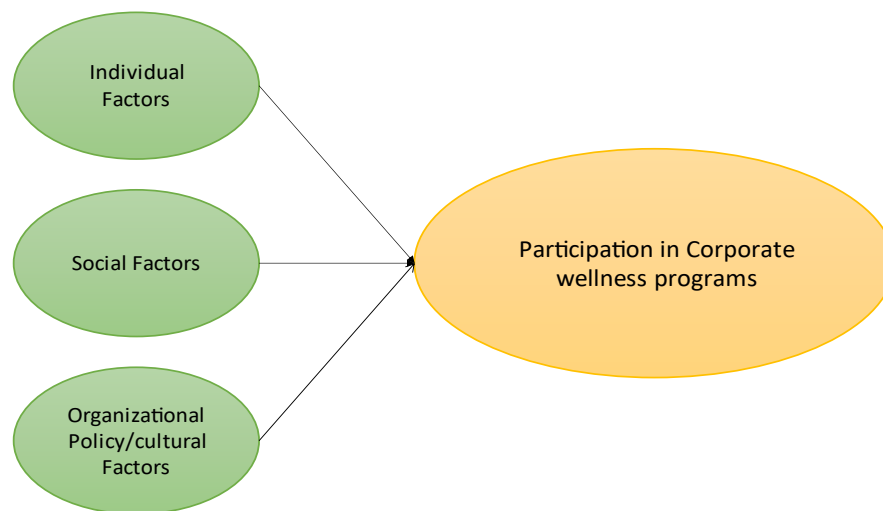


Figure 14 Example components that effect on participation in wellness programs. (Modified from Conlon, 2013)

Organizations also face explicit barriers that prevent programs from succeeding. Toker et al. (2015) reveals in their study that lack of time was the main reason (54%) for individuals not starting or completing an HRA. Batorsky et al. (2016) and Äikäs et al. (2019) identify the same problem but have also found program participation to be higher if employees were able to participate during their work hours. If incentives are included, participation rates can increase by 10% and perceived effectiveness by 9% (Batorsky et al., 2016). Batorsky et al. (2016) also found, promotional activities alone led to a 6% increase in participation rates and a 4% increase in perceived effectiveness. In contrast, Äikäs et al (2019) show in their multi-year study that financial incentives are not always necessary, as without incentives they got 80% of people to participate in HRA surveys and biometric screenings. However, the researchers point out that participation must be made easy for workers. Promotion of programs also needs to be extensive, as in Toker et al. (2015) study 41.5% of non-

participants reported not knowing about the program. This is a significant figure, but in reality, it may be slightly lower, for example, because people are too lazy to participate in the programme and don't want to admit it, so they lie, or because they are afraid of having their personal information leaked. Toker et al (2015) reveal in their study that 17% of participants reported that they did not participate in the programme because they were concerned about losing confidence. As Hobfoll (2001) points out, when individuals feel threatened, they tend to protect themselves.

Maintaining a high level of well-being at work is important for enterprises, because when it deteriorates, people feel less well and are more likely to leave, which in turn weakens company engagement. The Art & Science of Health Promotion Institute (2017) suggests that the more a workplace changes, the more likely it is that engagement will decline in the long term. In many cases, the role of employers in business turnover is significant, but the level of support experienced by employers is often low (Deloitte, 2022a). Ott-Holland et al (2019) also found in their study that organisational support influences individuals' participation, but also individuals' beliefs influence their participation (Figure 15).

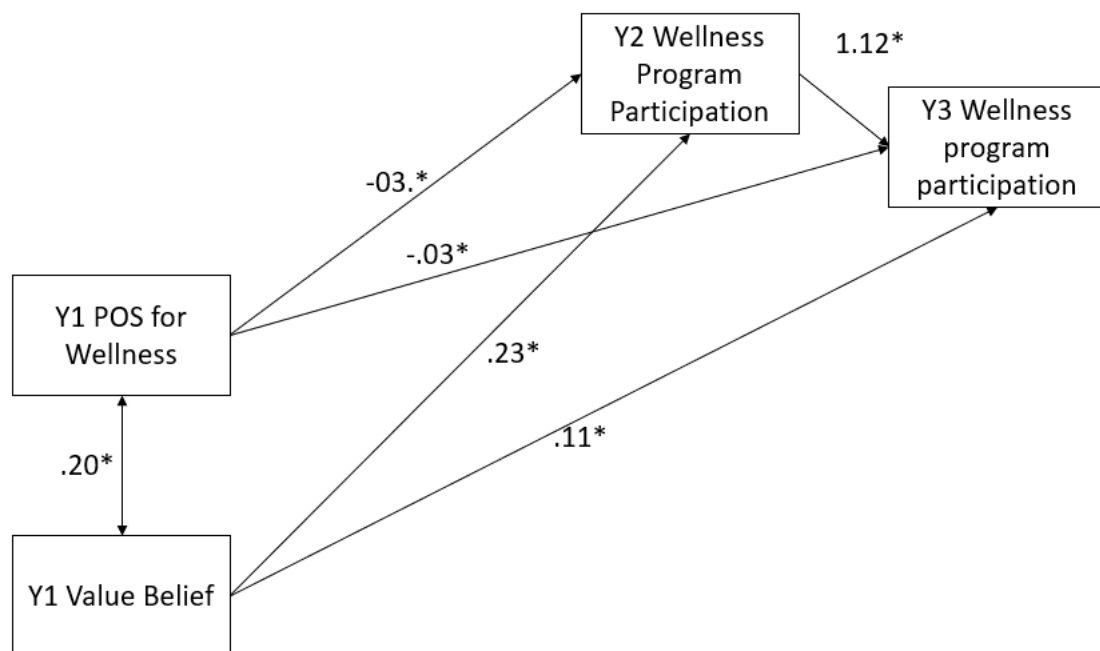


Figure 15 Nested path analysis linking Y1 year one POS for wellness and Y1 year 2 beliefs in the value of employee wellness programs to Y2 and Y3 wellness program participation. (Ott-Holland et al., 2019)

Figure 15 shows that people who believed the program would deliver results were also more interested in participating in the program. This also affected individuals' participation in the second and third years of the program. Hobfoll & Shirom (2000) point out that individuals tend to retain, obtain, protect, and foster their resources, especially valuable things such as time, energy and health. If individuals perceive that these resources are lost, threatened, or not replenished, individuals will change their behaviors and reactions in an effort to minimize the loss of resources (Hobfoll, 2001). Therefore, employees need to believe in the value of programs. According to Deloitte (2022a), individuals also need help to achieve their goals. Achieving goals requires resources and belief, which is where well-being programs can be perhaps helpful. If individuals participate more actively and perceive more value from programs, their productivity can improve and absenteeism decrease (Ott-holland et al., 2019).

Many explicit and implicit factors contribute to the success of programs. Figure 16 summarizes the factors that have been discussed in the chapter and which hinder the success of the programmes.

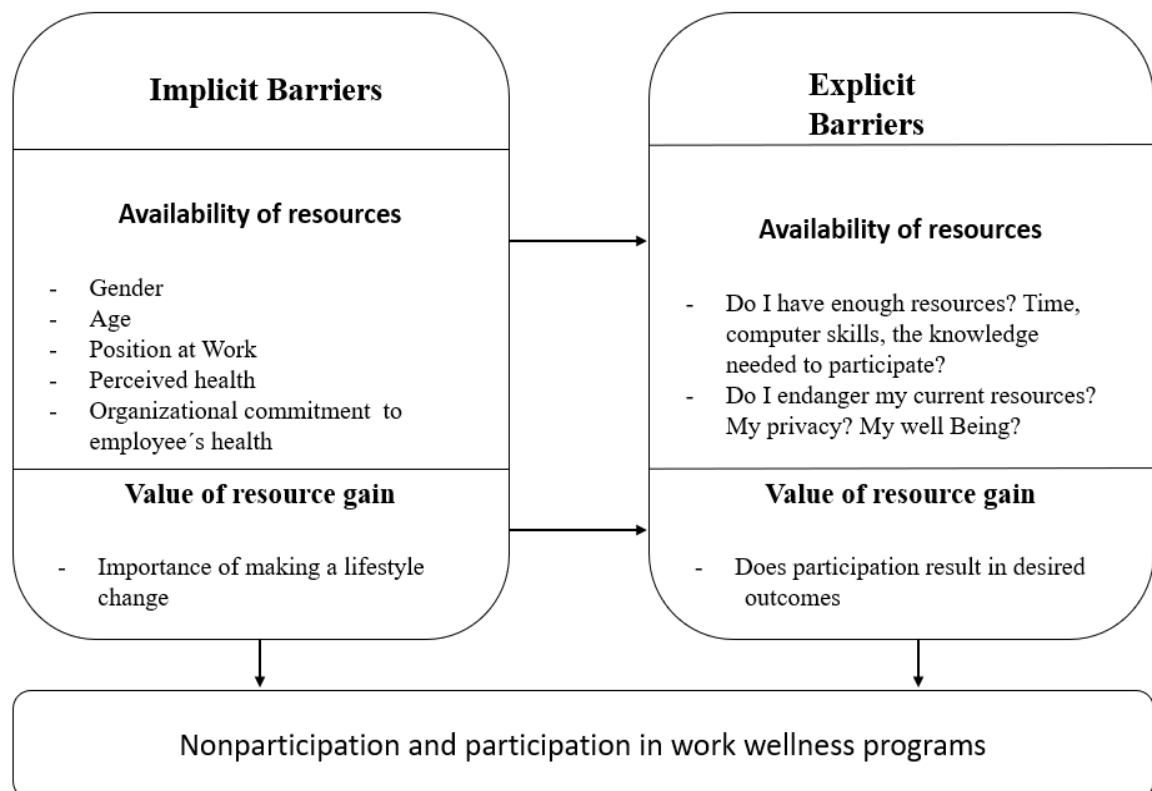


Figure 16 Framework for employee decision making about participation and nonparticipation. (Modified from Toker et al., 2015)

Continuously supporting and building up individuals' resources is important because according Hobfoll (2001) individuals who have greater resources are more likely to increase them and less likely to lose them. Various well-being programmes can potentially develop these resources, but Song & Baicker (2021) did not find longer-term improvements in individuals' well-being in their recent study.

Incentives

Companies are trying to motivate the employees with different kinds of incentives like rewards to increase participation rates, as low participation rates are often seen as a barrier to the success of wellbeing programs. Many programs have succeeded in increasing the participation rate of individuals through incentives, but at the same time they have raised doubts about their long-term benefits (Person et al, 2010; Mattke et al, 2013). In the past, incentives have been offered for mere participation, but nowadays companies are beginning to tie these incentives to the success of the programs (Mattke et al, 2012).

Companies have increasingly started to offer a variety of incentives, such as cash, different kinds of vouchers and variance in health plan costs (Mattke et al, 2013). According to CDC (2017) 53% of companies with health promotion offered incentives and 82.3 % of those were tied to participation. Most commonly, companies offered cash and various cash rewards, as well as a health insurance premium discount. Batorsky et al. (2016) also reveals that 14% of companies that use incentives to reward also use penalties. These penalties can be, for example, higher premiums for health planning, which means that people who do not participate in the programs have to pay more. The use of penalties is relatively low and 86 % of companies prefer to use rewards rather than penalties, but in smoking cessation programs penalties are common (Mattke, et al, 2013). According Batorsky, et al., (2016) penalties are more used in larger companies and female- dominated sectors. In general, women have higher average health care costs (Kaiser Family Foundation, 2019), which may explain why more sanctions are used in female-dominated sectors. Batorsky et al. (2016) also found that female-dominated industries use more rewards than male-dominated ones, which makes it likely that the number of penalties is also higher.

The use of penalties is often seen as a negative thing, as it can affect staff confidence and damage reputations. They can also have a negative impact on the image of organizations, as they can also lead to lawsuits if implemented incorrectly (Pomeranz, 2015). However, Batorsky et al. (2016) note that penalties may be useful for employers to increase the participation of individuals (Table 4).

Table 4. The effect of incentives to participation rate (Batorsky et al., 2016).

Reward type	Predicted participation rate %
Any reward	49
No reward	31
High values reward	52
Penalty and reward	68

Research shows that rewards can significantly increase individual participation. When using rewards of less than \$100 per year, the participation rate of individuals was 18% higher and when used high value rewards (over \$100) it was 21% (Batorsky et al., 2016). There is not huge impact when the amount of money is increased, but according to the Mattke et al. (2013) study it should be over \$50. However, the results of the study cannot be considered fully reliable, as the sample size of companies that used the penalties was small (Batorsky et al., 2016)

Rewards and penalties can be used to increase the individual's participation, but the benefits are contradictory. External incentives can act as motivators for individuals, but at the same time they can reduce intrinsic motivation, which is crucial to maintain lifestyle changes over the longer time. If individuals are forced to do things that undermine their resources, individuals tend to minimize this (Hobfoll, 2001). Weak resources are again associated with organizational withdrawal behaviors such as absenteeism and turnover (Ito & Brotheridge, 2003). Incentives often increase the participation rate in wellness programs, but it is not always clear do they really help to get better results in the longer term.

4 The measurement of well-being programmes and their effectiveness

A wide range of programs are designed to promote people's well-being and their impact is measured. This chapter aims to give an overview of how well-being is measured and the potential returns to different programs. The chapter also tries to conclude which programs are potentially effective and how different companies perceive the effectiveness of promoting well-being.

4.1 Measuring well-being

Measuring the results of well-being programs reliably is difficult because there are no commonly used measurement methods or standardization. The content of programs has changed a lot over the years, but measuring methods are pretty much the same. One of the first programs in 1979 was the Johnson & Johnson “The Live For Life” program, which was designed to make its employees healthier. The program has been in use ever since but has evolved to become more comprehensive. However, even in the early days it was designed to impact individuals holistically. In the beginning, the program included health education, behavior change, and disease management, all aimed at improving the effectiveness and health of individuals. (Shipley, Orleans, Wilbur, Piserchia & McFadden, 1998; Henke et al., 2011)

Pelletier (1991, 1993, 1996, 1996, 2001, 2011) has published several reviews over the decades from 1991 to 2011 on the outcomes of well-being programs. In these studies, he has found that, when implemented correctly, wellness programs can reduce health care costs and improve health. Several studies, especially in the past, have focused on the analysis of direct costs, but the importance of indirect effects from wellness programs have been noticed. For example, Meenan, Vogt, Williams, Stevens, Albright & Nigg (2010) argue that a weight-related program can improve an individual's health, which is believed to reduce absenteeism

and attendance, which in turn effects efficiency. Wellness programmes have a wide range of impacts on businesses (Table 5), which makes it difficult to assess their impact.

Table 5. Example effects of well-being programs

	Direct	Indirect
- Manage the downside of wellbeing	<ul style="list-style-type: none"> - Lower healthcare costs - Lower insurance premiums - Lower medical costs 	<ul style="list-style-type: none"> - Lower absenteeism - Lower costs of absenteeism - Less accidents - Lower cost of disability - Lower presenteeism
- Capture the upside of wellbeing		<ul style="list-style-type: none"> - Improved engagement - Better talent attraction and less risk of losing talent - Lower turnover - Later retirement - Better customer service

Table 5 describes the potential impacts of the programs. The cost effects of wellness programs are often divided into direct and indirect costs. Direct costs are healthcare costs and medical costs covered for individuals, and indirect costs are mostly referred to productivity losses due to turnover, absenteeism, presenteeism, disability and early retirement. Often direct cost effects are the easiest to estimate and are well documented. However, direct non-medical costs affect is already much less well documented and not as easily available, which makes it hard to calculate the impacts (Luppa, Heinrich, Angermeyer, König & Riedel-Heller, 2007). Also calculating the indirect cost effects are difficult to assess, given the wide range of effects. Costs effects can also be examined from different perspectives that effect the results obtained, such as an incidence-based approach, which measures avoided costs, or a relevance-based approach, that examines actual impact cases costs effects over a moment

or period of time (Larg & Moss, 2007). Many programs focus on reducing costs rather than on identifying the potential increasing returns. The results of the programmes also vary widely from country to country, not only because of cultural differences but also because of different practices example employers' responsibilities. According to Scheil-Adlung & Sandner, (2010) even within Europe there are very different practices, for example in sick leave.

Health care costs have been measured in several scientific studies and have a major impact on the profitability of programmes, especially in the United States. There tends to be strong evidence, that wellness program reduces health care costs, but most potential benefits are based on changes in the health status of people at risk. Measuring turnover, on the other hand, is relatively rare in programmes. The impact of well-being programmes on the retention of individuals is also mixed. Barbosa, Bray, Dowd, Mills, Moen Wipfli & Kelly (2015), found in their RCT study, that there was a big difference in turnover between participants and non-participants, but Jones, Molitor & Reif (2019) did not find any difference.

Often, disease management programs measure individuals' absenteeism and presenteeism. Sometimes these are also linked to productivity measures. Studies commonly find that presenteeism has the greatest impact on reducing costs, but reduced absence alone can make programs profitable (Thiart, Ebert, Lehr, Nobis, Buntrock, Berking & Riper, 2016; Hengel, Bosmans, Van Dongen, Bongers, Van der Beek & Blatter, 2014; Mills, Kessler, Cooper & Sullivan, 2007; Noben, Evers, Nieuwenhuijsen, Ketelaar, Gärtner, Sluiter & Smit, 2015). In some studies researchers did not find that program had any effect on presenteeism (Meenan et al., 2010, Song and Baicker, 2021), while others are reporting big change (Mills et al., 2007; Noben, 2015). It is therefore hard to compare the ROIs from different studies in different countries.

4.1.1 The measurement of wellbeing

Different ways of measuring well-being have been developed. Some seek to measure the impact of well-being in monetary terms and others in terms of changes in the well-being of individuals and organizations (Table 6).

Table 6. Common methods to calculate return of investment in wellness programs

Measurement	Calculation
ROI	Calculating monetary effects of programs: (e.g., Healthcare costs, turnover and absenteeism).
VOI	Calculating holistically well-being effects (e.g., disability claims, job satisfaction, business performance and profitability, talent turnover and attraction, presenteeism and morale).
Realistic models	Combining ROI and VOI. Converting non-monetary things into monetary ones and creating a realistic model of the relationship between them

Table 6 shows how the impact of the programmes can be assessed. The importance of measuring ROI in well-being programs has changed over the years, but it is still important for companies. There has been some debate in the literature about the usefulness of ROI as it is not an accurate measure of well-being programs outputs. Some people may argue that if the programs do not give positive ROI and there is not savings realized the programs has failed. On the other hand, measuring ROI may not be an appropriate method for assessing impact, as there is currently no reliable methodology that can translate well-being changes into monetary figures (Patey, Nasamu, Connolly, Daniels, Nayani & Watson, 2021).

Mercer (2018) also suggests that companies should expand their measurement to VOI (Value on investment). The VOI examines the impact of well-being programs more broadly than the ROI. It describes not only monetary changes but also non-monetary changes. It also seeks to address reasons why organizations offer health and wellbeing programs: reducing health risks, reducing health care costs, and improving productivity (Marlo & Serxner, 2015). According to Marlo & Serxner, companies should therefore measure: disability claims, job satisfaction, business performance and profitability, talent turnover and attraction, presenteeism and morale. Efforts have been made to address these factors in well-being programs, but yet, only a few studies take these aspects comprehensively into account.

The impact of comprehensive well-being programmes is difficult to measure in the long-term using traditional and realistic models, as they affect many things indirectly. Realistic evaluation is based on hypotheses and theory made by the researcher to create a model describing the desired issue (Pawson, 2014). Often, realistic evaluation models or methods focus on a specific issue and do not take that well causal relationships into account. Models based on traditional methods using a control group (randomized or non-randomized) are judged to be a more reliable way to measure interventions (Snape, Meads, Bagnall, Tregaskis, Mansfield, MacLennan & Brunetti, 2019). However, realistic models are gaining popularity, but no convincing evidence has been found for them. Many studies have focused programme evaluation on interventions rather than measuring the organisation, even though health and wellbeing interventions have been shown to have an impact on the whole organisation (Bauer & Jenny, 2013). Patey et al. (2021) argue that programmes should move from simple measurement toward more accurate multifaceted measurement, although this does not in itself lead to realistic evaluations.

The direction of wellness programs is shifting away from cost optimization towards improving employee total well-being. Organizations have started to measure more individual returns and thinking more like "purpose-beyond-profit" (Mercer, 2022b). This kind of shifting is potentially beneficial, as Nishii, Lepak & Scheinder (2008) point out that employees may be skeptical about the purpose of the programs. Indeed, workers may be skeptical toward programs as they do not believe that managers care about their well-being (Mercer, 2022a).

Even if a well-being program is successful and employees who intended to leave are able to increase their resources, they may still leave (Xantho-Poulou, Bakker, Demerouti, & Schaufeli, 2009).

Several studies have sought to investigate work wellness programs more widely in the 2010s (Kaspin, Gornab & Miller, 2013; Baicker, Cutler & Song, 2010). However, they have often been criticized for their poor quality (Baid, Hayles & Finkelstein, 2021). In turn, the quality of research has been found to be linked to the expected returns to programs (Baxter, Sanderson, Venn, Blizzard & Palmer, 2014; Baid et al., 2021). The results and reliability of the work are also influenced by the structure, implementation, and industry of companies (CDC, 2017). According to PWC (2014), there can be up to a five times difference in expected returns between business sectors. However, the size of firms seems to have a more significant impact on expected returns (PWC, 2014). Soler et al. (2010) also show in their study that smaller firms have higher expected returns from wellness programs. In smaller organizations, employee capital is often more closely linked to individuals, so their role is more important. However, these firms are less likely to implement well-being programs than larger firms (CDC, 2017), so there may be untapped potential. The situation still seems to be confusing, based on the literature, and there is no overall consistency in measurement. Indeed, Unsal, Weaver, Bray, Bibeau & Saake (2021) shows in their study that several programs measure ROI in very different ways.

In early 2000s, Pelletier (2011) observed the growing prevalence of randomised controlled trials (RCTs) in well-being research. Their number has increased considerably in recent years, and they are often considered the best way to assess well-being. Several studies have found that the expected return on investment for RCTs is significantly lower than for observational studies (Baid et al., 2021; Unsal et al., 2021). This is often argued to be due to the fact that observational studies cannot account for bias. Jones et al (2019) compared RCT and observational methods for evaluating program returns and found large differences between the styles. When an observational method was used, substantial differences were found between participants and non-participants. RCTs study also found presenteeism to be almost five times lower than the observational study. Thus, it is logical that RCT studies are reporting

lower ROI. However, RCT studies have limitations as they do not account for all biases or settings that may affect the results (Deaton & Cartwright, 2018). However, RCTs are a good way to investigate whether there is a causal effect between ROI and programmes, in order to minimise self-selection of case studies (Baid et al., 2021).

4.2 Profitability and effectiveness of programs

To invest in well-being programs, organizations often want to see tangible results, the impact of which is measured by quantitative and objective indicators. Measuring the benefits of well-being programmes is often difficult, as many benefits are indirect rather than direct. At the turn of the 2010s, researchers often highlight in meta-analyses the positive impact of wellness programs on firms' profitability (Baicker et al., 2010; Pelletier, 2011). Kaspin et al. (2013) found in systematic review on comprehensive programs that wellness programs improved corporate well-being and lowered costs. The programs gave a positive expected return of between 1.6 and 3.9. On the other hand, the same study found that firms that did not experience a fall in healthcare costs found that their direct costs did not rise as much as others in the long run. However, two recent randomized controlled studies suggest that it is not clear whether wellness programs have great impact on people's well-being (Song and Baicker, 2021; Jones et al., 2019)

4.2.1 Interventions and their effectiveness

A wide range of interventions are used in workplaces to improve the well-being of individuals, prevent deterioration in well-being and prevent illness. Several studies and meta-analyses have been published on different interventions to describe their effects on individuals. However, studies often do not describe the potential returns. Table 7 illustrates the scale of potential impacts of different programs.

Table 7. Example effects of different programs

Program	Studies	Effect (benefits/costs)
Physical activity	Hengel et al. (2014)	6.35
	Van Dongen et al. (2017)	-6.66
Alcohol and drugs	Buntrock et al. (2021)	1.58
Obesity/weight management	Horstman et al. (2021)	2.3
	Agrawal et al. (2021)	1.43
Tobacco	Richard et al. (2012)	2.12
	Pauly et al. (2019)	6.2
Sleep	Thiart et al. (2016)	3.1
Stress management	Ebert et al. (2018)	1.6
	Phillips et al. (2014, 384)	4.2
Mental health	Bondar et al. (2022)	4.6
	Nobem et al. (2015)	4.57

Physical activity and Nutrition

Physical activity and nutrition programs are commonly used programs to improve employee's health. Nutrition programs are often focused on increasing fruit and vegetable intake to improve individuals' lifestyles, control weight gain, or prevent obesity (Carmichael et al., 2016). Van Dongen, Proper, van Wier, van der Beek, Bongers, van Mechelen & van Tulder (2011) found in their systematic review on Physical activity and nutrition programs that RCTs studies give a negative expected return on investment when accounting for absence benefits or medical benefits or both. In contrast, non-randomized trials had positive expected returns in all cases. However, Hengel et al. (2014) and Hartfiel, Clarke, Havenhand, Phillips & Edwards (2017) found in their RCT studies that physical activity interventions reduced absenteeism and gave a positive expected return. Outcomes of physical activity interventions vary widely, and there is no consistency across studies in terms of reductions in absenteeism and attendance or positive expected returns. Braun, Franczukowska, Teufl & Krczal (2022) also did not find an effect of job satisfaction on self-rated productivity. However, the content of programs can play a major role. For example, Vuillemin, Rostami, Maes,

Van Cauwenberghe, Van Lenthe, Brug & Oppert (2011) found limited to moderate evidence for active commuting and exercise training for obese people, while the results for counselling and walking were inconclusive. However, maintaining wellbeing is important as Rand (2015), found that chronic diseases, such as muscle disease may increase presenteeism and absenteeism.

Alcohol and Drugs

Lee, Roche, Duraisingam, Ficher, Cameron & Pidd (2014) found in their systematic review of high-risk alcohol use that secondary prevention, screening and low-intensity prevention might be effective for workers who are high-risk drinkers. In contrast, health promotion and alcohol testing had no effect on drinking rates. Miller, Zaloshnja & Spicer (2007) estimated that alcohol testing had the largest effect on injuries. They estimated that alcohol interventions yielded 5.2-6.7 times the ROI for preventing accidents. This high figure is likely to be based on industry specificity. However, Alcohol interventions for heavy drinkers have been discovered to be profitability in many cases (Buntrock, Freund, Smit, Riper, Lehr, Boß & Ebert, 2022; Yuvaraj, Elias, Gokul & Manikandanesan, 2019). In a study by Buntrock et al. (2022), men who used more than 1 dose of alcohol per week and women who used more than 14 doses per week achieved an expected return on investment of 1.58 for guided interventions and 1.36 for unguided interventions over a six-month period of a web-based intervention. Osilla, de la Cruz, Miles, Zellmer, Watkins, Larime & Marlatt (2009) on the other hand, did not find any effect on people at high risk.

Obesity and weight management

Obesity and weight management programs are often used by employers (CDC, 2017). Their effectiveness varies considerably, but they tend to have positive effects on individuals' weight, even in the short programs (Weerasekara, Robertsm Kahn, LaVertu, Hoffman & Das, 2016). Individual weight management is also important for employers, as Van Nuyes, Globe, Ng-Mak, Cheung, Sullivan & Goldman (2014) found that health care costs increase significantly when individuals have a BMI above 30. Obese people (BMI over 30) tend to have 3 more days of absence per year (Destri, Alves, Gregório, Dias, Henriques, Mendonça & Rodrigues, 2022). Horstman et al. (2022) found in a three-year program, that individuals

with median BMI 35, medical costs decreased after program significantly, with a return on investment of \$2.3. Agrawal, Wojtanowski, Tringali, Foster, & Finkelstein (2021) also found similar results in their study. They found that participants with a BMI over 40 generated 84 percent of the savings and individuals with a BMI under 30 did not generate almost any savings in medical costs.

Tobacco cessation

Smoking has declined significantly in recent decades. In 2005, 21% of adults in U.S smoked tobacco, compared to 13% in 2020 (CDC, 2020). The use of smoking cessation programs has been popular in organizations and has been shown to produce positive returns (Richard, West & Ku, 2012; Pauly, Talberg, parsley, Grey & Hahn 2019). In a meta-analysis, Smedslund, Fisher, Boles & Lichtenstein (2004) found that the duration of the program had an impact on its effectiveness. The study found that programmes lasting six months were most effective ones. The problem with smoking cessation is often that people do not participate. This is why incentives are often offered alongside programmes (Mattke et al., 2013), as they have been found to be effective in several smoking-related studies (Leeks, Hopkins, Soler, Aten & Chattopadhyay, 2010).

Sleep

Lack of sleep affects the well-being of individuals in many ways. Kahneman (1973) describes that everyone has a limited capacity to participate and do and it is limited by physiological processing capacity. Lack of sleep exposes individuals to many diseases. It interacts with many factors such as stress and mental health (Wheatley, 1997). The effects of sleep as a single factor is therefore difficult to interpret because it indirectly affects many different factors. According to a study by Bryan, Bryce & Roberts (2021), if employees sleep an hour longer than normal, the increase in revenue for a company can be as high as 5%. This might be mostly due to presenteeism, as Rand (2015) shows a 6.93% difference in presenteeism between individuals sleeping less than 5 hours and those sleeping 8 hours. Thia et al. (2016) also found in a study of teachers with depression that investing in sleep and stress management can yield up to three times the expected return.

Stress management

Half of all workers consider stress to be the second most common work-related health problem (Eurofund, 2012). A systematic review by Joyce, Modini, Christensen, Mykletun, Bryant, Mitchell & harvey (2015) found that cognitive therapies are effective in reducing stress in high-risk workers. However, the result varied in its impact across sectors, and not all sectors showed a change in stress. Lamontagne, Keegel, Louie, Ostry & Landbergis (2007) found in their systematic review that interventions can reduce stress at both individual and organizational levels. However, Stratton, Lampit, Choi, Calvo, Harvey, Glozier (2017) did not find any effect of the intervention in organization level in systematic review/meta-analysis. The outcomes of studies vary considerably, but they can be cost-effective and perhaps provide a positive return on investment (Ebert et al., 2018, Phillips, 2014). Stress is often a systematic challenge in organizations and affects whole organization (WHO, 2003). If people are tired and culture is toxic it does not help that only a few employees is helped. Montano, Hoven & Siegrist (2014) point out in a systematic review that programmes targeted at whole organizations have a more sustainable impact than programmes that are targeted only for some individuals.

Mental health

Mental health programs are often favored to have positive returns. When targeting people with mental health problems, a 4.6-5 times higher expected return can be expected (Noben et al. 2015; Bondar, Babich Morrow, Gueorguieva, Brown, Hawrilenko, Krystal, . . . & Chekroud, 2022). Interventions that are not directly related to mental health, such as physical activity, can also be found to have an impact on mental health (Markotić, Pokrajčić, Babić, Radančević, Grle, Miljko, Kosović, Jurić, Karlović & Vidaković, 2020). Martin, Sanderson, & Cocker (2009) describes that "a wide range of interventions using health promotion in the workplace appear to be effective in that interventions that focus directly on symptoms show similar results to those that reduce symptoms indirectly by focusing on risk factors". Individual mental wellbeing is affected by many aspects and can be approached in many ways. However, in the short term, differences can be observed between programs. According to Stratton et al. (2017), mindfulness interventions had a greater impact than cognitive

behavioral therapy or stress management. More recently Deloitte (2022b) found that preventive programs were the most cost-effective ones. They estimate that screening and education yield \$6.3 and \$6 per dollar invested, respectively, while treatment yields \$3 per dollar invested. Early investment in mental health interventions is important because people at risk of developing mental health problems, have 12% higher presenteeism and absenteeism on the Kessler score (Rand, 2015).

4.2.2 Effectiveness of different interventions in meta-analysis

It is difficult to compare the impact of different programmes because they are measured in different ways. However, studies suggest that well-being programmes may have an impact on the well-being of individuals, but it is difficult to quantify the expected financial returns. Murphy, O'Donoghue, Doyle & Taaffe (2018) found that some programs are more effective than others when examined meta-analyses of different programs (Table 8). Programs in blue are those for which the researchers found strong evidence of effects on individuals. In red are programs for which they found moderate evidence and in grey are programs for which they found some evidence.

Table 8. The effectiveness of well-being programs (Murphy et al., 2018).

Health Behaviours	Health Outcomes	Organisational outcomes
PHYSICAL ACTIVITY & FITNESS (PAP) SMOKING (SCP) PHYSICAL ACTIVITY (PANP) FRUIT & VEG. (NDP) DIETARY (NDP)	WEIGHT & BMI (PANP) WEIGHT & BMI (PAP) BODY FAT % (PANP) PHYSIOLOGICAL, E.G. BLOOD PRESSURE, CHOLESTEROL (SMP) PHYSICAL WELL-BEING (WHPP) MENTAL WELLBEING (WHPP)	WORK ABILITY (WHPP) TASK COMPLETION (ADP) SUPERVISOR'S RATING (ADP) JOB SATISFACTION (WHPP) PRODUCTIVITY (WHPP) PRODUCTIVITY (SMP) SICKNESS ABSENCES (WHPP)

	<p>STRESS/DISTRESS (SMP)</p> <p>STRESS (PAP)</p> <p>ANXIETY & DEPRESSION (ADP)</p> <p>ANXIETY (PAP)</p> <p>ANXIETY & M. HEALTH (SMP)</p> <p>WELLBEING3 (ADP)</p> <p>SELF-PERCEIVED HEALTH (WHPP)</p>	<p>SICK LEAVE (PAP)</p> <p>ABSENTEEISM (WHPP)</p> <p>ABSENTEEISM (SMP)</p> <p>WORK ATTENDANCE (PAP)</p>
<p>Degree of evidence:</p> <p>Blue: strong evidence, conclusion of at least two meta-analyses</p> <p>Orange: moderate evidence, the conclusion of the one meta-analysis found</p> <p>Grey: some evidence, conclusion of the systematic review(s) found</p> <p>PANP = Physical Activity and Nutrition Programmes</p> <p>PAP = Physical Activity Programmes</p> <p>NDP = Nutrition and Dietary Programmes</p> <p>WLM = Weight loss or management.</p> <p>SMP = Stress Management Programmes</p> <p>A&DP = Anxiety and Depression Programmes.</p> <p>WHPP = Workplace Health Promotion Programmes</p> <p>SCP = Smoking Cessation Programmes</p> <p>ARP = Alcohol Reduction Program</p>		

Most of the studies reviewed by Murphy et al. (2018) did not mention the expected returns of the programmes. Calculating return on investment in meta-analysis is also often difficult and misleading, as programmes rarely take into account all commonly used components: healthcare costs, turnover, absenteeism and attendance.

4.2.3 Disease management and lifestyle management

Several studies have found that disease management programs yield better return of investment than lifestyle management programs (Unsal et al., 2021; Caloyeras et al., 2014). On the other hand, disease management programs often only involve a small proportion of the population, while lifestyle management programs involve a larger proportion. In this case, although the expected return is lower in lifestyle management programs, the financial savings may be higher in a longer term. In a longitudinal observational study, Caloyeras et al. (2014) found that a disease management program yielded a positive expected return, while lifestyle management did not when programs were implemented independently. Disease management included the prevention and treatment of various diseases, while lifestyle management aimed to create healthy lifestyle habits for individuals. Nyman, Jeffery, Abraham, Jutkowitz & Dowd (2013), Pelletier (2011) and Rand (2012) also found that disease management was more effective than lifestyle management. According to RAND (2012) wellness program study that included 600,000 employee's disease management programs are significantly more profitable (ROI 3.8), while lifestyle management can generate losses (ROI 0.5). However, it is difficult to compare the benefits of the programmes, as lifestyle management effects are difficult to detect and can only be measured perhaps years later (Rand, 2012). Caloyeras et al. (2014) and Pelletier. (2011) suggest that a comprehensive program that includes both disease management and lifestyle management could be a best practice. According to Caloyeras et al. (2014), in this case, one could expect \$1.48 per dollar invested.

Pelletier (2011) suggests that disease management should be delivered to high-risk individuals, who typically have a high influence on medical or related costs, such as absenteeism and productivity, in the short term. According to Berry et al. (2010) internal analysis of H-E-B estimates that if 10% of its employees could be moved from a high- to medium-risk position to a low-risk position, this would yield a 6:1 ROI. Also, Bolnick, Millard, & Dugas (2013) discovered lowering modifiable risk factors to theoretical minimum would decrease health care costs by 18,4 %. There may be great potential in targeting interventions, as Loeppke et al (2010) found in a health risk study that 13% of participants were in the high-risk group, 31% in the moderate risk group and 56% in the low-risk group. If these high- and

medium-risk individuals can be attracted to participate in programmes, perhaps significant returns can be observed. However, often the individuals who could benefit most from programs do not participate. However, often the people who benefit most from the programmes do not participate. Rand (2012) points out that only 13% of people participated in a disease management programme, but they accounted 87% of the returns. However, higher participation rates would not necessarily reduce costs, as not all people need help.

Mattke et al. (2012) show in their study that the expected return on investment on well-being programs decreases as we move closer to the present. They argue that this is because the easiest methods have already been used or the models have been modified to be more realistic. Often, during the first year, absenteeism falls, and people's well-being rises. However, over time, individuals' absenteeism returns to the earlier levels and the cost benefit of absenteeism declines. The results of Caloyeras et al, (2014) support this, as in their study there were no major changes in absenteeism, but the number of hospitalizations was high and reflected in a positive return on investment after three years.

4.2.4 Comprehensive programs

Earlier several researchers expected well-being programmes to generate even six times the amount of capital invested in them (Baicker et al., 2010; Goetzel, 2008). However, Song & Baicker (2021) and Baid et al. (2021) pointed out that these observational studies are more prone to selective bias and potentially ignore causal relationships compared to recent randomized controlled studies. They also point out that in their own previous studies, the expected return may have been lower than the results suggest. Some argue that the high returns in previous studies were due to the observational approach, which is weaker than the randomized analytic approach. Today, the quality of studies is emphasized, and more and more studies are based on RCT approach.

Recent comprehensive RCT studies suggest that the expected returns of well-being programs are weak (Jones 2019; Song, Beicker 2019; Song and Beicker 2021; Reif, Chan, Jones, Payne & Molitor, 2020). Many of the studies found that during the first two years,

individuals' self-reported health behaviours improved, such as greater activity in weight management, but there were no reductions in health expenditures. Song & Baicker (2019) found in an 18-month randomized program that 8.3% reported greater engagement and 13.6% reported more active weight management. The program was focused on middle- and lower-income worker population in USA warehouse retail company. The study was conducted and designed in partnership with a wellness vendor who identified nutrition, exercise, stress reduction and prevention as the key components of the program. However, it had no impact on individuals' health care costs, absenteeism, turnover or productivity. The ability to detect treatment effects was limited by statistical power, although predefined strategies were used to maximize effectiveness. Jones et al. (2019) found similar results in their comprehensive RCT study at the University of Illinois. They also found that participants were 5.7% more likely to believe that management prioritizes health and safety.

Even though recent RCT studies by Jones et al. (2019) and Song and Baicker (2019) have been high quality studies, Goetzel (2020) finds critics on them. He for example criticises the implications of the results of RCT programs, pointing out that the method used by Jones et al. (2019) is rather a treatment model in which they "measured all workers in the treatment group, regardless of whether they participated in iThrive - and then compared all control workers." Even if the program is implemented correctly and includes the necessary elements, "programs must be based on a culture that promotes occupational health" (Goetzel, 2020). By investing in the health culture of an organisation, the health risk profile of employees and their use of health care can be lowered (Henke et al., 2019)

Song and Baicker (2021), found in their three-year RCT study (which is a continuation of an earlier study by Song and Baicker 2019), that the impact of the program would be larger in the longer term, but no positive expected returns could be observed. According to a study, health behaviors were 0.12 standard deviation better. During the program the percentage of employees who said they actively managed their weight increased by 11%. However, only 17% of research participants and 51% of the research subgroup worked for three years. Approximately half of the participants in the study were full-time employees. As high employee turnover is linked to program performance and part-time employment is linked to reduced

retention, which in turn affects the success of wellbeing programs, this could have a significant impact on the outcomes. The results of the permanent employment sub-sample, however, were comparable to those of the complete sample. Song and Baicker (2021) argue a possible reason for poor results may be that the people who would benefit most from the programs do not participate. They also suggest that the potential benefits of programs may lie in their ability to attract and retain workers with low health care costs. This might be true as Deloitte (2022a) points out, employees are ready to change their job for better well-being.

4.2.5 Companies who offer well-being programs and consulting companies

Wellness programs can have positive expected returns as Graham found a companywide CONNECT programme increase engagement by 20%, a 4% decrease in staff turnover and 50% decrease in absences. Due to reduced absenteeism and turnover, the programme delivered more than 8 times the expected return on investment (Patey, Nasamu, Connolly, Daniels, Nayani, Watson, 2021,488). Also, WellStep (2022), a provider of wellbeing programmes, states on its website: “In the first year we guarantee that over 50% of eligible employees will participate, in the second year that employees will show a significant improvement in health behaviour, and in the third year we guarantee a positive wellbeing ROI (WellStep, 2022)”.

Different researchers and companies have different measurement practices, which significantly affects, for example, measured presenteeism. There is considerable variation between programmes in terms of expected benefits/costs, but several consulting companies and companies that offer wellness programs say that investing in wellness can generate substantial returns (Figure 18).

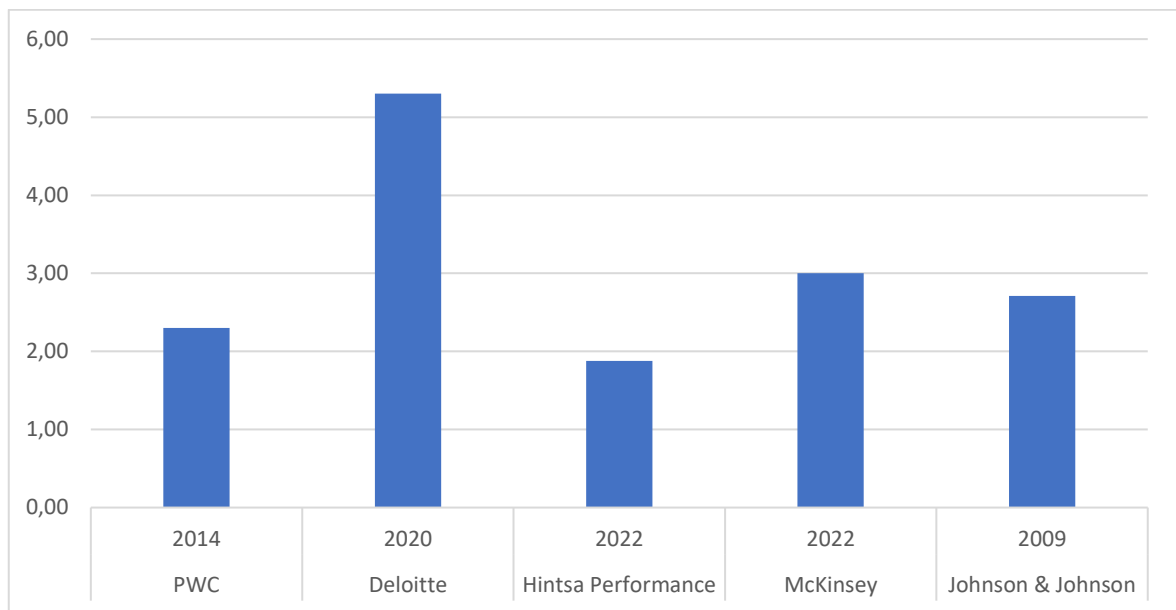


Figure 18 Consulting companies ROI estimates of well-being programs

Substantial returns can be expected from mental health-related well-being programmes. According to Deloitte (2022b), preventive mental health programmes, which include screening and educational interventions, generate the highest returns among mental health programmes. The expected return on investment for therapy was only about half (3.1) compared to screening (6.2) and education (6.0).

Well-being can potentially be improved through a number of different programs. In particular, programs targeting in mental well-being seem to offer a positive expected return on investment. Although the expected return has been positive, it is not always clear why. For example, in a preventive programme for construction workers, Hengel et al. found that absenteeism decreased, but well-being did not change much. Changes and potential returns are often difficult to illustrate, which is why researchers often rely on different assumptions when calculating expected returns. Figure 19 aims to illustrate how the expected returns of programs vary. The studies in the figure are selected randomly from those that came to the attention of the researcher.

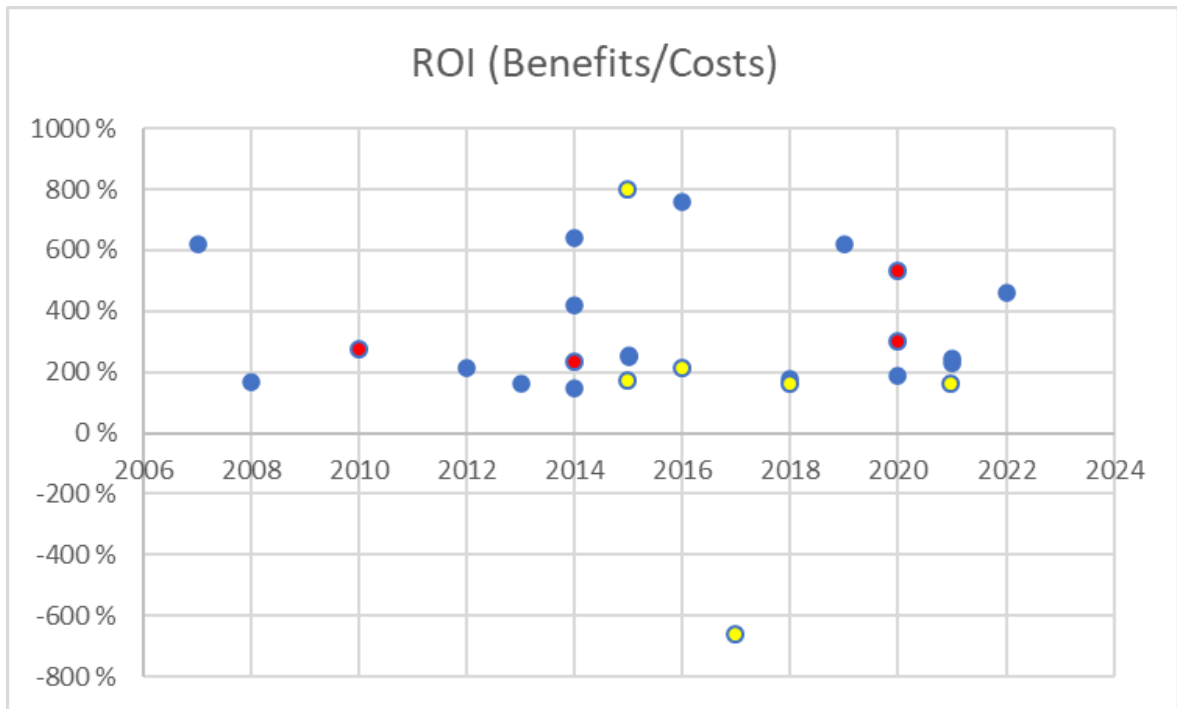


Figure 19. Expected return on investment from wellbeing studies by study year.

The figure 19 shows programmes based on scientific research in blue and yellow, and programmes based on business assessments in red. The yellow balls also represent studies that have used the RCT research method.

4.3 How to calculate the impact of well-being programs?

The measurement of the impact of well-being programmes has largely moved to a more holistic measurement of well-being through the VOI. Several service providers and consultancies have indicated that this is more relevant because the monetary impact of well-being is difficult to quantify. These may not tell much to companies that want to buy services and get information on the benefits of programs. Indeed, when considering the purchase of services, managers often say "Show Me the Money" (Phillips et al., 2014).

There are currently several realistic models that can be used to try to accurately calculate the potential returns to wellness programmes. However, they are often complex and cannot be easily applied to commercial marketing, where customers simply observe the potential

returns for their company. Rather than using different labels for expected returns, such as safety or return on resources, companies should create a clear framework to explain impacts in simple terms to finance and accounting staff. Phillips et al. (2014) point out, that the bottom line when introducing programs is "do not confuse the CFO".

Targeted programs have been found to benefit businesses, but in high quality RCT studies their results vary, or only small returns can be expected. Therefore, it is not possible to build a calculator based on these studies. Comprehensive programs also do not provide data on long-term, so it is not possible to build a metric from them either. It is therefore not possible at present to build a reliable calculator based on research. However, it may be possible to build one from data collected from service providers, if the collected data is sufficiently comprehensive.

In many cases, the calculators used by different companies are largely based on assumptions rather than on observed data. For example, in the Wellstep (2022) calculator, potential returns are largely based on improvements in people at risk and studies that are largely not high-quality RCTs. In contrast, the Deloitte (2022b) report suggests that the effects of mental health programmes are largely based on presenteeism, largely based on a study published by Goetzel et al (2004). In many cases, calculations are based on rough assumptions made in different studies, which easily leads to selection bias between studies. They are still perhaps the best way to show the impact of well-being programmes, as it has not yet been possible to gather enough data from high-quality studies to build accurate models to calculate impact.

Companies have started to produce multiple calculators for different kind of situations. Ideally these calculators would consist of absenteeism cost, presenteeism, productivity, talent attraction, accidents, turnover costs, healthcare costs, medical costs, retirement costs, teamwork/engagement e.g. Often this is not possible, which is why companies must choose to measure certain factors that best provide information on the impact of the programme and its participants. Companies can measure some elements in monetary terms, but not all. For example, it is easier to get data on error rates, production efficiency, safety and direct physical health costs from blue collar workers, while these things are much harder to measure

from white collar employees. When measuring white collar workers, organizations can focus on measuring talent attraction, engagement, and individual health behaviour changes. The content of programs changes the focus of measurement, for example, changes in health behaviour cannot be measured in monetary terms in the short term.

Ideally, companies would have a lot of objective customer data over a long period of time. This data could be used to create models to estimate the financial impact of programs in different sectors and for different groups of people. Often, as in this study, such data is not available, but even with a smaller amount of data it may be possible to make estimates.

5 Well-being survey analysis

The fifth chapter of the thesis is the empirical part, which aims to analyze the data collected by the Hintsa Performance. The data consists of a questionnaire designed by the company, covering different aspects of well-being. The company uses different types of questionnaires, which is why the data, and their interpretation are divided into two parts. The chapter is divided into three parts. The first part of the chapter describes the collected data sets and the methods. The second section seeks to identify the different groups of people with different health behaviors. It also seeks to illustrate how the different aspects of well-being interact and how individuals' perceptions of well-being have changed during the last few years. The third part analyses the changes in individuals' well-being between surveys. It focuses on changes in work performance and sickness days. This chapter also uses linear regression analysis to describe the factors which influence individuals' work performance. These models provide information on the dependencies between the well-being questions and changes in work performance.

5.1 Data collection from surveys

Individual who responded to one questionnaire

Before participating in the wellbeing programme, information on individuals' wellbeing was collected through a questionnaire. Individuals who didn't participate in the programme, were also able to complete a pre-programme survey on the company's website. Data also consists of people who found the survey on company's website and filled it. Data from the survey consisted of an Excel spreadsheet previously made by target company and the dataset from target company's database. Excel spreadsheet included 1514 responses from 2018.11 to 2020.3 and database contained 991 responses for the period 2020.09-2022-09. The Excel data were in a pre-analysed format, but the data from the database system were edited using SQL and then uploaded to the Excel system to allow the datasets to be merged. However, the database system did not contain all the same data as Excel, which is why for certain

questions the datasets are examined separately. However, most of the data were consistent across the two systems. After data collection, duplicates and error values were removed from the data, reducing the amount of data in the original Excel data 1507 and the data collected in the database data set to 990. The total number of data to be analysed was 2497.

Individual who responded to two questionnaires

Data is collected from people who have completed the questionnaire twice. The majority of the sample has not participated in any program, but there may be a few (under five) individuals who participated. Data was collected using SQL software from company systems. Individuals who completed the required consent forms and answered all questions were selected from the database. The data was then downloaded into Excel and analyzed using Excel and SPSS software. The sample contains 210 rows of data and has been collected over the period 6.10.2021-17.10.2022.

Methods

Statistical methods are often used to describe, analyze, and model various results from data (Spokoiny & Dickhaus, 2015, 1). Hence, they are well suited to describing things and observing different causal relationships. There are several different statistical methods, and their use depends on the data under examination (Nummenmaa, 2009, 14-18). In this study, the statistical method chosen is regression analysis, as it is a frequently used method to describe changes in well-being and work performance. However, most of the statistical research in this chapter is based on comparing correlations and changes in the mean values of responses between groups. Regression analyses are a statistical method based on correlations, i.e., the co-variation of variables (Nummemmaa, 2004, 265, 297). This research has used linear regression analysis, in which the dependent variable has been explained by independent variables. Forward, Backward, Enter and SPSS automatic models have been exploited, while building models. The models are constrained to 95% confidence interval levels, which is commonly used in statistical methods (Kaakkinen & Ellonen, 2021). In all cases, the best models were obtained using the forward method. The highest adjusted R-value was chosen as the criterion for selecting the best model, which describes the explanatory power of the models, as it has also been used in other studies. High correlations between variables can

reduce the reliability of regression analyses and introduce bias in the results (Alin, 2020, 370). According to Yan and Su (2009, 81-85), this threshold is commonly considered for models with a correlation above 0.9. However, there are no correlations of this magnitude in the data, so there should not be any multicollinearity. The models of the study have not been compared with other studies, as the researcher could not find any studies that had assessed work efficiency with similar questions. Therefore, the reliability of the results obtained cannot be considered as highly significant.

5.2 Data analysis from one survey

The analysis aims to examine and identify different groups and issues that affect people's well-being. The relationships between these issues have been identified through a 54-question questionnaire of the target company. The most common response options are totally disagreed, disagree, neutral, agree or totally agree, scored on a scale of 1 to 5. 1 being the worst and 5 being the best. The other response options are also scored on a scale of 1 to 5, except life enjoyment and work performance which are scored on a scale of 1 to 10.

Of the 54 questions in the survey, 3 describe the person's height, weight, and age. The questionnaire also includes additional information (question 4) describing individuals' BMI, which is why there is 55 questions in the appendix 1. The other 51 questions in the survey are grouped into seven categories: general health, physical activity, nutrition, recovery, biomechanics, mental health, and core. The mean scores for each question and response are presented in Appendix 1. Unfortunately, correlation matrix is not presented as the number of variables is so high. Figure 20 shows the distribution of well-being scores by well-being area.

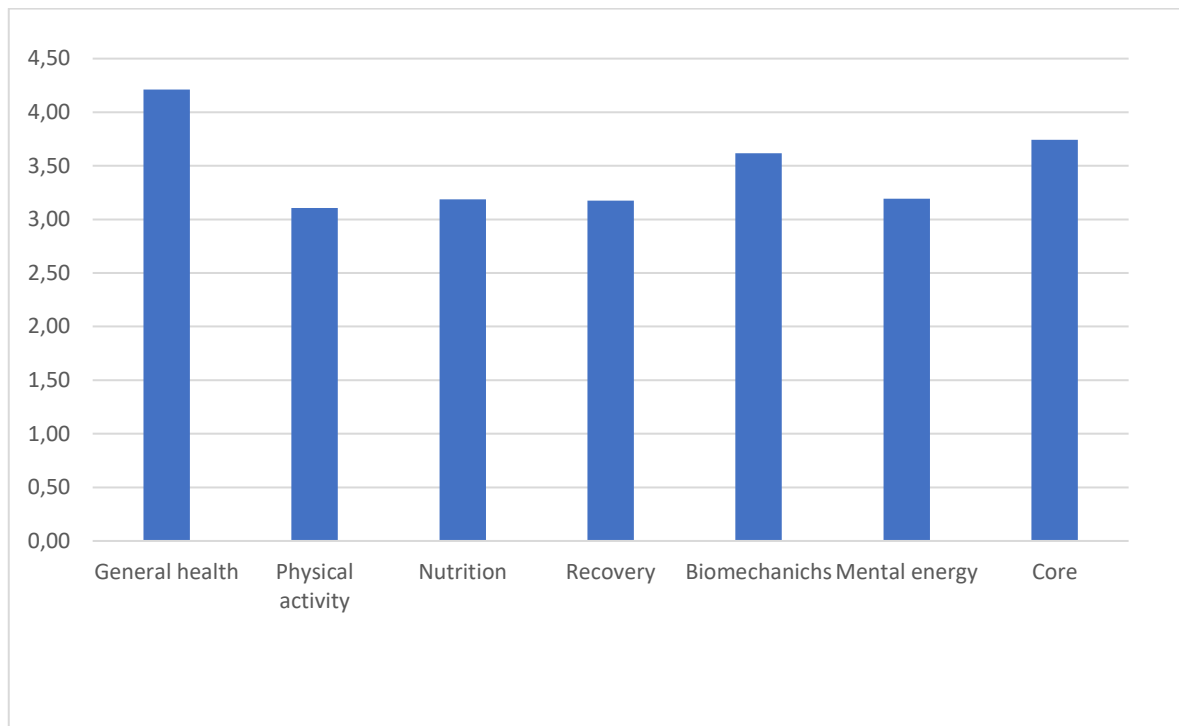


Figure 20. Average answers by well-being area.

The mean scores of individuals across the domains are all "positive" on the survey scale, with mean scores above 3 (neutral). Figure 20 shows that general health, core and biomechanics are the three strongest domains and physical activity, nutritional recovery and mental health are the four weakest domains. There are also correlations between the domains that affect the results (Table 9).

Table 9. The effectiveness of well-being programs (Murphy et al., 2018)

The correlation between well-being areas	1	2	3	4	5	6	7
1.General health	1*						
2.Physical activity	0,44*	1*					
3.Nutrion	0,34*	0,39*	1*				
4.Recovery	0,28*	0,29*	0,25*	1*			
5.Biomechanics	0,4*	0,59*	0,33*	0,29*	1*		
6.Mentall energy	0,34*	0,35*	0,31*	0,54*	0,36*	1*	
7.Core	0,35*	0,27*	0,26*	0,38*	0,32*	0,65*	1*

Note: Correlations that have p-value under 0,05 has * mark

These correlations in Table 9 are not particularly strong, except for the core and mental health domains ($r = 0,65$, $p < 0.05$). However, the correlations between the responses vary, as does their explanatory power. The dispersion of responses is quite large. In general, almost all response options have been answered, but there can be significant differences in the proportions between the different well-being domains. For example, only a few members of the sample give an average response score above four for the well-being sub-area, even though many respondents answer 4 or 5 for the sub-area questions (Figure 21).

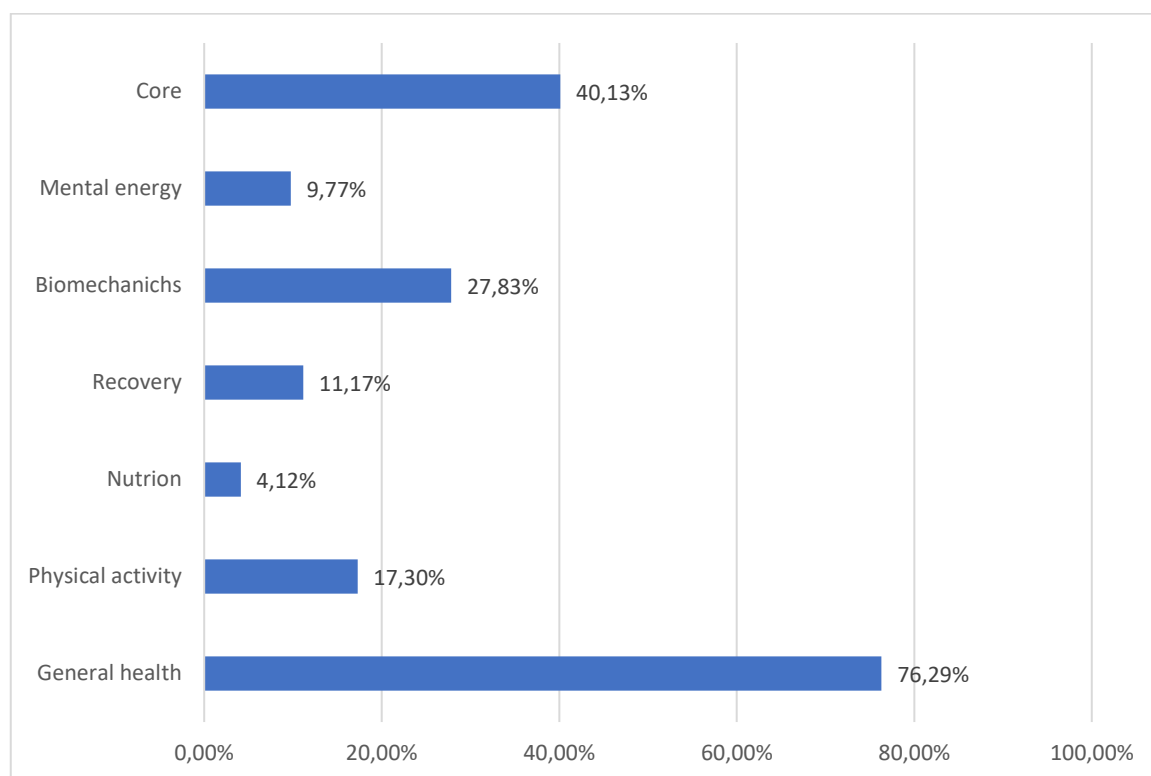


Figure 21. Percent of people whose average is over 4 in well-being sub-area.

Individuals' answers therefore vary a lot between questions. Figure 21 shows that the number of people with a high overall health status is high. health is good and that they have a desire to adopt healthy lifestyles. 76.29% of respondents have an average general health score above 4. 3.5% of the sample drink more than 14 servings of alcohol per week and 8.4% smoke daily or several times a week.

The average Core (inner motivation to achieve sustainable change) in the sample is also quite strong (3,74). 80,4% of the people answered good (4) or really good (5), when asked how

good they feel when they think about the things they have achieved in their lives. The question has also strong correlation ($r = 0.606$, $P < 0.05$) with the question 'my life feels interesting and excites me'. Individuals' excitement about their life may have an impact when they think about the things they have achieved in life. However, only 49.5% agree (4)/totally agree (5) that they feel like they have accomplished a significant meaning in their life. Individuals agree that they feel good about the things they have achieved in life, but do not to the same extent feel that they have achieved significant meaning in life. Meaning in life probably comes to individuals from different things.

Many of the questions in physical activity domain correlate with perceived general health. Overall health is correlated ($r = 0.34$, $P < 0.05$) with the amount of physical activity. However, the number of people who exercise a lot is not particularly high. 33.2% of respondents agree or strongly agree that they get a lot of exercise (average = 2.84) and 30.1% agree/strongly agree that they are satisfied with their current level of physical activity (average = 2.74). Although people are not fully satisfied with their physical fitness, 82.3% agree or strongly agree that they enjoy being physically active. Several people would perhaps like to be more physically active but for one reason or another they are not. Overall health is also correlated (0.44 , $P < 0.05$) with individuals' satisfaction with their body composition and weight. This in turn correlates 0.36 ($P < 0.05$) with individuals' eating habits: 'my diet consists of good quality foods and drinks'. 63.9 % of respondents also agrees/strongly agrees that their diet consists of healthy and good quality foods or drinks (average = 3.64). At the same time, only 31.6% of the sample strongly agree that they are satisfied with the composition of their body, and 26.11% strongly agree that they are disciplined in what they eat and drink. It seems that the results of these questions are somewhat contradictory, due to people overestimating their own eating habits and lifestyle choices. The explanatory factor here is probably the body composition of the respondents, as it correlates quite strongly with, how disciplined people are about eating (0.50 , $P < 0.05$).

5.2.1 Changes in well-being over recent years

The well-being of individuals has changed in recent years, partly due to the impact of the Covid-19 pandemic. The correlation matrix shows that a number of different issues are

correlated with life enjoyment and work performance. The correlation coefficient between life enjoyment and work performance is 0.536 ($p < 0.05$) when looking at the whole sample. When this correlation coefficient is examined at the monthly level, it is 0.83, but it is not statistically significant ($p = 0.40$). Still, the figure may better reflect the relationship between life satisfaction and job performance, as the external factors influence over the time an individual's well-being. More data over a longer period would be needed to prove this. However, changes in individual well-being can be observed at the monthly level (Figure 22).

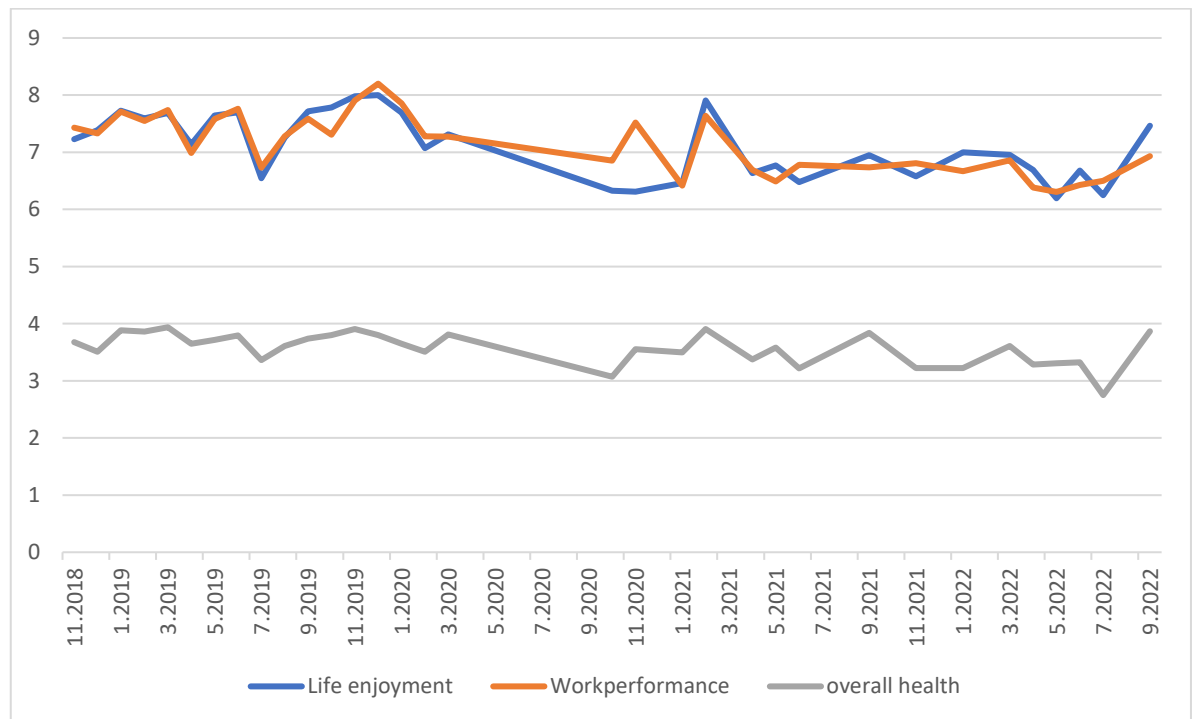


Figure 22 Well-being average changes during months. At least 10 people have completed the questionnaire during the month. Data missing between 4.2020-8.2020. The total number of responses is 2460.

The well-being of individuals has deteriorated during the Covid-19 pandemic, which started in early 2020. Since then, various societies have restricted people's lives from time to time. However, particularly in February and March, individuals' well-being and work performance rose, despite the tightening restrictions in many countries. However, the data is rather incomplete, and the initial impact of the covid-19 cannot be properly examined, as the period 4.2020-8.2020 is not available for analysis. By autumn 2022, the average scores of individuals' responses have started to improve again, and individuals' well-being has increased. The

well-being domains follow each other quite closely, but exceptions can also be found between them (Figure 23).

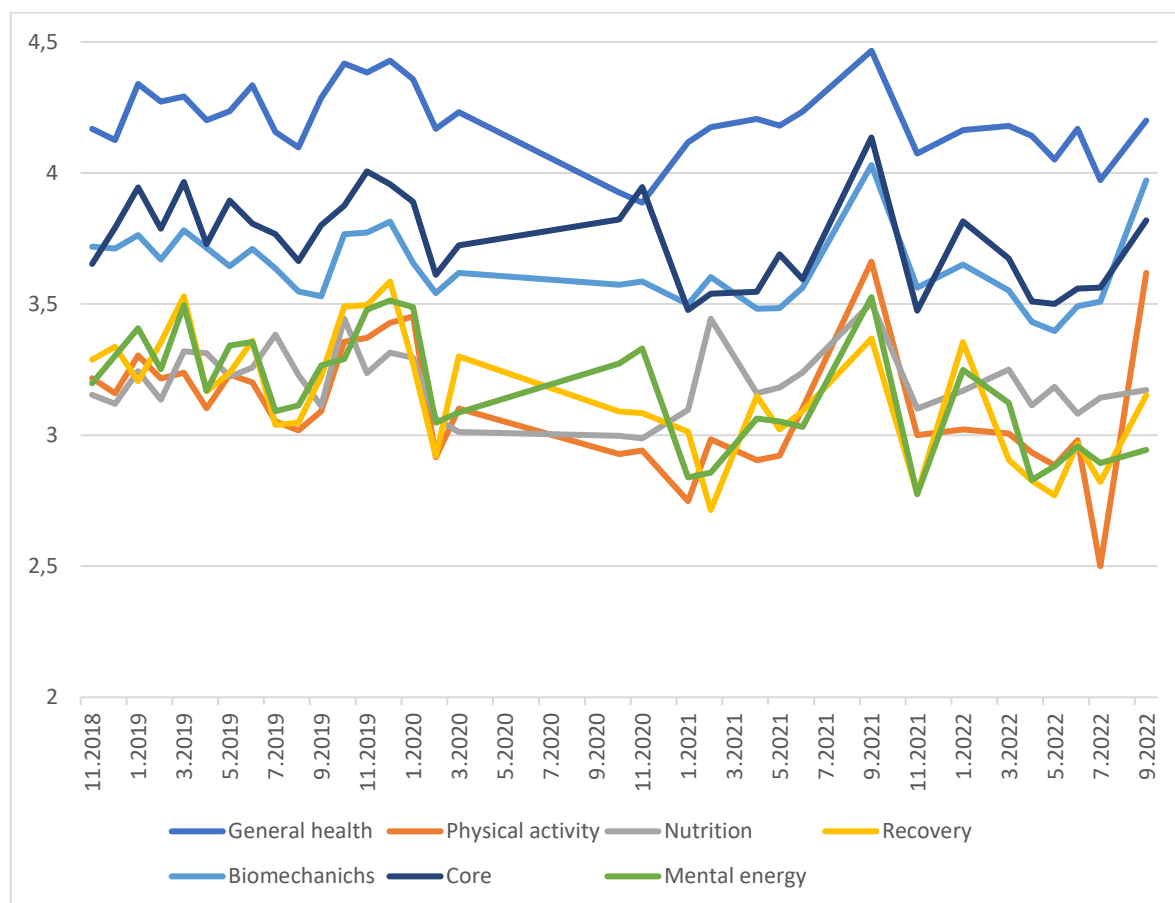


Figure 23. Average answers in well-being sub-areas per months. At least 10 people have completed the questionnaire during the month. Data missing between 4.2020-8.2020. The total number of responses is 2460.

In general, well-being areas have risen in the end of 2022. However, in spring 2022, the scores for the many sub-areas fell to their lowest levels. This is perhaps explained by the exhaustion of individuals from the covid-19 pandemic or due to war between Russia and Ukraine, which may have had a temporary impact on the well-being of individuals. The graph shows how individuals' well-being drops in the spring but rises again in the summer/autumn. However, it is not yet possible to draw conclusions about a sustained increase in well-being, as not all aspects of well-being have increased (Figure 24)

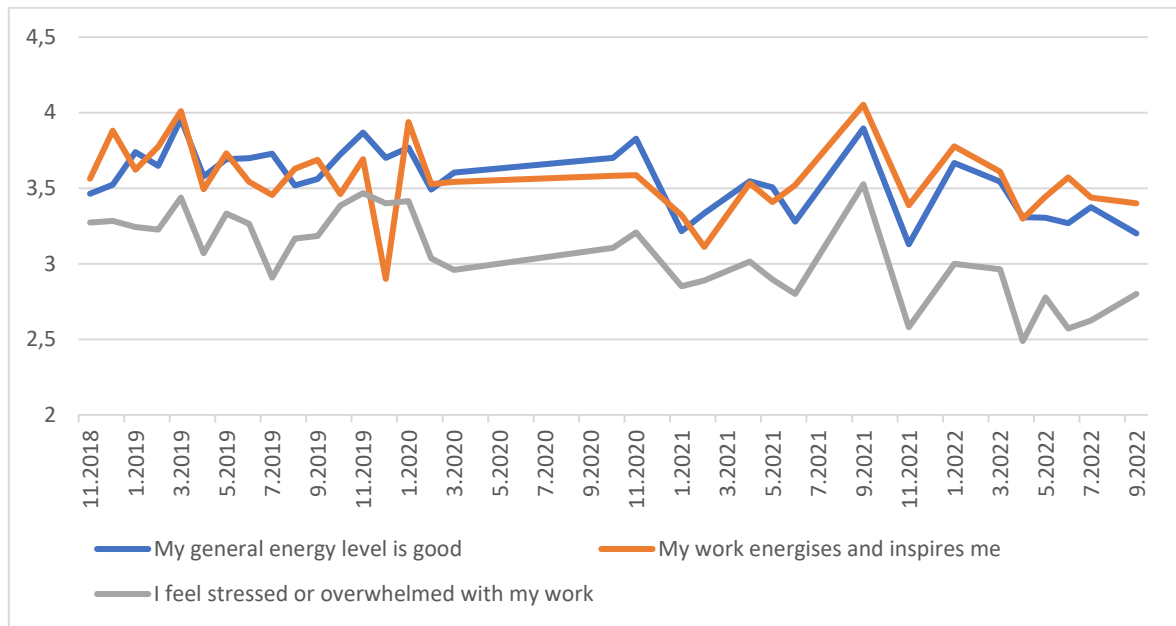


Figure 24 Average answer to mental energy question per months. Data missing between 4.2020-8.2020. Total amount of responses 2460.

Figure 24 shows that the mental well-being of individuals has varied considerably over the measured period, and it seems that Individuals are experiencing increasing levels of stress in their work. At the same time, on a monthly basis, individuals' energy levels have decreased. This is also reflected in the decreased mental energy score in the previous Figure 23. When looking at the differences in yearly level same kind of declining can be obtained (Figure 25).

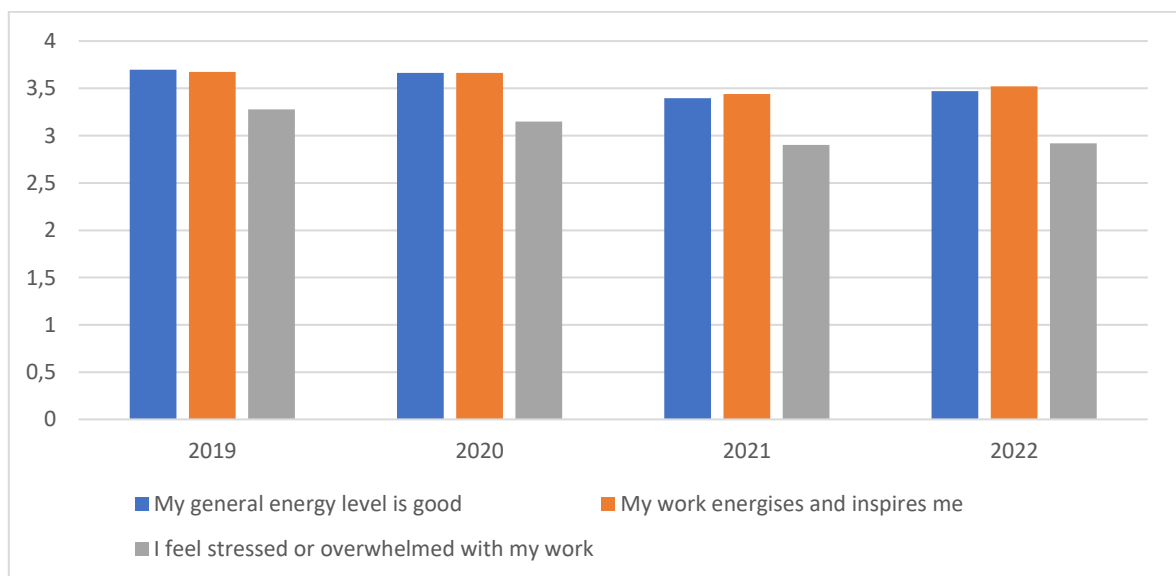


Figure 25. Average answers to mental energy area questions per year.

After 2019, the average answer to the questions has decreased every year until 2021, after which it has remained stable or increased slightly. When looking at the whole data, there is a correlation of 0.378 between ‘individuals’ general energy’ and ‘my work energizes and inspires me’ questions ($p < 0.01$), but when looking at this at the monthly level, the correlation is 0.496, but it is not statistically significant ($p = 0.62$). Individuals’ general energy is also correlated with other aspects of well-being such as general health. The strongest correlation is related to individuals’ satisfaction on their overall health ($r = 0.393$, $p < 0.05$).

5.2.2 Special groups

Studies often show how certain types of programs have affected different target groups, such as people with a higher-than-normal body mass index or to people who drink a lot of alcohol. The well-being of these groups often differs significantly from the average (Table 10). Responses in the Table 10 are colour-coded according to their values. Green indicates high values and red indicates low values in well-being areas.

Table 10. Average responses in different well-being domains by group.

	General health	Physical activity	Nutrition	Recovery	Biomechanics	Mental energy	Core
Average	4.2	3.1	3.1	3.1	3.6	3.1	3.7
Low life enjoyment (1–5)	3.7	2.6	2.8	2.7	3.3	2.6	3.1
Smoking daily/almost everyday	3.5	2.9	2.9	3.1	3.5	3.2	3.7
Ruminating below 3, people who ruminate a lot	4.1	3.0	3.0	2.8	3.4	2.7	3.5
Over 14 dose alcohol/week	3.5	3.0	3.0	3.1	3.5	3.0	3.6
Work performance over 8	4.3	3.4	3.4	3.5	3.8	3.6	4.1
High illness rate	3.8	2.9	3.0	3.0	3.4	3.1	3.6

Differences between the groups can be observed. People with a low general health status perform poorly in all areas, while people with a high level of performance perform well in all areas. This supports the idea that individual well-being is holistic and should be addressed holistically. These special groups are discussed in more detail later in this chapter.

5.2.3 Work performance

The work performance in this study is assessed on a scale of 1-10. The average work performance score is 7.2, which indicates that many of the people in the sample consider themselves more efficient than average person. Figure 26 shows the response rates for the different response options.

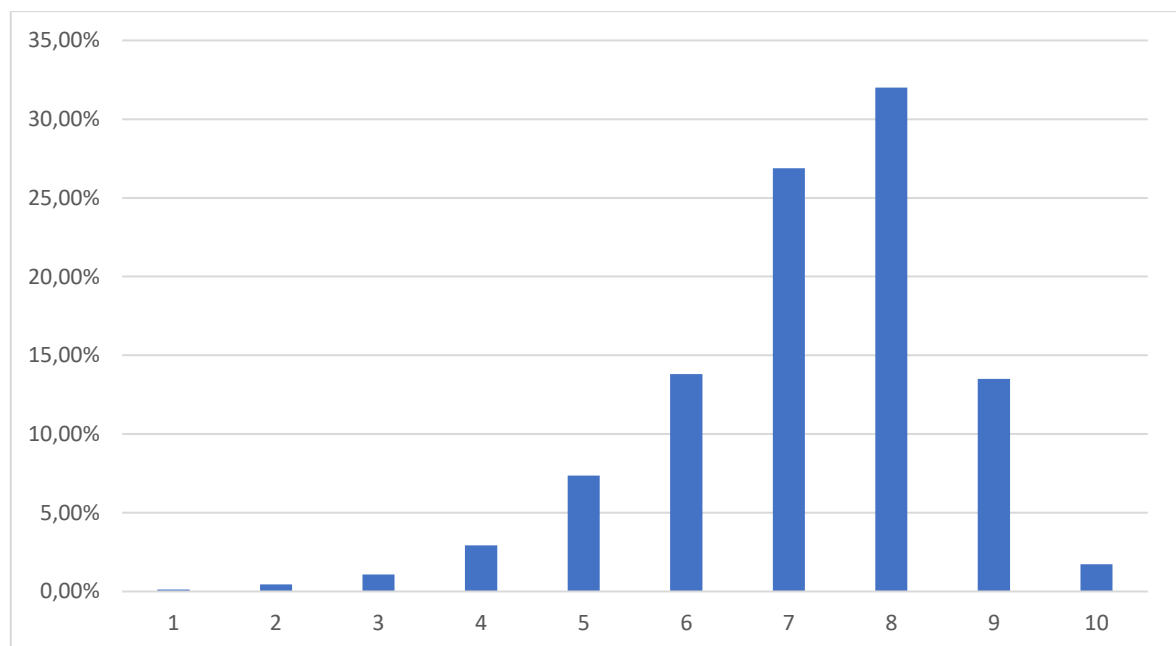


Figure 26. Percent of work performance answers in different options.

15.22% (n = 378) of respondents feel that their work performance is nine or ten and 11.93% (n = 298) feel that it is one to five. Responses are evenly distributed, but the values of the responses are largely weighted at the higher end of the scale as individuals probably think that their own performance is better than average. When comparing individuals according to their performance level, top performers score above average in all areas, while low performers score below average in all areas (Figure 27).

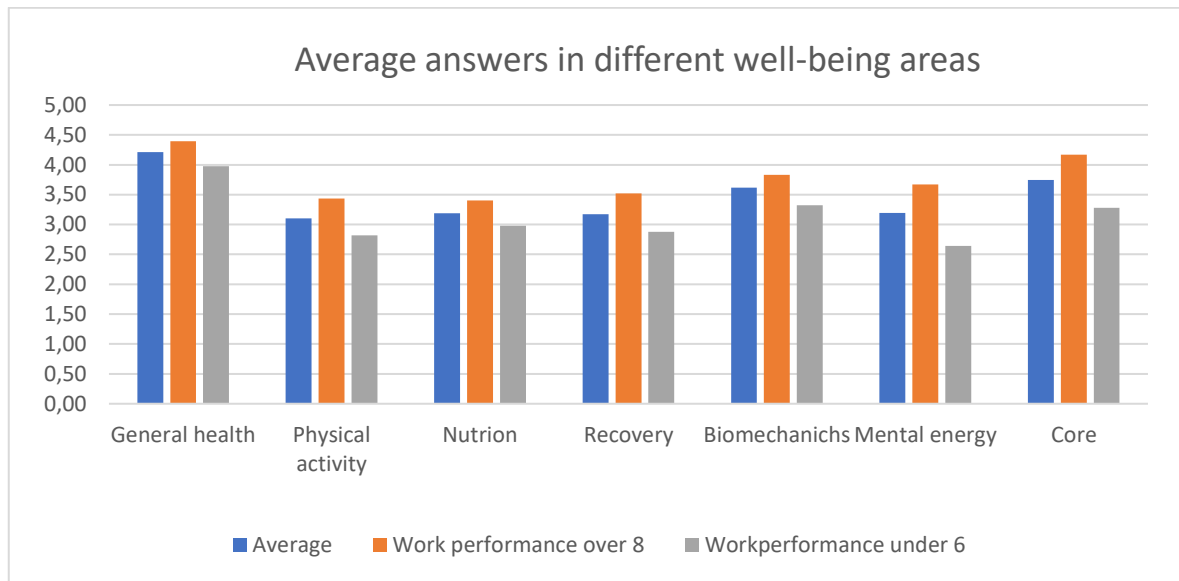


Figure 27 The average answers in different well-being areas by work performance groups.

Figure 27 shows that people with a performance score below 6 perform worse than average, especially in the areas of mental energy and core. In contrast, people with higher performance scores perform particularly well in the following areas. When looking at individual questions in core and mental wellbeing, we can observe that work performance is consistently affected by the different question (Figure 28).

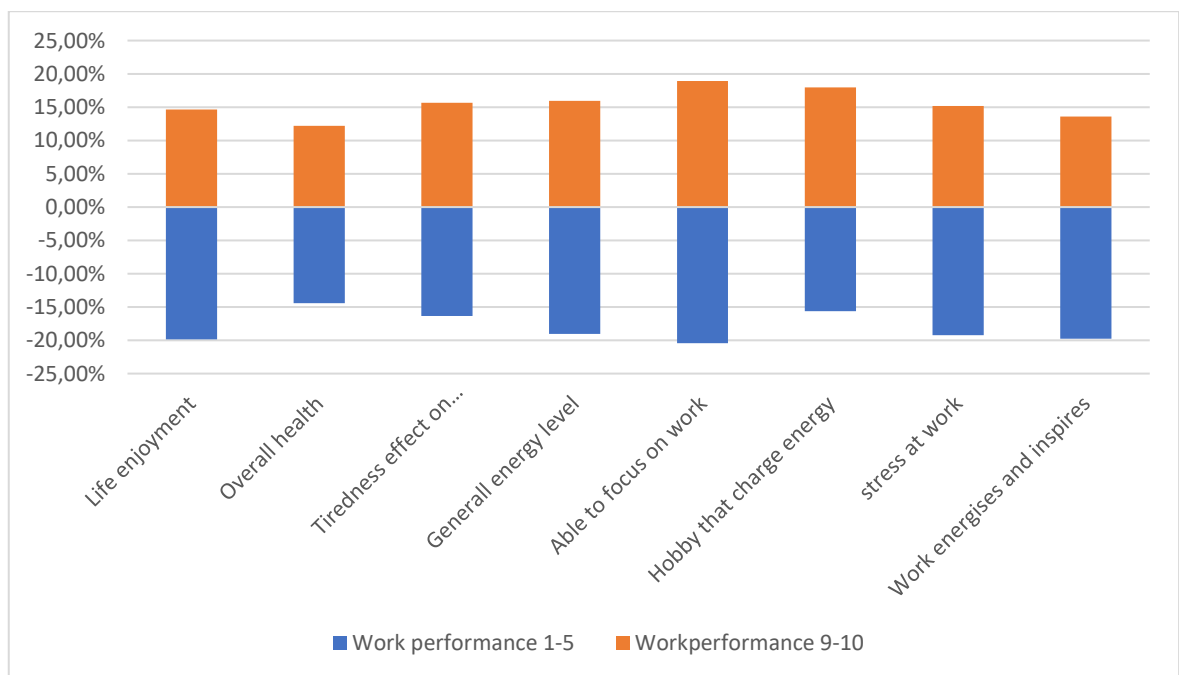


Figure 28. Interesting findings from people whose work performance was low or high compared to average answers.

According to Figure 28, people who feel they are performing poorly at work also experience significantly more stress, lack of concentration and find their work less inspiring and energizing than the average person. Poor performers also tend to ruminate about things that has happened in the past almost 20% more than average while high performers do this 15 % less than average. High performers are more energetic and able to work effectively even when tired. They also have higher levels of overall health and enjoyment of life. Life enjoyment again correlates strongly with job performance ($r = 0.54$, $p < 0.05$), but also with a number of core and mental health questions.

In order to understand better how the different questions, explain work performance and differences between individuals, linear regression analysis was conducted. Several forward and backward models were obtained, of which the model below was selected because it had the largest Adjusted R-square. Table 11 describes the characteristics of the model. The model predictors can be seen in appendix 2.

Table 11. Regression model for work performance

Model Summary						
R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	Sig. F Change
.659	0,434	0,429	1,078	0,001	4,102	0,043
Predictors: (Constant), Question_5, Question_47, Question_43, Question_33, Question_50, Question_46, Question_48, Question_25, Question_14, Question_30, Question_42, Question_27, Question_28, Question_29, Question_53, Question_40, Question_49, Question_13, Question_7, Question_36						

The correlation of the model is moderate ($r = 0,69$) and it explains 42.9% (Adjusted R= 0.429) of the variation in job performance. A low standard deviation combined with a high

regression coefficient produces a high t-value and indicates a higher significance of the variable for the model. The p-values in the table ($P > |t|$) indicate the probability that the regression coefficient of the variable is measured by chance. The significance of F-change is model than 0.05 in the model, so it can be considered reliable. The Appendix 2 shows that questions 6 (Life enjoyment), 47 (My work gives me energy and inspires me) and 43 are the largest variables describing a positive effect (unstandardized coefficient B) on job performance. Unstandardized coefficients B describe the amount of change in the dependent variable Y due to a one-unit change in the independent variable X. As they increase, job performance also increases. However, it can be observed that if individuals feel that they cannot spend enough time with people, their work performance decreases (unstandardized coefficients beta is negative). Increased sleep and physical activity also have a negative effect on job performance, which is against common consensus. After all, subjective data collected from individuals may not be the best way to predict which workers are most effective. However, the analyses and models presented in this section suggest that people's mental well-being and life enjoyment play a role in job performance.

5.2.4 Missed workdays

The number of sick days is estimated in this study by number of days. The survey measures respondents' absences from work in the last six months. Days of absence are measured due to muscle pain or injury and due to personal illness (Figure 29).

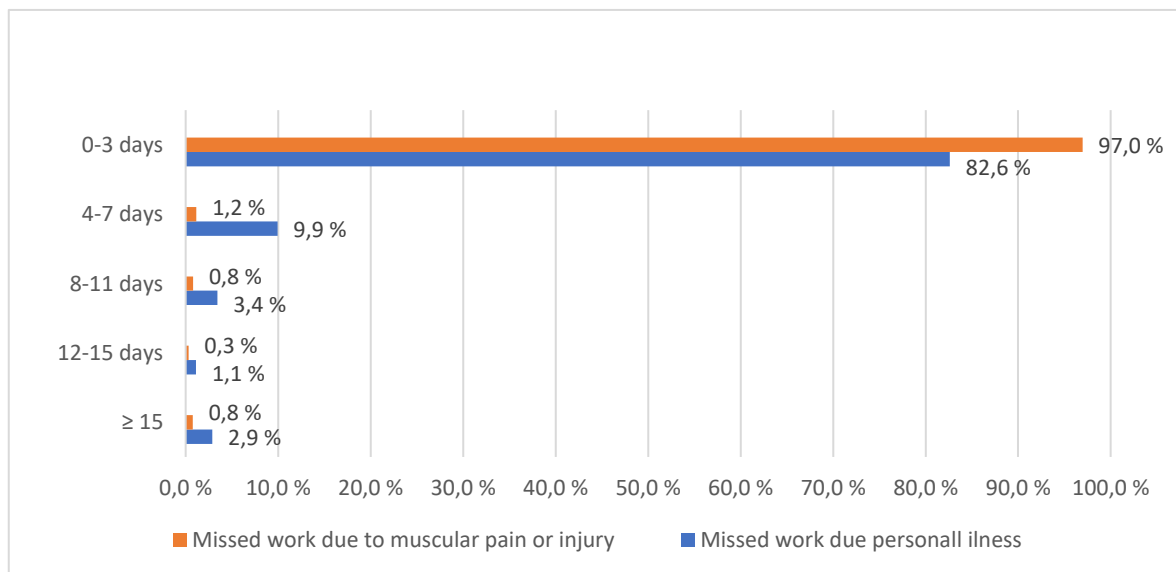


Figure 29. Missed workdays due to muscular pain or injury or due to personal illness.

Figure 29 shows that absences are usually due to personal illness. Most people have been absent from work for only a few days in the last six months. 17.3% of the sample report being absent for more than 4 days due to personal illness and 2.96% report being absent for more than 4 days due to muscle pain or injury. 2.3% of the individual report being absent for more than 4 days for both reasons. Thus 75% of people who have been absent due to injury or muscular pain have been absent also due to personal illness. The questions are correlating fairly strongly with each other ($r = 0.37$, $p < 0.05$), but no similar correlation is observed with the other questions. It is therefore difficult to identify an explanatory factor for sickness absence.

The number of absences also varies from month to month. Figure 30 shows how the relative proportions of different amount of absence days have changed.

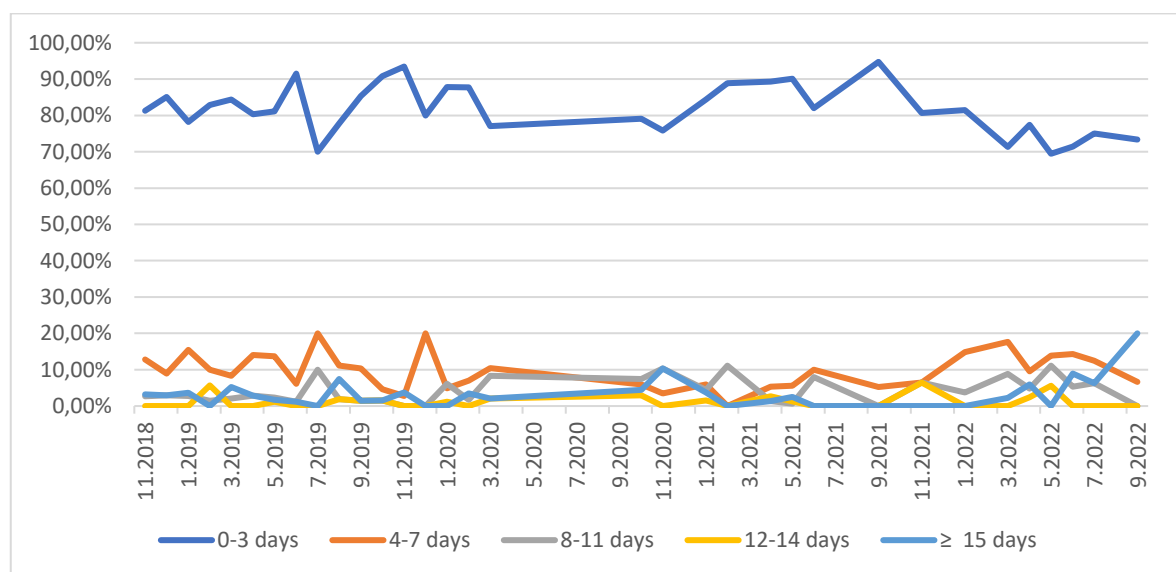


Figure 30. Percentage of people by month and their estimate how many days they have been from work in the last six months. Data missing between 4.2020-8.2020.

The number of people absent for more than 15 days has increased between 05.2022 and 09.2022. At the same time, the number of people who have been absent for 4-15 days has decreased. However, the sample size is quite small, less than 60 responses/month, so the results cannot be considered particularly reliable. For example, between 5.2021 and 2.2022, only a few cases of longer absences were observed.

People who have been absent from work for more than three days in the last six months show an anomaly in the average responses. Figure 31 shows those who have been absent for more than 7 days in the last 6 months due to personal illness or injury/muscle pain.

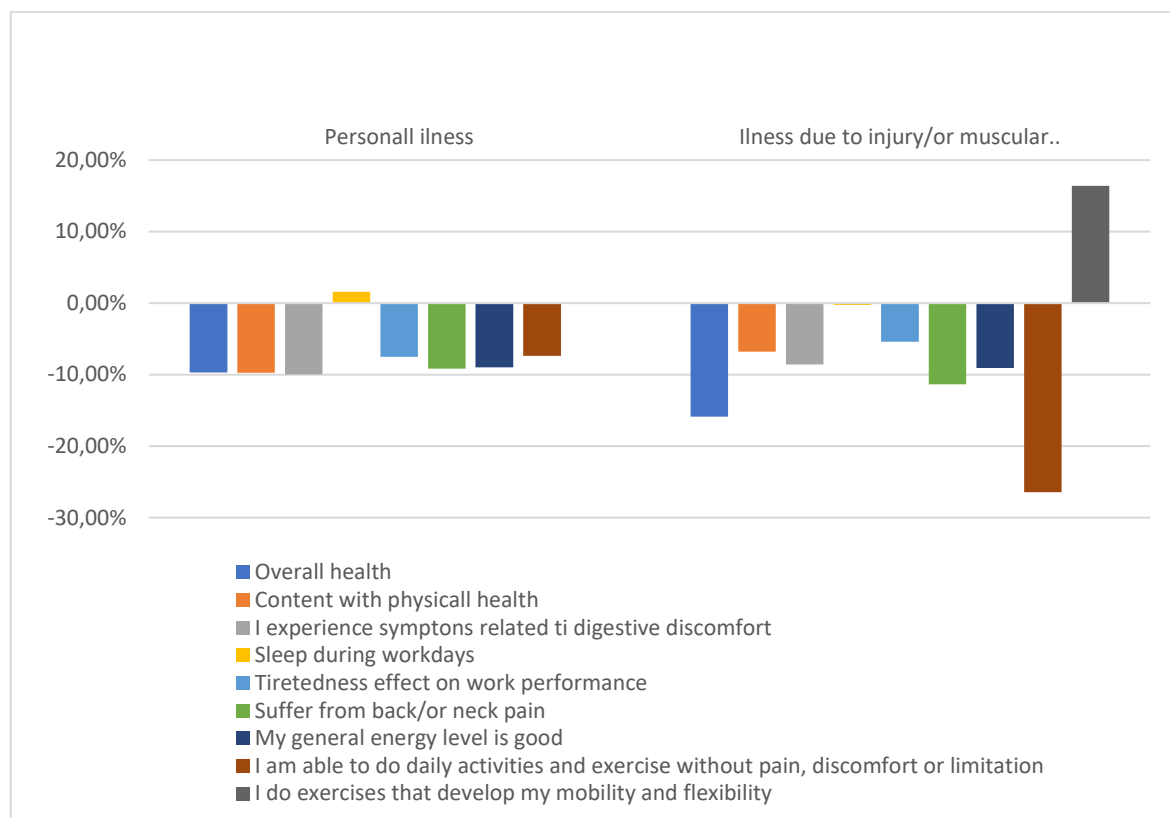


Figure 31. Interesting questions from people who were absent from work over 7 days during the last six months. Answers compared to average answers.

On average, individuals with more sickness days perform poorer in the well-being domains. Their experience of their own well-being and physical health is also worse and they experience more digestive discomfort, such as heart and back and/or neck pain than average. At the same time, their overall energy levels are worse, but they sleep as well or slightly better than average. Individuals with more absent days also experience fatigue. This may partly explain their 5% lower work performance, as there is a correlation between the questions (0.34, $p < 0.05$). Individuals who are absent from work experience also more pain and discomfort in daily activities, which might affect sleep quality and perhaps effect on energy levels. However, individuals who suffer from injury or muscular pain tend to take better care of their bodies and are more active than their counterparts.

5.2.5 People with high BMI

The information on people's weight is collected from 1507 responses between 2018.11 and 2020.3. The average BMI of the sample is 25.36. 5.17% (129) of the sample are overweight (BMI 30-35) and 1.56% (39) are obese (BMI > 35). These categories were selected for the analyses because they are commonly used as a risk group in other studies. Weight affects many well-being areas, but according to analysis it does not correlate at all with work performance or life enjoyment. However, weight is negatively correlated with other areas that effect positively on work performance, for example, in overall health satisfaction ($r = -0.206$, $p < 0,01$) and the body composite/weight ($r = -0.47$, $p < 0,01$). When comparing the responses of overweight people with the average, several differences can be observed (Figure 32)

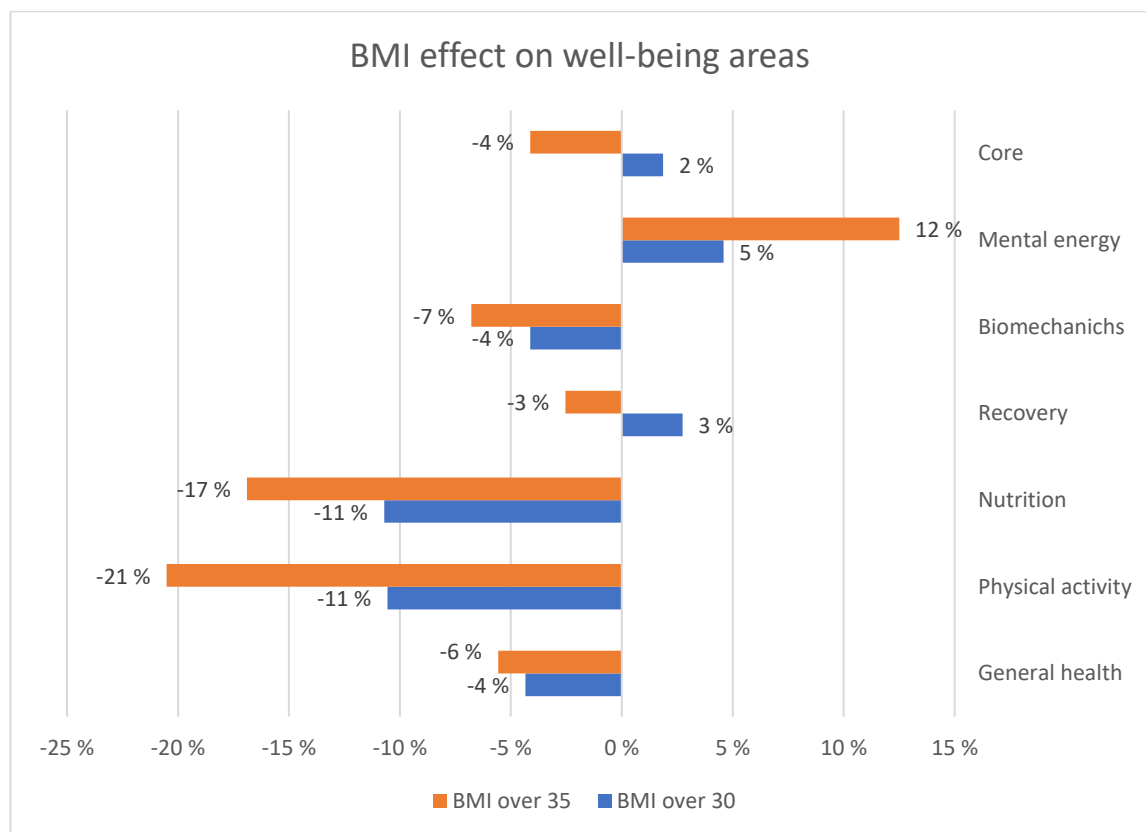


Figure 32. Average responses of overweight and obese people in different areas of well-being compared to average responses.

In most wellbeing areas, overweight and obese people score below average. Individuals score lower, especially in the areas of physical activity and nutrition. However, they perceive their mental well-being to be better, as well as their recovery than average people. This high

coefficient in the mental health domain is largely explained by the question: 'I tend to ruminate or think about things that have happened to me for a really long time afterward'. Overweight and obese people report in the survey that they do not ruminate, which is the main reason for higher scores in mental health (Figure 33).

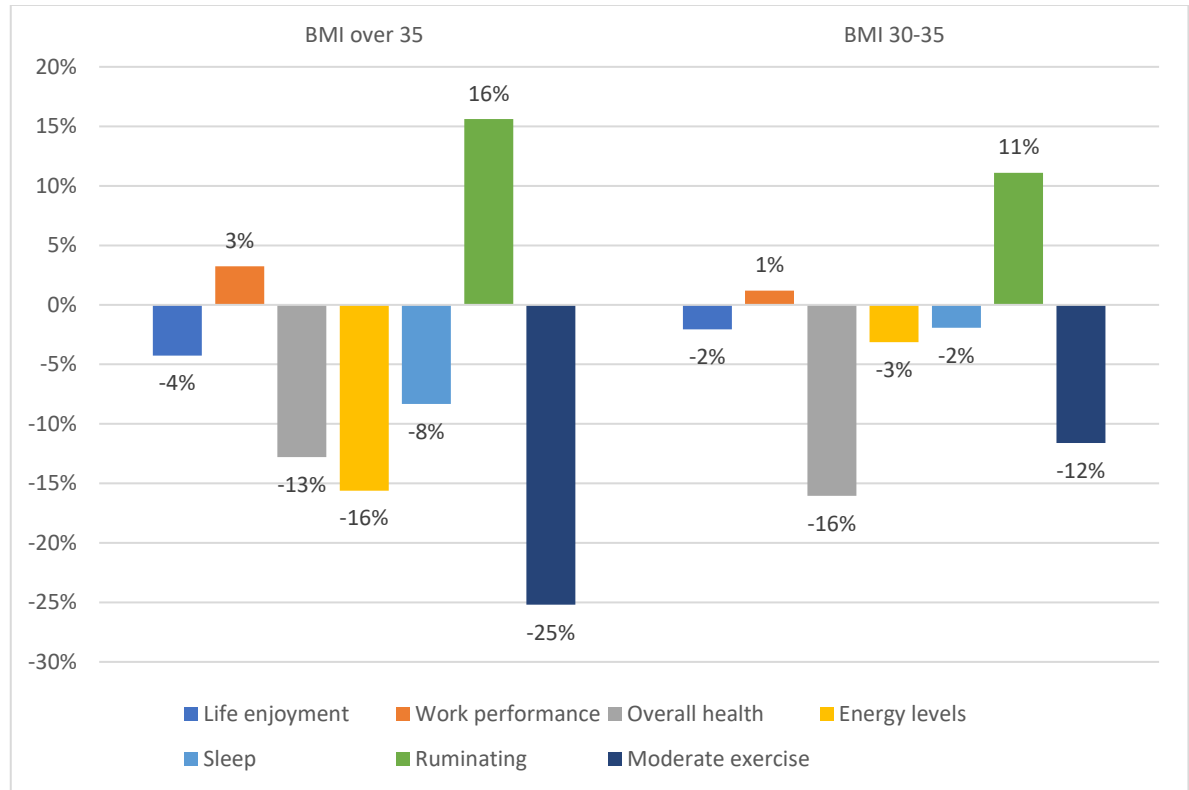


Figure 33 Interesting findings from overweight people and their comparison to average answers

In most questions their answers are below average. However, in work performance they score higher, even though, several questions such as life-enjoyment and overall health are positively correlated with work performance, which they have lower than average. The validity of the answers raises doubts as they are contradictory to the rest of the data. According to Dunning (2011), it is typical for people with weaker ability or knowledge to over- or underestimate their own abilities.

5.2.6 Low life-enjoyment, daily smokers, high alcohol users.

Several studies like this have examined individual smoking and alcohol consumption. In addition to these, this section examines the responses of individuals with low levels of life enjoyment. Most individuals in the sample do not consume large amounts of unhealthy products or have low life-enjoyment (Table 12).

Table 12 Percent of answers in score categories by different groups.

Score	Life enjoyment	Alcohol use	%	Smoking	%
1	0,12 %	Over 20 doses	1,24 %	Daily	6,37 %
2	0,24 %	15–20 doses	2,24 %	Almost everyday	1,8 %
3	1,52 %	10–14 doses	7,21 %	Weekly	2,16 %
4	2,44 %	5–9 doses	20,22 %	Rarely	9,41 %
5	6,65 %	0–4 doses	69 %	Not at all	80.18 %
6	14,34 %				
7	28,55 %				
8	30,08 %				
9	14,38 %				
10	1,56 %				

Table 12 shows that only a small proportion of people use a lot of tobacco products or alcohol. 11.93 % of the sample has a life enjoyment between one and five, 3.4% drink more than 14 doses of alcohol per week and 8.09% smoke tobacco every day or almost every day. The analysis of these specific groups reveals that they perform worse than the average in the well-being domains. (Figure 34).

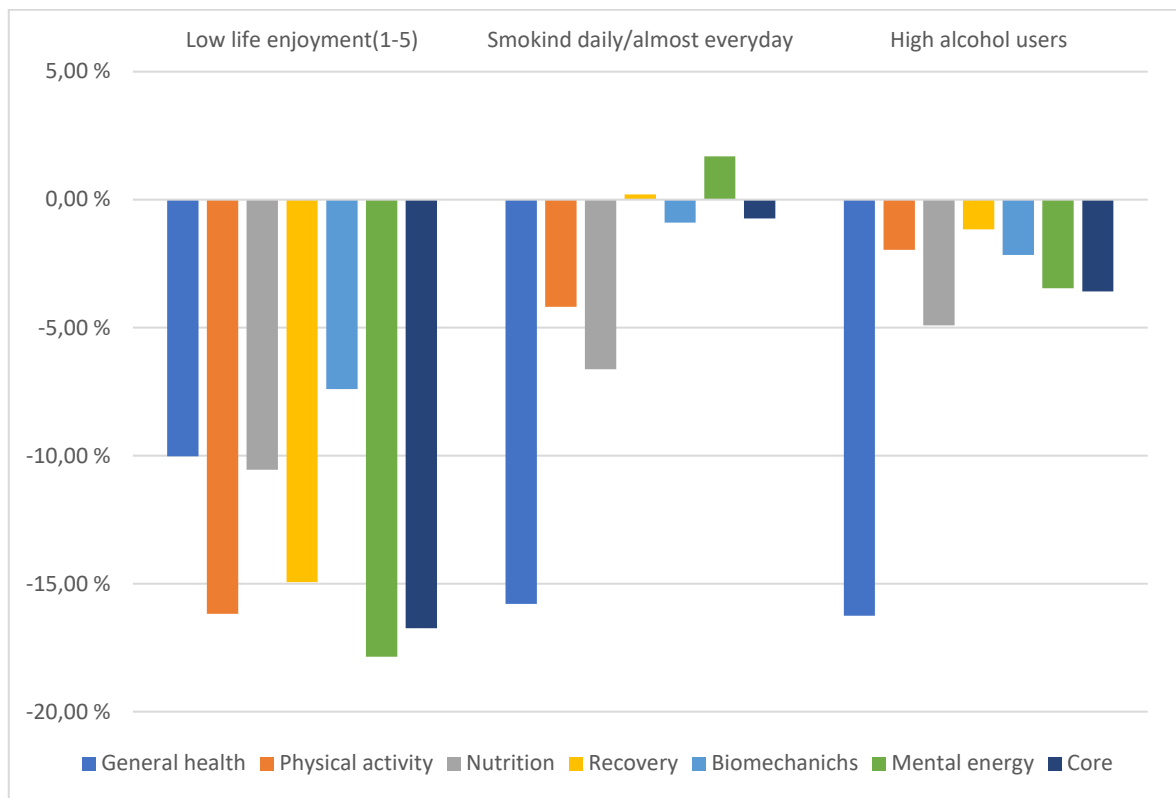


Figure 34. The average responses of people who have a low life enjoyment, smoke daily or drink a lot of alcohol across different aspects of well-being. Responses compared to the average responses.

Individuals with low levels of life enjoyment perform poorly across a range of domains, especially in physical activity, mental energy, and core. The general health of daily smokers and heavy drinkers is significantly lower, as issues related to alcohol and smoking are included in the general health domain. In the other domains, heavy alcohol drinkers score consistently lower than the average. Smokers, on the other hand, perform very mixed across the domains. Their mental energy and recovery are higher than the average, but their physical activity and nutrition are clearly lower. High mental energy is largely explained by the breaks caused by smoking. It is likely that these breaks from smoking during the day allow individuals to relax a little more than the average person, which is why they score high also in recovery. Looking at the specific questions, very similar answers can be found (Figure 35).

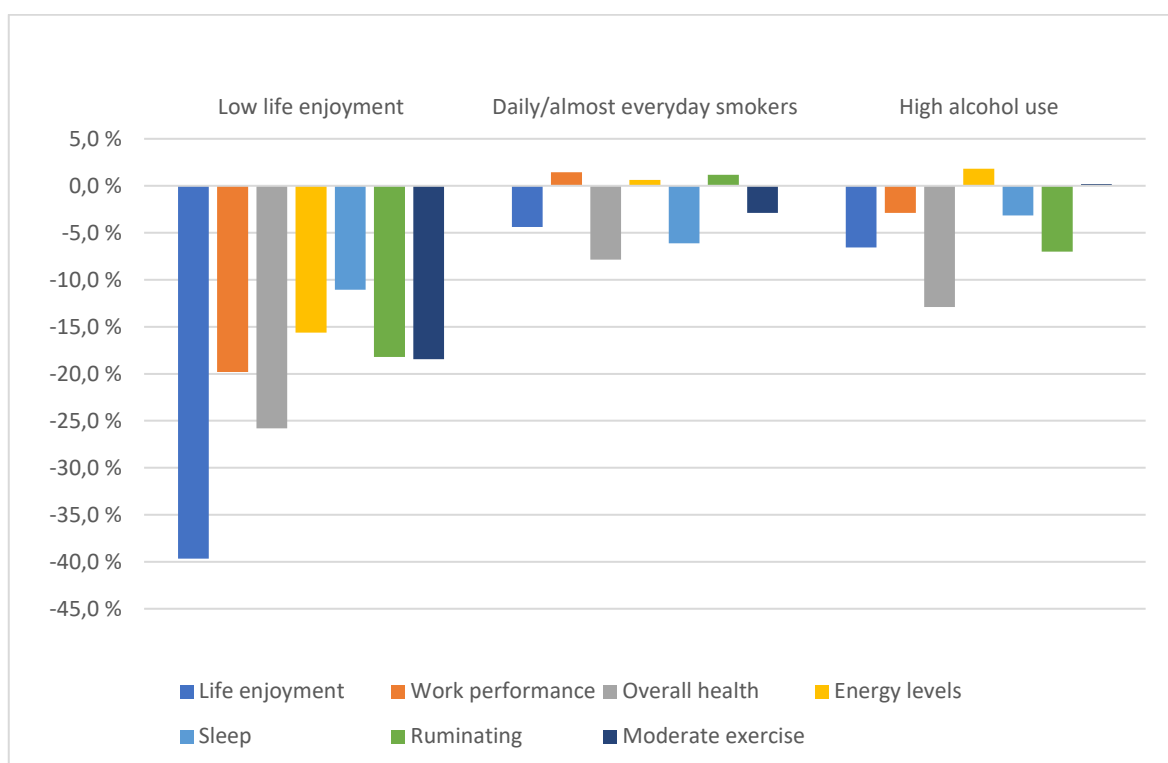


Figure 35. Interesting findings from people with low life-enjoyment, smokers, and high alcohol users. Responses compared to the average responses.

People with low life enjoyment are doing worse in all questions. Smokers and heavy alcohol drinkers, on the other hand, show a wide range of responses. Smokers and heavy alcohol users, life enjoyment and overall health are significantly lower than average, while work performance is almost or even higher than average answer in the sample. In general, people who use a lot of harmful substances perform worse than average in many well-being areas. However, perceived life enjoyment is more strongly associated with negative outcomes in different domains of well-being.

5.3 Change analysis

In this section, we examine changes in individuals' well-being and the factors that explain them. The data is collected through a 64-question survey with 210 respondents, of whom less than 5 may have participated in the program. Of the questions, 62 are grouped into nine different categories: core, general health, physical activity, nutrition, sleep and recovery,

biomechanics, mental energy, wellbeing at work and goal and motivation. The other two are life enjoyment and work performance. However, not all questions are analyzed in this work. The questions that are analyzed and their mean responses can be seen in Appendix 3. The questions in questionnaire are very similar to those in the previous analysis, but some differences can be observed. The most frequent answers to the questions are on a scale of 1 to 5. Life enjoyment, work performance and goal and motivation questions have points on a scale of 1 to 10. Figure 36 shows how the average answers by wellbeing categories have changed between the surveys.

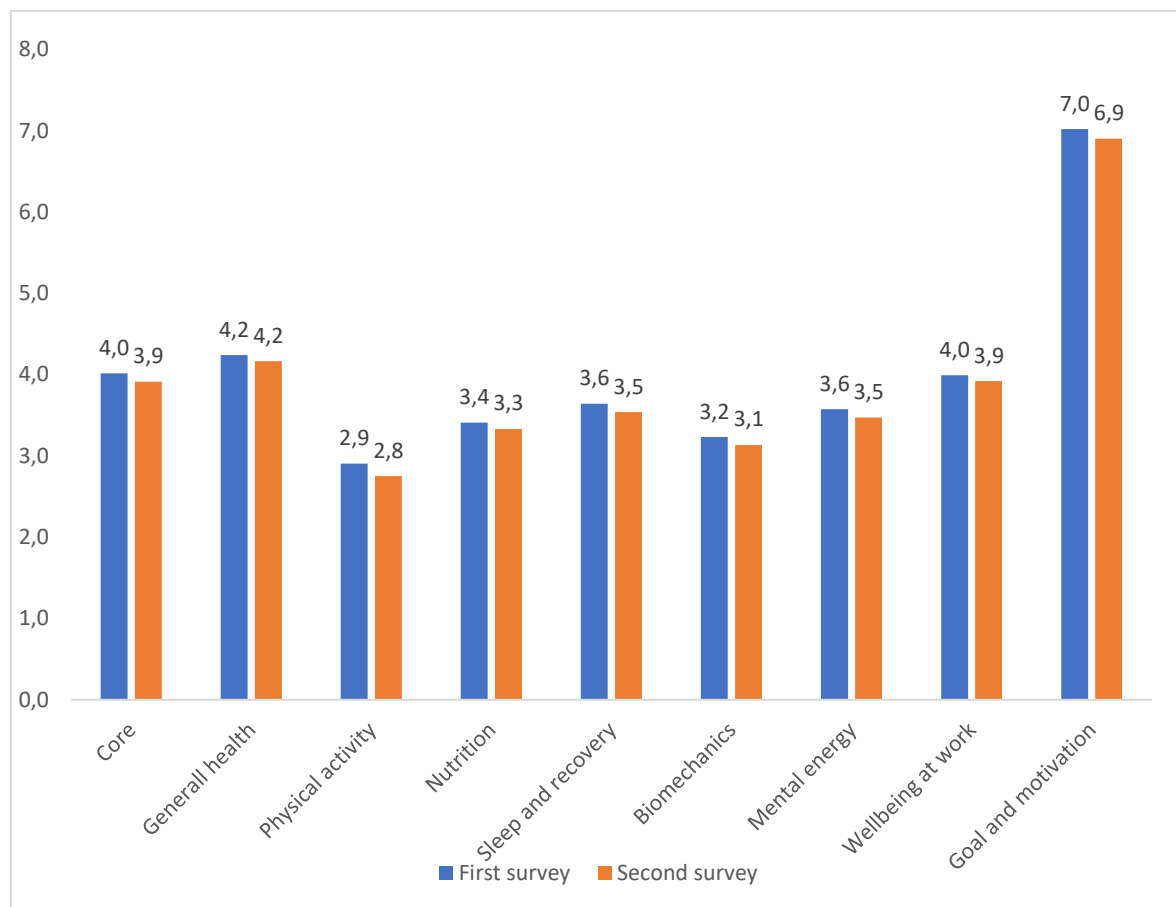
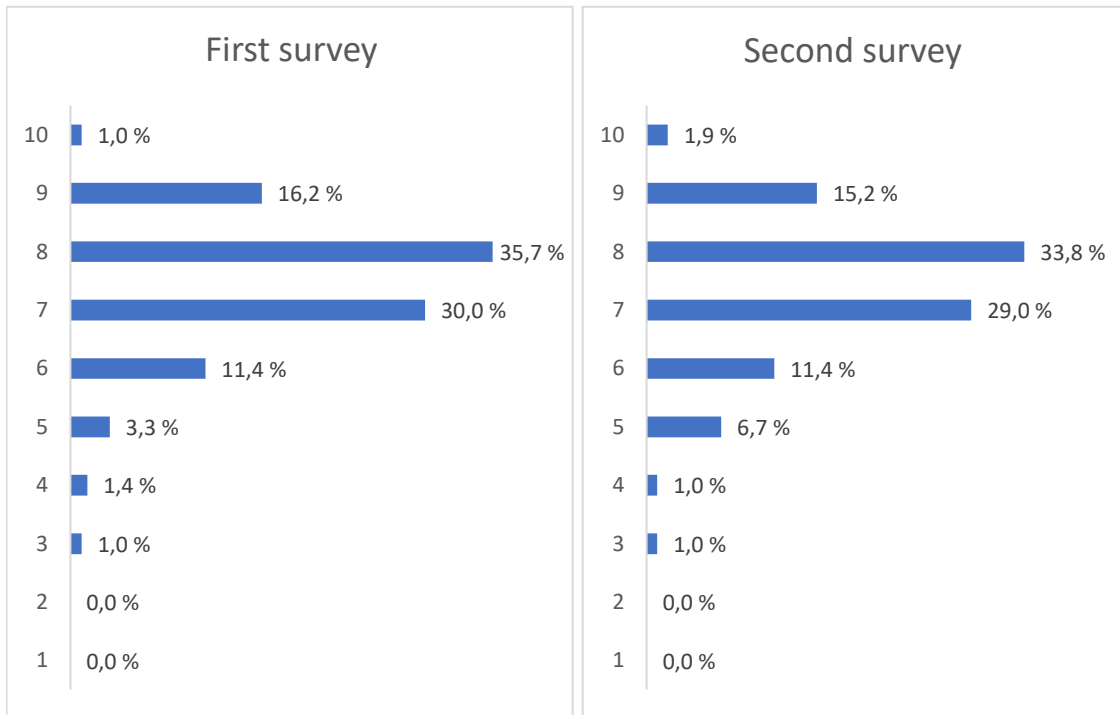


Figure 36. Changes in well-being between answers

In the period between the surveys, individuals' well-being has increased in all areas of well-being. However, not all questions showed a positive change, and the average scores for some questions fell. For example, for a larger proportion of the sample, work performance decreased than increased. On average, work performance decreased by -0.83%, but more people felt it was ten than before (Figure 37). The correlations presented in this section are

calculated using the difference between individual survey responses as correlation variables. Due to the number of variables, the correlation matrix is not presented in the paper.

Work performance change



Life enjoyment change

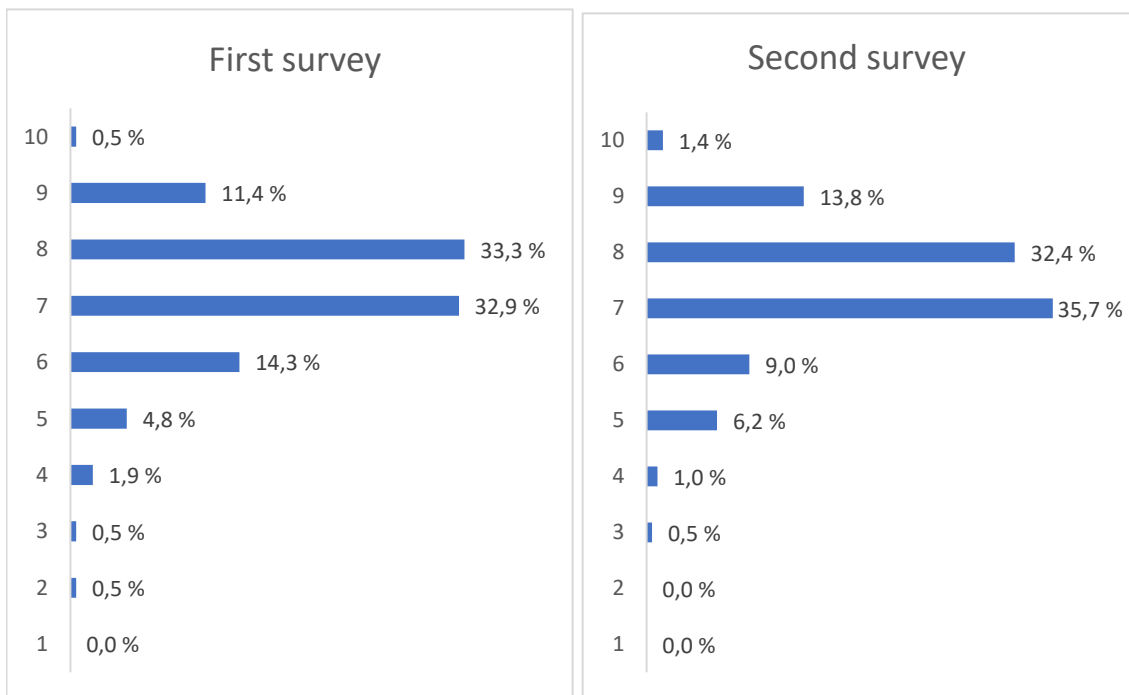


Figure 37. Number of answers in different categories between surveys.

Figure 37 shows that the number of people who perceive their work performance to be 8-9 has decreased and the number of people who perceive it to be 5 has increased. In terms of enjoyment of life, the number of people who perceive it to be high (9-10) has increased, but so has the number of people who score a 5. Overall, the sample members' preference for their life enjoyment has increased by 2.0%. When calculating the differences between individuals' responses to different questions and their sums, 63% of individuals were found to have developed a positive sum from answer changes and 15% of individuals were found to have developed a negative sum.

5.3.1 Work performance

Although individuals' life enjoyment has risen and performance has fallen, the questions correlate positively with each other ($r = 0.35$, $p < 0.001$). Thus, the decline in job performance cannot be explained by changes in life enjoyment. When looking at people whose work performance has decreased ($n = 75$) or increased ($n = 59$), some explanatory factors can be identified. Figure 38 describes the well-being scores of these groups to average answers.

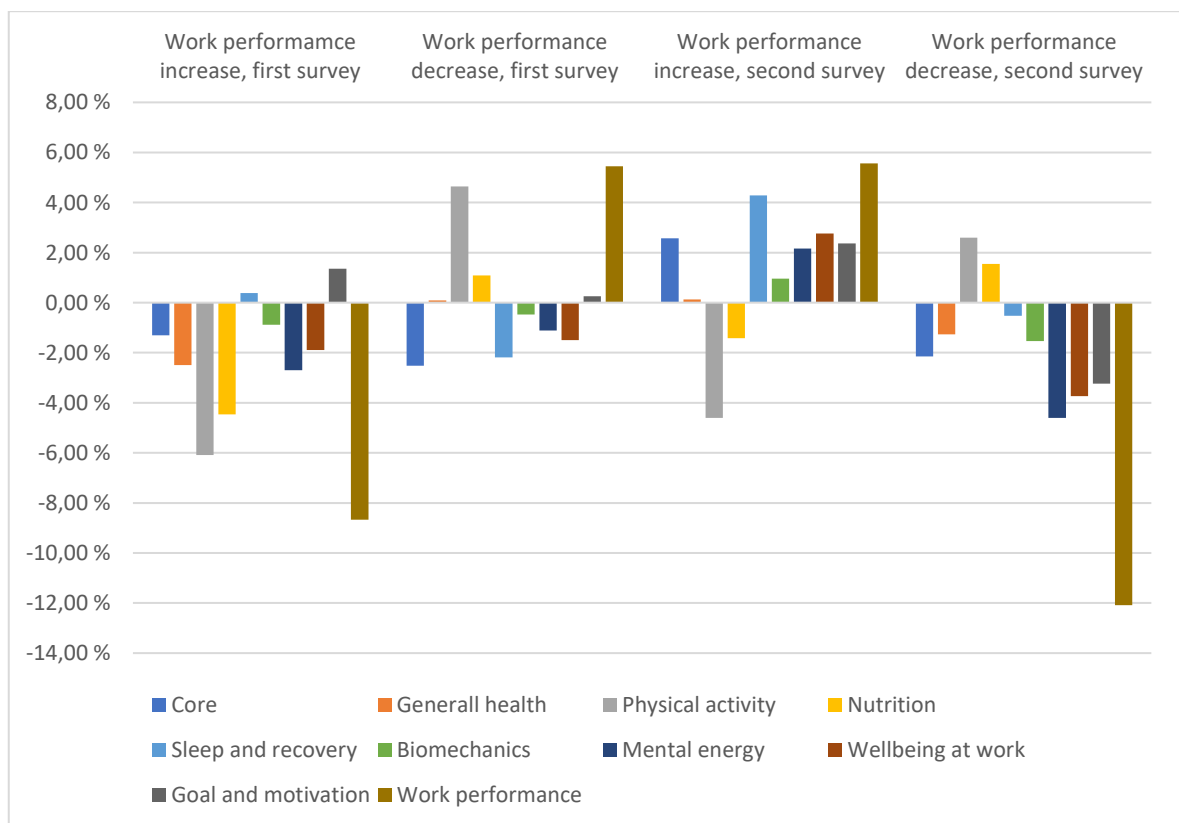


Figure 38. Average responses of different groups compared to average responses of all individuals.

Figure 38 shows that the changes have been significant when compared to the average responses. Individuals whose work performance increased scored below average in several areas in the first survey but in the second survey they scored above average in several areas. In particular, core, mental energy and wellbeing at work changed in relation to the means, which can be partly explained by the work performance correlation between them. These areas in turn decreased in relation to the mean for individuals whose work performance decreased. The increase in work performance may perhaps be explained by the fact that individuals had a better sense of purpose and motivation in the first study, as those whose work performance increased felt a greater need and motivation to change their health behaviors.

In contrast, people whose work performance decreased did better in the first survey in terms of work performance, physical activity, and nutrition. Yet their mental well-being and recovery were weaker than average in the first survey and even worse in the second survey compared to the average responses. However, many areas did not actually deteriorate for either group as average answer in wellbeing areas rose between surveys. The change in responses between surveys can be seen in Figure 39.

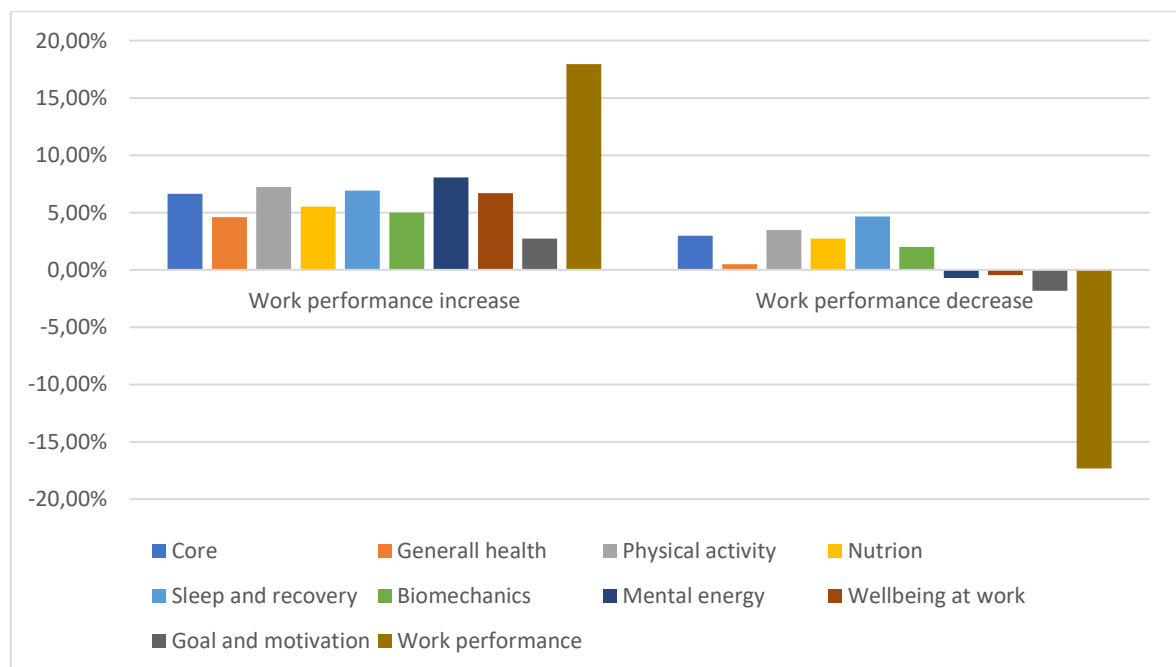


Figure 39. Percentual changes in wellbeing areas between surveys with people whose work performance decreased on increased.

As individuals' performance improved, other areas also improved. In particular, mental well-being and well-being at work improved. These areas, in turn, deteriorated among those whose performance decreased, which may be partly explained by the work performance correlations with mental energy ($r = 0.275$, $p < 0.001$) and well-being at work ($r = 0.286$, $p < 0.001$). The developments in life enjoyment also differed between the groups. Individuals whose work performance increased fared 5.6% better than average in life enjoyment and it rose 2.1%. Individuals whose work performance decreased performed 4.4% less well in life enjoyment than the average and it decreased 2%. Life enjoyment also effects and correlates quite strongly with work performance change ($r = 0.35$, $p < 0.001$). In the larger survey sample presented in Section 5.2, the correlation between life enjoyment and work performance was even higher ($r = 0.53$, $p < 0.001$). A higher level of life enjoyment can perhaps influence an individual's willingness to change their lifestyle and how they experience themselves. At least, it can be said to have an impact on individuals' work performance.

When looking at specific questions, certain characteristics can be identified that may explain increases and decreases in job performance. In Figure 40 is described the biggest changes in questions with people whose work performance rose.

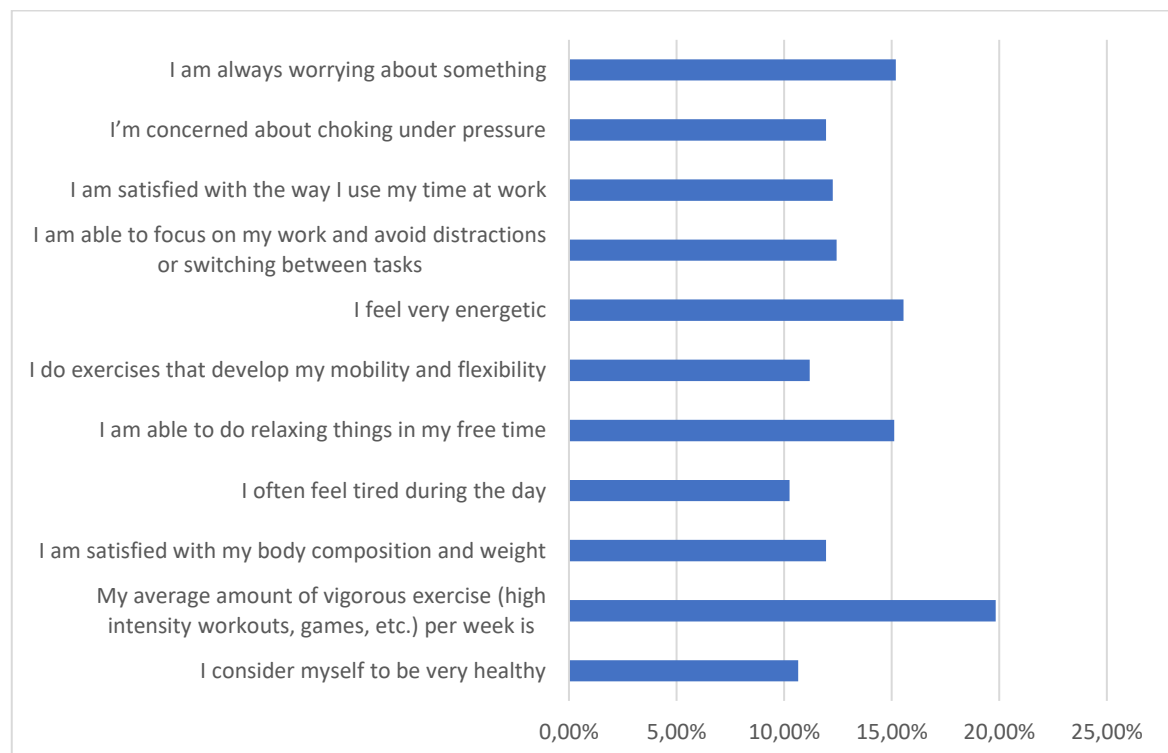


Figure 40. The biggest change in answers with people whose work performance rose.

As work performance increases, individuals are more confident and able to use their time more effectively. Their energy levels, amount of exercise and ability to relax increase. People are also more satisfied with their bodies and feel healthier. In the first survey, people whose performance rose scored in average below or equal than the average person in the following areas, but in the second survey they scored above average almost in every question. For those in the sample whose job performance declined, it is more difficult to find the same kind of consistency (Figure 41).

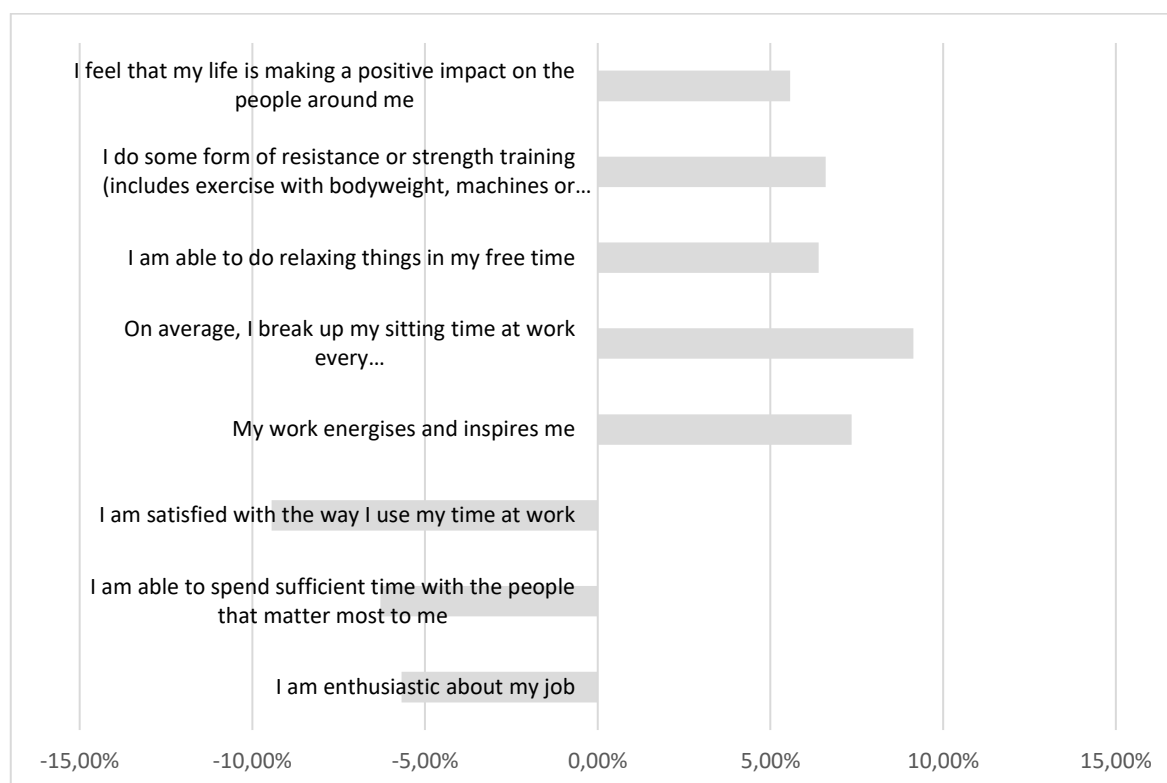


Figure 41. The biggest change in answers with people whose work performance decreased.

Figure 41 shows that the members of the sample perceive an increase in job motivation and inspiration, but are less enthusiastic about their job, which raises doubts about the validity of individuals' responses. They also feel that they are pursuing a healthier lifestyle and have a greater positive impact on those around them than the average person. Yet their life enjoyment has dropped by 2%, which correlates positively with work performance ($r = 0.35$, $p < 0.001$). They experience also experience greater dissatisfaction with their use of time at work and in their personal time. Perhaps individuals may have responded over optimistically to the survey in the past, which is later reflected in the inconsistency of responses. According to Dunning (2011), this is a common thing for people who have lower ability or knowledge

on measured things. Thus, individuals may think about their life and abilities more carefully, which may have led to a change of perception of their estimates.

In order to understand better the factors that explain individuals' job performance and how it changes, linear regression models were developed. The model, called "New Survey", consists of both first and second survey responses and describes how well job performance can be explained. The difference-in-differences model, on the other hand, consists of data on the differences in responses and describes which factors explain the change in job performance. The new survey model consists of 420 responses and the difference-in-difference model of 200 responses. Ten responses had to be removed from the difference-in-difference model because the Cook value of the responses was greater than 0.5, but no data needed to be removed from the new survey model. Cook's distance is commonly used to estimate the effect of a data point when performing least squares regression analysis. Many studies use the 0.05 value as cut-off, which is also used in this study to improve the model. Both models were selected after several model runs based on the highest adjusted R-value. Table 13 describes these models and the variables used in the models can be seen in appendix 5 and 6.

Table 13. Regression models from first and second survey data.

Model Summary							
				Std. Error of the Estimate	Change Statistics		
Model	R	R Square	Adjusted R Square		R Square Change	F Change	Sig. F Change
Difference between surveys	.628 ^a	0,394	0,371	0,800	0,394	16,94	3,786E-17
New Survey	.676	0,457	0,448	0,912	0,006	4,47	0,0351

The adjusted R square of the models are low which is why no specific interpretations can be made from models. The difference-in-difference model shows that the change in variables explains 37.1% of the change in job performance, while the variables in the new survey model explain 44.8% of job performance. The sig. F-change of the model is less than 0.05, so the models can be considered reliable. Appendices 5 and 6 describe the variables in the models and show which variables have the greatest impact on the models. In the new survey model, the questions with the highest unstandardized coefficients B values are: 'I am satisfied with

the way I spend my time at work' ($B = 30$), 'Life enjoyment' and 'My work gives me energy and inspires me' ($B = 0.25$). The three most influential questions in the difference-in-difference model are 'Life enjoyment' ($B = 0.33$), 'I am satisfied with the way I spend my time at work' ($B = 0.20$) and 'I feel that my life has a positive impact on the people around me' ($B = 0.20$). The models suggest that individuals' life satisfaction and the way they spend their time at work are the best predictors to explain changes in job performance.

5.3.2 Personal sickness days

The number of missed workdays in the sample is quite small, with around 80% of the sample reporting having been absent only for 0-3 days in the last 6 months. However, it was possible to obtain small representative groups in the sample in order to examine the factors influencing the increase and decrease in absenteeism. Between the surveys, absenteeism decreased by 15.7% ($n = 33$) and increased by 11.4% ($n = 24$) of the sample individuals. In both groups, the first and second responses were mostly below average. It is likely that people who are doing well in many areas are less likely to experience changes in sickness absence. Figure 42 shows the changes in personal sickness days.

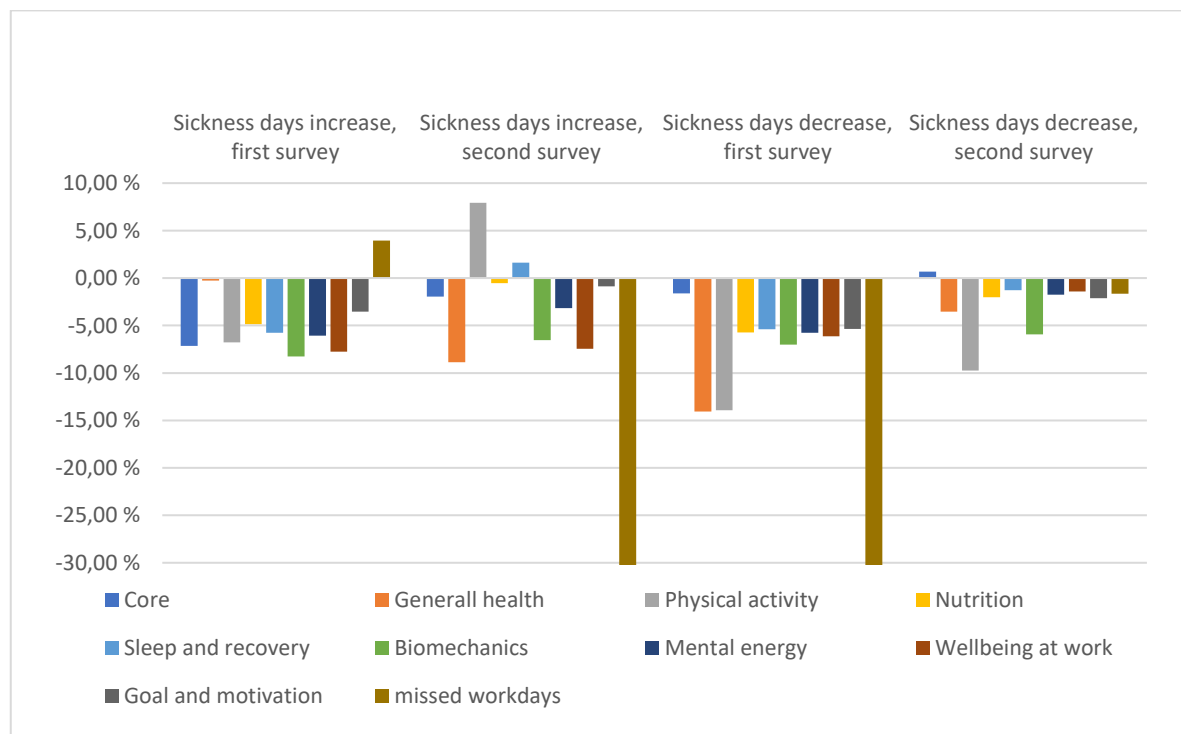


Figure 42. Average answers in wellbeing areas with people whose number of sickness days decreased or increased. Answers compared to average.

Figure 42 shows that those who experienced an increase in sickness absences suffered fewer absences than average in the first study. However, in other areas they scored worse or as well as the average. Their general health was very close to average in the first survey but decreased in the second survey as the question ‘missed workdays’ falls under the general health area. Thus, it does not give any real information. In the second survey several areas improved, but there was a significant increase in the number of missed workdays. The large increase in the number of missed days due to sickness absence can probably be explained by the increased physical activity of individuals, which has led to an increase in the number of physical activity-related injuries.

The members of the sample whose sickness absence rates fell scored lower in all areas in the first survey, but in the second survey the responses increased and were closer to the average answers. Similar changes can also be observed when comparing the percentage changes between individuals survey responses (Figure 43).

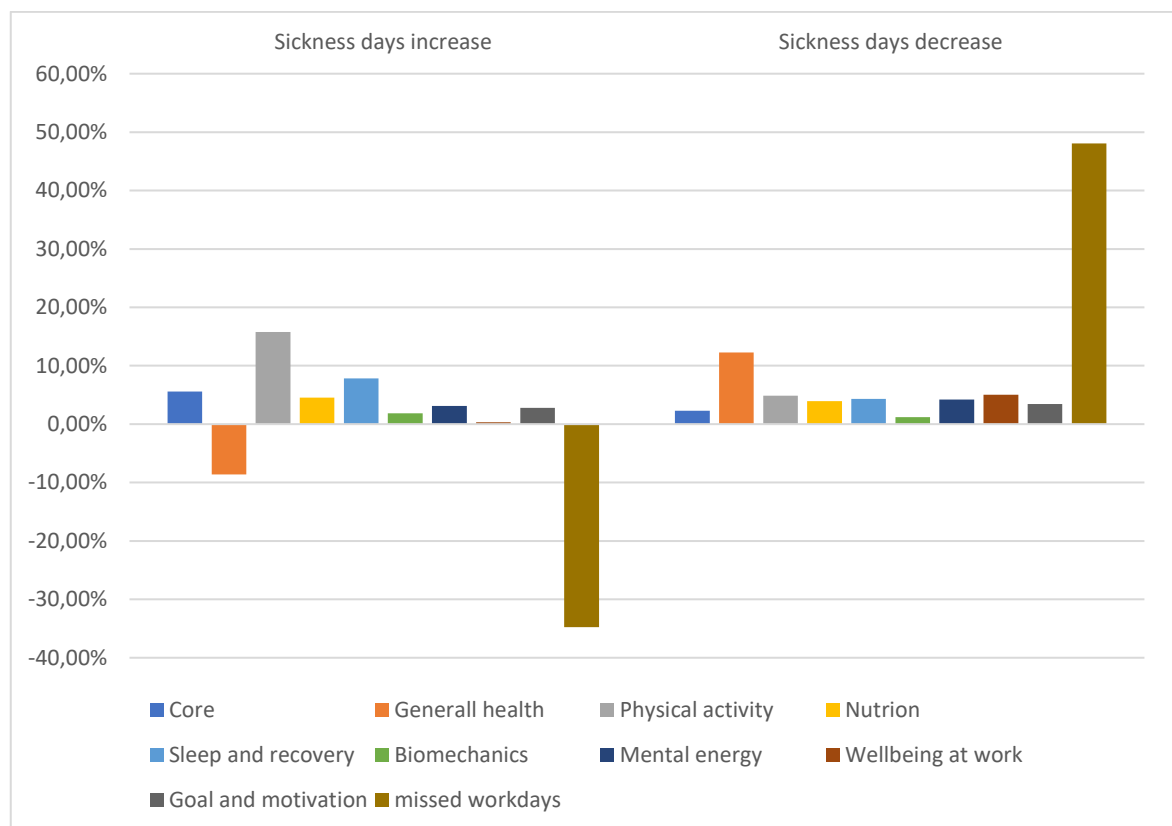


Figure 43. Changes in wellbeing domains between surveys with people whose sickness days decreased or increased.

In both groups, well-being increased in several areas. However, overall health status declined for individuals with an increase in sick days because the question is included in the general health domain questions. The increase in absenteeism is therefore better explained by well-being at work, which is correlated with absenteeism ($r = 0.22$ $p < 0.01$). However, there seems to be an inconsistency in the responses (Figure 44).

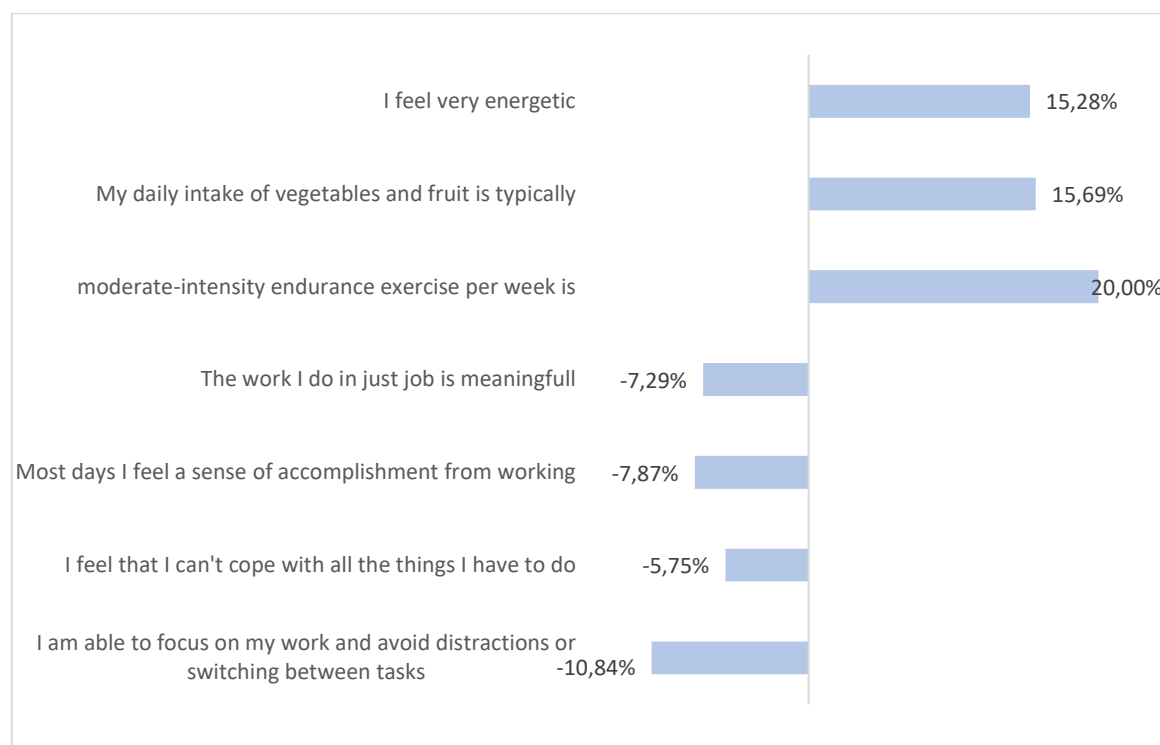


Figure 44 Biggest change in answers with people whose sickness days increased.

Figure 44 shows that there has been a positive trend in several questions, although the number of sickness days has increased. Individuals are adopting healthier lifestyles and are more energetic, but their sickness days have increase. Thus, sickness days increase cannot be explained by lifestyle changes. It is more likely to explained by changes in individuals' attitudes toward their work and mental wellbeing. Indeed, individuals' experiences of work and their ability to cope with work tasks have decreased between studies. However, the opposite effects were not observed for the sample members whose sickness days decreased except in question “I feel that I cannot cope with all the things I have to do”. Figure 45 shows the

biggest changes for individuals who experienced a reduction in sickness days.

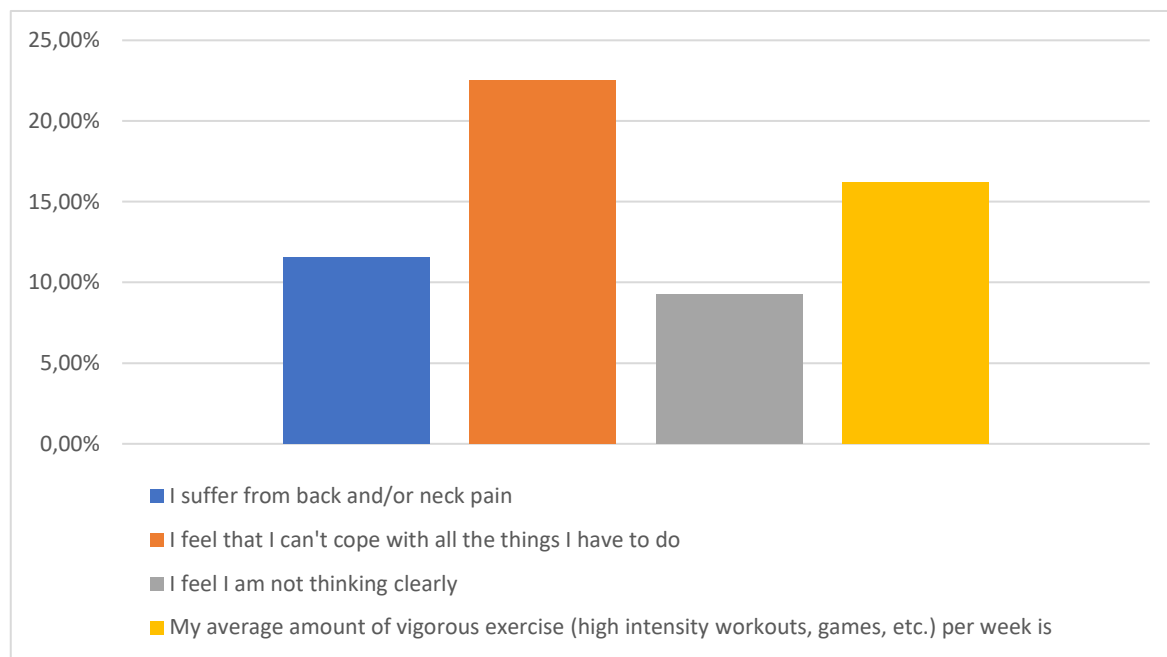


Figure 45. Biggest change in answers with people whose sickness days decreased.

The biggest change between the responses can be observed in individuals' experience of not being able to cope with all their tasks. Individuals decreased or increased perception of their own ability may also reflect their stress and life balance levels. This, in turn, potentially affects their vulnerability to becoming ill. Figure 47 shows that individuals who experienced a reduction in absenteeism between surveys also suffer less pain and are more physically active than before. While their physical activity has increased since the second survey, it is still 9.7% below average. This suggests that the amount of physical activity may have an impact on absenteeism, but only up to a certain limit.

6 Summary and Conclusions

The study examined how the returns of well-being programs are measured, whether they are profitable and what factors explain individuals' differences in productivity and health behaviors. Well-being can be influenced by different programs, but the expected returns of different programs vary considerably. One of the factors causing variation in results is the way well-being impacts are measured, as studies often measure different things in different ways. At the moment, the effects of well-being programs cannot be reliably measured in monetary terms. Many organizations have moved to measuring the impact of programs using a value-on-investment methodology that captures not only the monetary but also the non-monetary impacts.

Meta-analyses suggest that health promotion programs that focus on individuals' mental health and stress have a positive impact on health and potentially improve individuals' work performance and reduce absenteeism. The analysis of the study shows that the most important drivers of well-being change are motivation, mental health/energy, well-being at work and life enjoyment. Without motivation to change, programs may not be beneficial. Individuals need to be mentally prepared to make changes. Programs may also be able to help individuals become more motivated. However, no one should be pressured to participate, as it will undermine individuals' motivation and the results in the long term. To achieve benefits of programs, the whole organization, and in particular managers, must be supportive and encouraging. Otherwise, the potential benefits of the programs will be undermined. Well-being programs do not always have to be particularly extensive, as different screening measures can already encourage individuals to take action to improve their well-being. However, many individuals need help to achieve their goals, which is where wellness programs can be useful. In such cases, participants and companies are likely to benefit most from the programs.

6.1 Answering the research question

The aim of the study was to find out what effects well-being programs have, how these effects are measured and what factors explains individuals' well-being changes. In order to achieve the research objective, the research questions were formulated at the beginning of the work to approach the problem. Based on previous theory and analysis of the company's data, these questions are discussed in the following sections.

1. How can organizations evaluate and quantify the returns of the well-being program?

Companies often try to translate the effects of well-being programs into monetary terms, but this is often difficult as data is limited and unreliable. Very few studies have been able to collect large amounts of objective data for analysis. Often the measurements of programs are based on different assumptions and subjective information from individuals. This subjective data from participants is often problematic in many ways, for example, individuals may lie in questions or give inconsistent answers. Several studies and companies in the field have criticized the meaning of converting well-being effects into a monetary value as it does not give a true picture of the programs impacts. They suggest that companies should move from measuring ROI to VOI, which measures not only monetary effects but also changes in well-being. At present, this is perhaps the best possible way to assess the impact of programs. In the future, as more data become available, it may be possible to develop more accurate sectoral and group-specific models that reflects more precisely the returns of programs. However, this information should be collected from different well-being program providers in the same country, as different program providers and countries have a significant impact on the costs and potential returns of programs. Consequently, the work was not able to create a model that describes the monetary impact of well-being programs.

2. What is the evidence on the financial effectiveness of well-being at work programs?

Based on previous theory, the expected returns to wellbeing programs vary widely. Only a few large-scale studies have been published that have comprehensively investigated well-being programs returns. The results of these RCTs studies suggest that the expected returns of programs are not positive. However, these studies did not comprehensively consider all the factors that may affect the observed expected returns or the motivation of individuals to make changes. In some smaller studies that have used objective data to calculate the impact of programs, the expected returns to programs have been positive, as in the Phillips et al. (2014) study. These programs, which show positive returns, often focus on mental well-being. However, the potential benefits of investing in well-being are difficult to assess. It is likely that many programs that focus on high-productivity individuals can generate positive expected returns because their disability and absenteeism impose significant costs on firms, but more research is needed.

3. What factors explain individuals' wellbeing and changes in it?

Individual well-being is best explained by the different dimensions of well-being together. Individuals who perform poorly in one domain tend to perform worse in all domains. In particular, individuals with low levels of mental well-being and life satisfaction performed poorly on several dimensions in survey analysis. On the other hand, individuals who were strong in these domains performed well in all well-being domains. This can be explained by the correlation between wellbeing areas as individuals' preferences in their mental well-being and life enjoyment had the strongest correlations with different domains of well-being. Individuals' life enjoyment and the way they spend their time at work best explain their work performance and changes in it. The most important factors behind changes in individuals' well-being are probably their own motivation and willingness to change. Without the necessary mental and physical resources, it is difficult to make changes.

The potential benefits of well-being programs are likely to come from people who are highly motivated, willing to change their health behavior and work in high productivity jobs. However, benefits are difficult to demonstrate because many effects are indirect. In summary, the benefits of wellness programs are generally unclear, but the analysis were able to identify

some differences between productive and non-productive individuals. Companies could perhaps take advantage of this when recruiting new employees or firing old ones. However, this may not be particularly ethical.

6.2 The reliability and the further research of the study

The researcher often has assumptions about the direction of the work, which can affect the outcome of the work (Metsämuuronen, 2008, 48). To avoid this, the researcher has tried to be as objective as possible. Scientific studies often compare different studies in the literature and their results, as in this case. However, Coolican (2004, 46-49) points out that comparing results with past results does not always produce particularly reliable findings because it does not take into account all external influencing factors or correlations between them. The results are therefore indicative, as the literature synthesis combines and compares many studies.

The reliability of the empirical part of the thesis is relatively low, as it consists of subjective responses from individuals. The data sample is based on individuals who have some level of interest in the topic, which is why it cannot be generalized to the general population. The results can therefore be applied to people who are interested in the subject. On the other hand, the data also consists of people whose employer has subscribed or intends to subscribe to the Hints Performance program. This extends the sample to people who are not so interested in the programs. This can have a negative impact on the quality of people's responses, as they may be pressured to fill in questionnaires and have less knowledge about the subject. In particular, individuals with less experience, knowledge or ability tend to overestimate their own abilities compared to reality (Dunning, 2011). The need for objective data is therefore important in assessing the profitability of programs. There are also potential cohort effects in the data that effects on individuals' comparisons. The data used in this study was collected during a period when major changes have occurred in their environment, such as the spread of Covid-19 disease and the war between Ukraine and Russia. They may have had a significant impact on the well-being of individuals at the time of their response.

In the future, the ability and motivation of firms and individuals to embrace change should be considered when calculating the expected returns from well-being programs. If the motivation of organizations and individuals to embrace change is weak, the wellbeing program may not be worthwhile. However, it is important to note that individuals' motivations and needs are not always the same and they change over time. In the future, individuals' motivation should therefore be measured more accurately in the context of work outcomes.

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Appendices

Appendix 1. Average answers per questions from before surveys.

Question	Average	N
1. Age	39,68945	1507
2. Height	174,58	1507
3. Weight	77,68414	1507
4. BMI	25,36325	1507
5. Life enjoyment	7,197036	2497
6. Work performance	7,184622	2497
7. I am satisfied with my overall health	3,615138	2497
8. I am able to manage any health concerns or conditions that I may have	3,748098	2497
9. I have a strong desire to keep myself physically healthy	4,443332	2497
10. I am aware of possible health risk factors that I may have due to my family history	3,90028	2497
11. I have missed work due to a personal illness during the past 6 months	4,682819	2497
12. My weekly alcohol consumption is on average (1 unit = ½ pint of beer, ½ glass of wine, single measure of spirits)	4,536644	2497
13. I smoke or use tobacco products	4,553865	2497
14. My daily life involves a lot of physical activity and exercise	2,836203	2497
15. My average amount of moderate (e.g. brisk walking, slow running) to intense (e.g. games, fast running) endurance exercise per week i	3,063676	2497
16. I do some resistance or strenght training	2,776131	2497
17 I enjoy being physically active and doing exercise	4,241089	2497
18. I am content with my current physical fitness level	2,739688	2497
19. I feel confident in my movement skills and abilities (agility, coordination, balance, etc.)	3,456147	2497
20. During a normal weekday, I accumulate short bouts of physical activity through manual work, walking, gardening, cleaning, active commuting, exercise, etc.	2,622347	2497

21. My diet is made up of healthy good quality foods and drinks	3,636764	2497
22. My daily intake of vegetables and fruit is typically (1 portion = 1 fistful)	2,275531	2497
23. I am able to maintain stable energy levels throughout the day	3,217861	2497
24. I experience symptoms related to digestive discomfort (e.g. bloating, heart burn, abdominal pain, constipation, loose stool)	4,036043	2497
25. I am satisfied with my body composition and weight	2,78374	2497
26. I pay attention to my daily water intake or hydration levels	3,578294	2497
27. I feel that I am very disciplined with what I eat and drink	2,786544	2497
28. I get sufficient amounts of sleep and general recovery each day	3,009612	2497
29. Average amount of sleep during workdays	3,169403	2497
30. I am able to relax during my breaks at work	2,819784	2497
31. I am able to keep my bedtime consistent	3,161794	2497
32. I am able to relax and unwind for a sufficient period before bedtime	3,055667	2497
33. Tiredness has a negative effect on my work performance	3,128955	2497
34. I significantly suffer from jetlag or other travel related fatigue	3,876652	2497
35. I am able to do daily activities and exercise without pain, discomfort or limitation	3,803364	2497
36. During a typical weekday, I sit on average (at work, at home, while commuting, etc.)	3,676812	2497
37. I do exercises that develop my mobility and flexibility	2,808971	2497
38. On average, I break up my sitting time at work	2,90829	2497
39. I have missed work due to muscular pain or injury	4,932319	2497
40. I am confident in my ability to be physically active	3,941129	2497
41. I suffer from back and/or neck pain	3,246696	2497
42. My general energy level is good	3,56628	2497
43. I am able to focus on my work and avoid distractions or switching between tasks	3,163396	2497

44. I take part in activities and hobbies in my free time that help recharge my energy levels	2,713656	2497
45. I tend to "ruminate" or dwell on things that happen to me for a really long time afterward	3,028434	2497
46. I am able to spend sufficient time with the people that matter most to me	3,169804	2497
47. My work energises and inspires me	3,598718	2497
48. I feel stressed or overwhelmed with my work	3,10813	2497
49. I feel like I have found really significant meaning in my life	3,412495	2497
50. I have a system of values and beliefs that guide my daily activities	3,901081	2497
51. I am able to manage and balance my different roles and responsibilities well	3,52463	2497
52. I feel good when I think of the things, I have accomplished in life	4	2497
53. My life interests and excites me	3,925911	2497
54. I feel that I am in control of my life	3,690829	2497
55. I feel that my life is making a positive impact on the people around me	3,748498	2497

Appendix 2. Regression model from before answers.

Coefficients							
	Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
Questions	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
(Constant)	1,65	0,20		8,35	0,000	1,27	2,04
5. Life enjoyment	0,35	0,02	0,34	17,10	0,000	0,31	0,39
47. My work energises and inspires me	0,32	0,03	0,20	11,19	0,000	0,26	0,37
34. I significantly suffer from jetlag or other travel related fatigue	0,21	0,03	0,15	7,98	0,000	0,16	0,26
33. Tiredness has a negative effect on my work performance	0,19	0,03	0,11	6,10	0,000	0,13	0,25
51. I am able to manage and balance my different roles and responsibilities well	0,15	0,03	0,09	4,77	0,000	0,09	0,22
46. I am able to spend sufficient time with the people that matter most to me	-0,08	0,02	-0,06	-3,41	0,001	-0,13	-0,04
27. I feel that I am very disciplined with what I eat and drink	-0,07	0,02	-0,05	-2,84	0,004	-0,12	-0,02
42. My general energy level is good	0,15	0,03	0,09	4,37	0,000	0,08	0,21
14. My daily life involves a lot of	0,08	0,02	0,07	3,72	0,000	0,04	0,12

physical activity and exercise							
25. I am satisfied with my body composition and weight	-0,08	0,02	-0,06	-3,47	0,001	-0,13	-0,04
48. I feel stressed or overwhelmed with my work	0,09	0,03	0,06	3,19	0,001	0,04	0,15
28. I get sufficient amounts of sleep and general recovery each day	-0,12	0,03	-0,09	-4,60	0,000	-0,18	-0,07
29. Average amount of sleep during workdays	0,13	0,03	0,08	4,15	0,000	0,07	0,19
50. I have a system of values and beliefs that guide my daily activities	0,13	0,03	0,08	4,09	0,000	0,07	0,20
53. My life interests and excites me	-0,08	0,04	-0,04	-2,13	0,033	-0,15	-0,01
30. I am able to relax during my breaks at work	-0,06	0,02	-0,05	-2,73	0,006	-0,11	-0,02
49. I feel like I have found really significant meaning in my life	-0,07	0,03	-0,05	-2,51	0,012	-0,13	-0,02
40. I am confident in my ability to be physically active	-0,07	0,03	-0,05	-2,69	0,007	-0,13	-0,02
7. I am satisfied with my overall health	0,07	0,03	0,05	2,47	0,014	0,01	0,13
13. I smoke or use tobacco products	-0,05	0,02	-0,04	-2,30	0,021	-0,09	-0,01
36. During a typical weekday, I sit on average (at work, at home, while commuting, etc.)	0,04	0,02	0,03	1,99	0,046	0,00	0,08

Appendix 3. Statics from before and after surveys

Statistics							
Question		Mean	N	Std. De- viation	Std. Er- ror Mean	Correla- tion	Signifi- cance (two-si- ded p)
1. Life satisfaction	After	7,38	210	1,17	0,08	.541	<,001
	Before	7,24	210	1,22	0,08		
2. Work perfor- mance	After	7,39	210	1,26	0,09	.446	<,001
	Before	7,45	210	1,19	0,08		
3. I feel alive and vi- tal	After	3,93	210	0,68	0,05	.435	<,001
	Before	3,86	210	0,79	0,05		
4. My life interests and excites me	After	4,04	210	0,72	0,05	.561	<,001
	Before	3,98	210	0,81	0,06		
5. I feel satisfied with my personal relationships	After	4,10	210	0,92	0,06	.528	<,001
	Before	4,02	210	0,90	0,06		
6. I feel that my life is making a positive impact on the peo- ple around me	After	4,08	210	0,65	0,04	.457	<,001
	Before	3,93	210	0,73	0,05		

7. I feel that I lead a purposeful and meaningful life	After	4,00	210	0,75	0,05	.515	<,001
	Before	3,86	210	0,81	0,06		
8. I have a system of values and beliefs that guide my daily activities	After	4,30	210	0,70	0,05	.429	<,001
	Before	4,17	210	0,77	0,05		
9. I feel that I am making progress towards accomplishing my goals	After	4,01	210	0,62	0,04	.438	<,001
	Before	3,89	210	0,71	0,05		
10. I am able to manage and balance my different roles and responsibilities well	After	3,83	210	0,73	0,05	.378	<,001
	Before	3,72	210	0,78	0,05		
11. I feel that I am in control of my life	After	3,84	210	0,76	0,05	.546	<,001
	Before	3,78	210	0,82	0,06		
12. I consider myself to be very healthy	After	3,65	210	0,83	0,06	.564	<,001
	Before	3,48	210	0,87	0,06		
13. I have missed work due to a personal illness during the past 6 months	After	4,65	210	0,86	0,06	.448	<,001
	Before	4,61	210	0,90	0,06		

14. My weekly alcohol consumption is on average	After	4,27	210	1,02	0,07	.794	<,001
	Before	4,15	210	1,07	0,07		
15. I smoke or use tobacco products	After	4,39	210	1,26	0,09	.856	<,001
	Before	4,41	210	1,20	0,08		
16. My average amount of moderate intensity (e.g. brisk walking, slow steady state running, etc.) endurance exercise per week is	After	3,20	210	1,28	0,09	.640	<,001
	Before	3,06	210	1,34	0,09		
17. My average amount of vigorous exercise (high intensity workouts, games, etc.) per week is	After	2,58	210	1,52	0,10	.651	<,001
	Before	2,38	210	1,49	0,10		
18. I do some form of resistance or strength training (includes exercise with bodyweight, machines or weights)	After	2,68	210	1,58	0,11	.674	<,001
	Before	2,59	210	1,55	0,11		
19. My daily step count is on average	After	3,17	210	1,24	0,09	.686	<,001
	Before	2,98	210	1,16	0,08		
20. My diet choices help me to maintain	After	3,79	210	0,78	0,05	.507	<,001

stable energy levels throughout the day	Before	3,65	210	0,87	0,06		
21. I experience symptoms related to digestive discomfort (e.g. bloating, heart burn, abdominal pain, constipation)	After	4,00	210	1,09	0,08		
	Before	4,00	210	1,13	0,08	.658	<,001
22. I am satisfied with my body composition and weight	After	3,07	210	1,08	0,07		
	Before	2,86	210	1,10	0,08	.690	<,001
23. My daily intake of high sugar foods and drinks is typically	After	3,98	210	1,05	0,07		
	Before	3,98	210	0,97	0,07	.534	<,001
23. My daily intake of vegetables and fruit is typically	After	2,32	210	0,96	0,07		
	Before	2,31	210	0,99	0,07	.607	<,001
25. My daily intake of water is typically	After	3,29	210	1,13	0,08		
	Before	3,19	210	1,17	0,08	.789	<,001
26. I often feel tired during the day	After	2,93	210	0,99	0,07		
	Before	2,76	210	1,01	0,07	.582	<,001
27. The quality of my sleep is in general very good	After	3,42	210	1,01	0,07	.571	<,001

	Before	3,28	210	1,01	0,07		
28. My average amount of sleep during workdays is	After	3,22	210	0,83	0,06	.635	<,001
	Before	3,15	210	0,84	0,06		
	After	4,72	210	0,65	0,04		
29. I suffer from jetlag or general travel related fatigue	Before	4,72	210	0,59	0,04	.545	<,001
	After	4,35	210	0,86	0,06		
	Before	4,34	210	0,90	0,06		
30. I feel very tired due to fatigue from exercise	After	3,20	210	1,10	0,08	.541	<,001
	Before	2,98	210	1,24	0,09		
	After	3,87	210	0,98	0,07		
32. I am able to do daily activities and exercise without pain, discomfort or limitation	Before	3,85	210	1,03	0,07	.547	<,001
	After	3,52	210	0,98	0,07		
	Before	3,45	210	0,95	0,07		
33. I experience physical discomfort that relates to ergonomics while working	After	3,25	210	1,08	0,07	.722	<,001
	Before	3,25	210	1,08	0,07		
	After	3,25	210	1,08	0,07		
34. I suffer from back and/or neck pain	After	3,25	210	1,08	0,07	.722	<,001

	Before	3,17	210	1,02	0,07		
35. I do exercises that develop my mobility and flexibility	After	2,83	210	1,37	0,09		
	Before	2,66	210	1,36	0,09	.631	<,001
	After	3,36	210	1,07	0,07		
36. During a typical weekday, I sit on average	Before	3,23	210	1,07	0,07	.455	<,001
	After	2,57	210	1,08	0,07		
	Before	2,45	210	1,06	0,07	.399	<,001
37. On average, I break up my sitting time at work every...	After	3,49	210	0,80	0,06		
	Before	3,29	210	0,92	0,06	.506	<,001
	After	3,71	210	0,87	0,06		
38. I feel very energetic	Before	3,49	210	0,89	0,06	.525	<,001
	After	3,80	210	0,78	0,05		
	Before	3,80	210	0,81	0,06	.535	<,001
39. I have time for my personal needs during my free time	After	3,50	210	0,98	0,07	.580	<,001
	Before	3,50	210	0,98	0,07		
	After	3,50	210	0,98	0,07		
40. My work energises and inspires me	Before	3,50	210	0,98	0,07		
	After	3,50	210	0,98	0,07		
	Before	3,50	210	0,98	0,07		
41. I am able to focus on my work and avoid distractions or	After	3,50	210	0,98	0,07		
	Before	3,50	210	0,98	0,07		
	After	3,50	210	0,98	0,07		

switching between tasks	Before	3,45	210	0,97	0,07		
42. I am satisfied with the way I use my time at work	After	3,73	210	0,75	0,05	.509	<,001
	Before	3,74	210	0,81	0,06		
	After	3,50	210	1,02	0,07		
43. I'm concerned about choking under pressure	Before	3,37	210	0,99	0,07	.596	<,001
	After	3,50	210	1,02	0,07		
	Before	3,37	210	0,99	0,07		
44. I am always worrying about something	After	2,96	210	1,05	0,07	.671	<,001
	Before	2,76	210	1,01	0,07		
	After	3,40	210	1,01	0,07		
45. I feel that I can't cope with all the things I have to do	Before	3,31	210	0,96	0,07	.216	<,002
	After	3,40	210	1,01	0,07		
	Before	3,31	210	0,96	0,07		
46. I am able to spend sufficient time with the people that matter most to me	After	3,53	210	0,91	0,06	.415	<,001
	Before	3,42	210	0,90	0,06		
	After	4,14	210	0,72	0,05		
47. I feel supported by the people around me	Before	4,10	210	0,77	0,05	.545	<,001
	After	4,14	210	0,72	0,05		
	Before	4,10	210	0,77	0,05		
48. I am enthusiastic about my job	After	4,18	210	0,75	0,05	.553	<,001

	Before	4,22	210	0,76	0,05		
49. Most days I feel a sense of accomplishment from working	After	3,86	210	0,81	0,06	.569	<,001
	Before	3,82	210	0,83	0,06		
50. I continue to learn more and more as time goes by	After	4,29	210	0,67	0,05	.476	<,001
	Before	4,31	210	0,71	0,05		
51. The work I do on this job is meaningful to me	After	4,22	210	0,68	0,05	.479	<,001
	Before	4,23	210	0,72	0,05		
52. I feel free to do my job the way I think it could best be done	After	4,14	210	0,79	0,05	.327	<,001
	Before	4,12	210	0,73	0,05		
53. At work, there are people who really understand me	After	4,16	210	0,71	0,05	.388	<,001
	Before	4,02	210	0,75	0,05		
54. I have energy and spirit	After	3,99	210	0,72	0,05	.396	<,001
	Before	3,90	210	0,77	0,05		
55. I feel physically drained	After	3,41	210	0,83	0,06	.505	<,001

	Before	3,22	210	0,87	0,06		
	After	3,70	210	0,76	0,05		
56. I feel I am not thinking clearly	Before	3,51	210	0,79	0,05	.621	<,001
	After	3,98	210	0,84	0,06		
57. I feel I am not capable of investing emotionally in co-workers and customers	Before	3,84	210	0,90	0,06	.387	<,001
	After	6,23	210	2,11	0,15		
58. How would you rate your need or urgency to change some of your behaviours related to wellbeing?	Before	6,37	210	2,02	0,14	.450	<,001
	After	6,95	210	1,72	0,12		
59. How would you rate your motivation to change some of your behaviours related to wellbeing?	Before	7,04	210	1,87	0,13	.401	<,001
	After	7,65	210	1,56	0,11		
60. How would you rate your current abilities and knowledge related to improving your health and wellbeing?	Before	7,18	210	1,71	0,12	.338	<,001
	After	7,25	210	1,60	0,11		
61. How supportive or enabling do you feel that your social and physical environment is for improving your health and wellbeing?	Before	7,02	210	1,67	0,12	.480	<,001

Appendix 4. Correlations between areas from before and after data.

Correlation between well-being areas, work performance and personal sickness days											
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Core	1,000	0,142*	0,116	0,191**	0,040	0,175*	0,455**	0,399**	0,010	0,214**	-0,088
2. General health	0,142*	1,000	-0,037	0,060	-0,012	0,098	0,190**	0,100	0,054	0,092	0,418**
3. Physical activity	0,116	-0,037	1,000	0,120	-0,036	.215**	0,096	-0,010	0,028	-0,038	0,007
4. Nutrition	0,191**	0,060	0,120	1,000	0,117	0,185**	0,225**	0,127	-0,004	0,121	-0,027
5. Sleep and recovery	0,040	-0,012	-0,036	0,117	1,000	0,098	0,118	0,034	-0,031	0,077	0,028
6. Biomechanics	0,175*	0,098	0,215**	0,185**	0,098	1,000	0,208**	0,199**	-0,012	0,009	0,011
7. Mental energy	0,455**	0,190**	0,096	0,225**	0,118	0,208**	1,000	0,442**	0,096	0,275**	0,053
8. wellbeing at work	0,399**	0,100	-0,010	0,127	0,034	0,199**	0,442**	1,000	0,047	0,286**	0,219**
9. Goal and motivation	0,010	0,054	0,028	-0,004	-0,031	-0,012	0,096	0,047	1,000	0,081	0,011
10. Work performance	0,214**	0,092	-0,038	0,121	0,077	0,009	0,275**	0,286**	0,081	1,000	0,090
11. Personal sickness days	-0,088	0,418**	0,007	-0,027	0,028	0,011	0,053	0,219**	0,011	0,090	1,000

Note: *. Correlation is significant at the 0.05 level (2-tailed)
**. Correlation is significant at the 0.01 level (2-tailed)

Appendix 5. New survey regression model coefficients. Data from before and after surveys.

N = 420.

Coefficients							
Question	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1,29	0,40		3,25	0,00	0,51	2,07
Question42	0,53	0,07	0,33	8,10	0,00	0,40	0,66
Question1	0,30	0,04	0,29	6,96	0,00	0,22	0,38
Question40	0,25	0,07	0,16	3,76	0,00	0,12	0,38
Question60	0,08	0,03	0,11	2,95	0,00	0,03	0,14
Question56	0,14	0,06	0,09	2,19	0,03	0,01	0,26
Question47	-0,16	0,07	-0,10	-2,45	0,01	-0,29	-0,03
Question53	0,14	0,07	0,08	2,11	0,04	0,01	0,27

Appendix 6. Difference-in-difference regression coefficients. Data from before and after surveys. N = 200.

Coefficients							
Question	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-0,13	0,06		-2,15	0,03	-0,25	-0,01
Question1	0,33	0,06	0,36	5,86	0,00	0,22	0,44
Question42	0,42	0,08	0,31	5,12	0,00	0,26	0,59
Question5	0,29	0,07	0,25	4,10	0,00	0,15	0,42
Question40	0,28	0,08	0,21	3,31	0,00	0,11	0,44
Question16	0,18	0,05	0,19	3,26	0,00	0,07	0,28
Question45	-0,11	0,05	-0,14	-2,26	0,03	-0,21	-0,01
Question7	-0,24	0,09	-0,18	-2,77	0,01	-0,42	-0,07