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Master of Business Administration (MBA)

Postgraduate Dissertation

Unraveling the secrets of Subjective Well-Being at Work in the
Greek labour market via a Self-Determination Theory (SDT) Lens

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Supervisor: Prof. Dr. Michalis Galanakis

Patras, Greece, September 2026

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Unraveling the secrets of Subjective Well-Being at Work in the
Greek labour market via a Self-Determination Theory (SDT) Lens /
Postgraduate dissertation

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*“To my parents for their unconditional love and unwavering support,
To my professors, for challenging and guiding me throughout my academic endeavours,
To the hardships I have faced, for they shaped me the most,
To all my dear friends, for they imbue my life with meaning and purpose,
To my enduring dedication towards self-actualization,
To the celebration of happy endings, but also to the uneasiness of new beginnings.”*

“One can choose to go back toward safety or forward toward growth. Growth must be chosen again and again; fear must be overcome again and again.”– Abraham Maslow

Abstract

Employee well-being has emerged as a critical pathway to achieving organizational performance and sustained competitive advantage. In the case of Greece, a country highly resistant to change (per Hofstede's cultural dimensions), executives struggle to adopt contemporary management practices, limiting their employees' effectiveness and engagement. Self-Determination theory (SDT), developed by Edward L. Deci and Richard M. Ryan, provides a theoretical framework for understanding human motivation and well-being. According to SDT, human beings have three (3) basic psychological needs to be satisfied in order to function optimally.

- Autonomy (the need to exercise choice according to one's true self),
- Competence (the need to develop new skills and capabilities, to gain expertise),
- Relatedness (the need to belong and to relate to other human beings).

Greater satisfaction of the above needs translates to higher occupational well-being levels. The current thesis assesses the role of the above psychological needs, as well as external rewards such as pay, on the well-being of employees in the Greek labour market. By conducting a cross-sectional survey using an extensive questionnaire, a sample of 174 participants who actively work in Greece and employing a linear multiple-regression model ($R^2=.646$), the results show that there are two (2) main predictors that are positively associated with greater employee well-being.

- Pay satisfaction and
- Autonomy satisfaction

All variables of the regression model were measured with a 7-point Likert scale. The thesis concludes with practical steps that need to be adopted by managers and leaders, underlining the significance of fair and transparent compensation systems, as well as autonomy-supportive work environments, in cultivating employee well-being.

Keywords

Self-Determination Theory, Well-Being, Employee Motivation, Greek labour market

Αποκωδικοποιώντας την υποκειμενική ευημερία στην εργασία
εντός της Ελληνικής αγοράς εργασίας μέσω του πρίσματος της
Θεωρίας Αυτοπροσδιορισμού / Μεταπτυχιακή Διπλωματική
Εργασία

Σωτήριος Γιαννουλίδης

Περίληψη

Η ευημερία των εργαζομένων έχει αναδειχθεί ως κρίσιμος παράγοντας για την επίτευξη οργανωσιακής απόδοσης και τη διατήρηση ανταγωνιστικού πλεονεκτήματος. Στην περίπτωση της Ελλάδας, μιας χώρας που χαρακτηρίζεται από υψηλή αντίσταση στην αλλαγή (σύμφωνα με τις πολιτισμικές διαστάσεις του Hofstede), τα διοικητικά στελέχη δυσκολεύονται να υιοθετήσουν σύγχρονες πρακτικές διοίκησης, γεγονός που περιορίζει την αποτελεσματικότητα και την προσήλωσή τους. Η Θεωρία Αυτοπροσδιορισμού (Self-Determination Theory – SDT), που αναπτύχθηκε από τους Edward L. Deci και Richard M. Ryan, αποτελεί ένα ισχυρό θεωρητικό πλαίσιο για την κατανόηση της ανθρώπινης παρακίνησης και ευημερίας. Σύμφωνα με τη συγκεκριμένη θεωρία, οι άνθρωποι έχουν έμφυτες τρεις (3) βασικές ψυχολογικές ανάγκες, των οποίων η ικανοποίηση είναι απαραίτητη για τη βέλτιστη λειτουργία τους:

- Αυτονομία (η ανάγκη για επιλογή και αυτοκαθορισμό),
- Δεξιότητες (η ανάγκη για ανάπτυξη δεξιοτήτων με σκοπό την εξειδίκευση),
- Συσχέτιση (η ανάγκη για ένταξη σε κοινωνικές ομάδες και ουσιαστικές σχέσεις).

Η ολοένα και μεγαλύτερη ικανοποίηση των παραπάνω αναγκών μεταφράζεται σε υψηλότερα επίπεδα ευημερίας στην εργασία. Η παρούσα εργασία εξετάζει το ρόλο των παραπάνω ψυχολογικών αναγκών, καθώς και εξωτερικών παραγόντων όπως η ικανοποίηση από χρηματικές αποδοχές, στη διαμόρφωση της ευημερίας των εργαζομένων στην Ελληνική αγορά εργασίας. Διεξάγοντας μία εγκάρσια έρευνα χρησιμοποιώντας ένα εκτενές ερωτηματολόγιο, ένα δείγμα 174 εργαζομένων που δραστηριοποιούνται ενεργά στην Ελλάδα, και ένα μοντέλο γραμμικής πολλαπλής παλινδρόμησης ($R^2=.646$), τα αποτελέσματα καταδεικνύουν πως υπάρχουν δύο βασικές προβλεπτικές μεταβλητές οι οποίες συσχετίζονται θετικά με υψηλότερα επίπεδα εργασιακής ευημερίας.

- Η ικανοποίηση από τις χρηματικές αποδοχές και
- Η ικανοποίηση της ψυχολογικής ανάγκης για αυτονομία

Όλες οι μεταβλητές του μοντέλου παλινδρόμησης μετρήθηκαν με χρήση κλίμακας Likert 7 σημείων. Η εργασία ολοκληρώνεται με την παρουσίαση πρακτικών προτάσεων για τη διοίκηση και την ηγεσία, υπογραμμίζοντας τη σημασία δίκαιων και διαφανών συστημάτων αμοιβής, καθώς και τη δημιουργία εργασιακών περιβαλλόντων που υποστηρίζουν την αυτονομία, με στόχο την καλλιέργεια της εργασιακής ευημερίας.

Λέξεις – Κλειδιά

Θεωρία Αυτοπροσδιορισμού, Ευημερία, Παρακίνηση ανθρώπινου δυναμικού, Ελληνική αγορά εργασίας

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List of Abbreviations & Acronyms

AF	Autonomy frustration
ANOVA	Analysis of variance
AS	Autonomy satisfaction
BSc	Bachelor of Science
CF	Competence frustration
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
CS	Competence satisfaction
CTR	Controlling external rewards
EAP	Employee assistance programme
ERG	Existence, relatedness, growth
Gen X	Generation X
Gen Y	Generation Y
Gen Z	Generation Z
HR	Human resources
IB	Ill-being
INF	Informational tendency for external rewards
MSc	Master of Science
PFP	Pay for performance
PhD	Doctor of Philosophy
PPS	Purchasing power standards
PS	Pay satisfaction
RF	Relatedness frustration
RMSEA	Root mean square error of approximation
RS	Relatedness satisfaction
SDT	Self-determination theory
SEM	Structural equation modeling
SPSS	Statistical package for the social sciences
SRMR	Standardized root mean square

TLI	Tucker-Lewis Index
WB	Well-Being

List of Statistical Symbols

α	Cronbach's alpha
β_0	Intercept
$\beta_1, \beta_2, \dots$	Regression coefficients
η^2	Size effect (ANOVA)
F	F-statistic
t	t-statistic
p	Statistical significance level
r	Pearson correlation coefficient
ρ	Spearman correlation coefficient
R^2	Coefficient of determination
$\bar{x}$	Sample or Group mean
N	Sample size
s	Standard deviation

1. Introduction

1.1 Recent trends in well-being of the global workplace

According to the 2025 Gallup survey, named *State of the Global Workplace* (Gallup, 2025) well-being levels are consistently decreasing. Life evaluation from global employees shows that 2 out of 3 employees are either struggling or suffering in life, while only 1 out of 3 employees is thriving. In the developed world, particularly in regions such as Europe, the situation seems a bit more optimistic than the global average; however, there is still considerable room for improvement, i.e., almost 1 out of 2 employees are grading their life evaluation as *thriving*, while the rest are either *struggling* (48%) or *suffering* (5%). In Deloitte's *Workplace Burnout Survey* (Deloitte, 2024) a staggering 77% of the participants reported having experienced burnout at their current job at least once; however, 87% of all participants reported that they are passionate about their job. This observation suggests that passion alone cannot counteract the problems of an impoverished company culture. The same report identifies the main burnout drivers as follows:

- Unrealistic deadlines and expectations, which cause a constant experience of stress symptoms
- Promotion of the hustle culture, requiring employees to be always available, even on weekends or vacations
- Lack of support or recognition

Finally, 91% reported that prolonged stress hampers performance. (Martinez et al., 2025) estimated that the annual average cost per employee is approximately \$4,300 for a non-managerial salaried employee, \$10,800 for a managerial-level employee, and \$20,700 for an executive-level employee.

Focusing on the Greek labour market, and according to research conducted by EY & Hellas EAP, the data point to a concerning trend as well (EY Hellas EAP & Εργαστήριο Πειραματικής Ψυχολογίας ΕΚΠΑ, 2025).

- Only 48% of employees can effectively manage their stress levels.
- 70% report poor sleep quality, while 61% have low-energy levels at the time they wake up.

- 55% of the sample experience burnout symptoms while only 31% can easily recover from a distressing period, indicating decreasing amounts of resilience.
- 64% of the respondents cannot disconnect sufficiently from work obligations when they are not present at their workplaces.

These findings indicate an alarming trend regarding employee well-being. Employee well-being is declining worldwide, and Greece is no exception. Due to reduced levels of well-being, individuals and organizations are burdened with increased healthcare costs, while productivity leaks negatively affect organizational performance. An employee with enhanced levels of well-being is less prone to absenteeism, turnover, burnout, coworker conflict, or attempting other vengeful actions (Lyubomirsky et al., 2005).

1.2 The “happy-productive worker” hypothesis

The “happy-productive worker” hypothesis states that the higher the employee’s well-being, the greater the firm-level productivity (Isham et al., 2021). (Lyubomirsky et al., 2005) stated that there is a meaningful correlation between well-being and job performance (correlation coefficient of 0.32 to 0.34). Furthermore, organisational climate has been positively correlated with productivity ($r=0.31$) and profitability ($r=0.36$). (Seligman & Schulman, 1986) discovered that happier insurance sales agents outperformed their peers by 37%, who scored higher in the learned-helplessness scale.

An article in the Harvard Business Review (Achor, 2012) argues that society continues to propagate flawed mental models. For example, to achieve happiness, the usual recipe is to first strive hard, then conquer the target goals, and only then enjoy the surge of happiness. Shawn Achor argues that the stated model is outdated. He proposes a reversal instead. In other words, he insists that happiness precedes success, not the other way around.

(Oswald et al., 2015) claimed that the average productivity of happy people rises by 10-12%. This result came out of an experimental study where undergraduate students were primed with positive emotions after watching a comedy clip and subsequently performed math tests. In another experiment, a reverse happiness shock (i.e., such as those naturally occurring due to loss of close family members) reduced the subsequent performance on these math tests by 10%.

1.3 Academia against Business: The Emergence of a Paradox

(Oswald et al., 2015) supported that the above results should be utilized by business leaders and HR managers to create an upward spiral of well-being and productivity. This situation is a win-win for both employers and staff. The well-being statistics analysed in section 1.1, however, suggest that employee well-being remains problematic. To understand why business managers are lagging in applying research knowledge in the boardrooms, one must briefly revisit the history of business management.

The advent of the Industrial Revolution emphasized resource accumulation and growth. First, Frederick Taylor (1911) developed scientific management. Each activity was divided into a certain number of tasks, and each task was studied thoroughly so that the optimal way of execution was found. Division of labour was widely applied so that each worker could execute perfectly only specific tasks. The history of management continues with Henry Fayol and his 14 principles of management. Some of them were division of work, authority & responsibility, replacement of employee interest by business interest, and unity of command. This productivity management fad continues with Max Weber, who initiated the bureaucratic organization theory (i.e., authority, rules & procedures, etc.). This suggests that classical and scientific approaches emerged from the need for ever-increasing profits and efficiency, while completely ignoring employee well-being (Awofeso, 2019; Derksen, 2014; Giannantonio et al., 2011).

In his opinion for scientific / classical management, Adam Smith, the father of classical economics, claimed that: *“The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become”* (Smith, 2012). In other words, workers were unable to exercise their freedom of choice (sense of autonomy), their inventiveness and creativity, since all hurdles were removed in accordance with the scientific management principles, and the social aspect of work life had been eliminated.

Due to the above, classical management practices were harshly criticised, and the behavioral school of management was introduced as an alternative management approach. Elton Mayo

came forth with the Hawthorne studies. Although criticized for their methodological errors (small groups, lack of control group, etc.) and the so-called observer effect (the effect of the participants altering their behaviour when they were observed), they highlighted the social aspect of work, team morale, and their respective impact on performance (Awofeso, 2019). Douglas McGregor, with his Theory X & Y model, argued that it is the managers' beliefs that shape the direction of an organization. If managers tend to believe that employees are lazy, dependent, and cannot take any initiative (Theory X mindset), they usually build heavy-surveillance systems (tall hierarchies, strict procedures, and processes). It is these systems that gradually convert employees to disengaged execution machines. They become disinterested in their work while morale and initiative plummet. On the other hand, if managers' core beliefs are that employees can take work-related responsibilities while being motivated to do so (Theory Y mindset), they will cultivate a more supportive and empowering organizational climate. Douglas McGregor argued that, instead of the need for constant supervision, employee empowerment and support were proposed as an antidote to achieve organizational objectives (Galani & Galanakis, 2022).

Behavioral management was later followed by humanistic management, which is rooted in psychology and emphasizes personal growth, self-actualization, and intrinsic need satisfaction. Motivation theories were derived from humanistic management to persuade businesses that workers or employees should not be treated as cogs in a machine, but rather as individuals with complex needs that should be satisfied. The main premise is that by satisfying those intrinsic needs, employers can extract greater profits and measurable productivity gains, while employees retain higher levels of well-being as well as higher job satisfaction and motivation. The main motivational theories will be briefly covered in Chapter 2 of the current thesis.

Classical management and behavioral / humanistic management represent different perspectives in management theory. The dominant school of management was classical management, while the behavioral / humanistic management approach is increasing in popularity. There are three (3) main reasons that behavioral / humanistic management still comes second.

- Resistance to change. Instead of adjusting to new social and environmental data, organizations and institutions prefer to stay inert. Structural inertia thrives on the

status quo, by enhancing current politics and investing in sunk projects. Inevitably, it creates turning points where extreme changes are required (Ababneh, 2016).

- To stay afloat, top management needs to achieve short-term results while frequently sacrificing long-term and sustainable growth (Marginson & Mcaulay, 2008). As the famous economist John Maynard Keynes said: “*In the long run we are all dead*” which justifies the short-term position, but it is not always the appropriate response.
- Empowering employees and leading with a more participatory approach and converting tall hierarchies to flatter ones means that upper management must sacrifice some of its commanding power (Sahay & Goldthwaite, 2024).

1.4 Thesis Objective, Motivation & Research Questions

From the above sections, the following points can be made:

- Employee well-being is declining worldwide (section 1.1).
- Recent research highlights the effect on employee happiness and well-being on employee productivity and organizational objectives (section 1.2).
- Despite the results that came forth from scientific research, managers are still reluctant to apply humanistic management practices mainly due to resistance to change, achievement of short-term results, and power retention (section 1.3). This creates a paradox.
- What managers and leaders might be missing are the practical steps that need to be implemented to enhance employee well-being and achieve a win-win for themselves and for their people.

One of the possible ways to enhance employee well-being is through the application of Self-Determination Theory (SDT). SDT is a relatively recent framework developed by Edward Deci & Richard Ryan (Deci & Ryan, 1988). Among others, it is a motivation theory rooted in humanistic psychology. According to SDT, humans have three (3) basic needs to be satisfied.

- Autonomy (the need to exercise choice according to one’s true self),
- Competence (the need to develop new skills and capabilities, to gain expertise),
- Relatedness (the need to belong and to relate to other human beings).

In work settings, these three needs must be satisfied by the employees' external environment (i.e., organizational management & leadership). The main premise of SDT lies in the concept of internalization (Ryan et al., 1989). When the above basic needs are satisfied, then work becomes intrinsically motivating. In other words, employees will come to their offices or worksites mostly for the work itself. This is strongly correlated with greater levels of well-being and, as stated in section 1.2, greater job performance. On the other hand, when the above needs are not satisfied, employees tend to become extrinsically motivated (motivated by external factors such as salary, bonuses, recognition). In turn, this reduces their levels of well-being.

As will be shown in the next chapter in detail, SDT theory research in professional settings has been applied consistently in various countries, claiming its universal reach. Despite the growing significance of occupational well-being, research in SDT in a Greek context remains limited, creating a literature gap on the topic. Furthermore, Greece's economy has been heavily unstable, while the adoption of contemporary management practices is lagging. This thesis aims to tackle the literature gap in SDT in Greece. More specifically:

- a) The current thesis will examine the validity of the positive link between intrinsic need satisfaction (i.e., autonomy, competence, relatedness) and well-being, while zooming in only on the Greek labour market. This will further support the universal applicability of SDT that internal needs satisfaction leads to greater occupational well-being.
- b) Apart from the needs outlined in SDT theory, the role of pay satisfaction will also be examined, creating a well-being regression model which will combine the satisfaction of intrinsic and extrinsic needs. Therefore, this thesis extends beyond merely intrinsic need satisfaction and the application of SDT.
- c) The current thesis will provide theoretical and practical contributions for management and leadership in the Greek context.

The following research questions will be answered:

1. What is the level of intrinsic and extrinsic need satisfaction (pay) in employees in the Greek labour market?
2. What is the level of subjective well-being at work among employees in the Greek labour market?

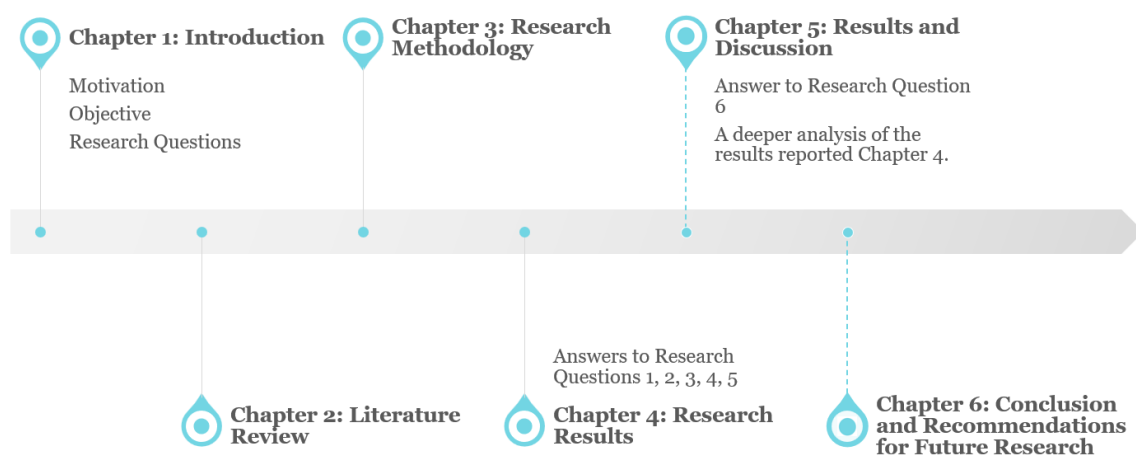
3. What is the relationship between internal / external need satisfaction and subjective well-being at work?
4. Do external rewards given in a (subjectively) controlling or informational manner undermine or enhance well-being?
5. Does the relationship between internal / external need satisfaction and well-being change across generations (Gen X, Gen Y, Gen Z), education levels or organization size?
6. To wrap-up our discussion the following topics will be answered: a) Comparison of intrinsic / extrinsic need satisfaction and subjective well-being at work among Greece and other countries, b) the implications for the most appropriate organizational leadership styles and suitable management practices that promote employee well-being.

1.5 Thesis Outline

A roadmap of the current thesis is presented briefly below (see Figure 1).

Figure 1

Thesis Roadmap



1.6 Summary of 1st Chapter

To conclude the introductory chapter:

- Employee and worker well-being is constantly decreasing according to organizational surveys, both worldwide and in Greece.
- The “happy-productive worker” hypothesis has attracted a lot of support, validating its main premise. The main premise is that the greater the well-being of employees and workers, the more productive they are. Improvements in well-being will

inevitably lead to improvements in productivity, which in turn lead to greater profits. Some of those profits can be reinvested to create better well-being in the workforce and thus create an upward spiral.

- While academic research is clear, business seems to lag, thereby creating a paradox. After a brief revision of the history of management, resistance to change, focus mainly on short-term results, and the new power dynamics are the main hurdles to be surpassed before moving towards a more humanistic style of management.
- Since a literature gap was identified in the application of SDT theory in Greece, the current thesis will examine the application of the SDT theory in the Greek labour market, further supporting its universal claim. While the research questions have been outlined in section 1.4, the main focus of the current thesis is the correlation between intrinsic need satisfaction (i.e., autonomy, competence, relatedness) / extrinsic need satisfaction (i.e., pay) and well-being in work settings.

2. Literature Review

In this chapter, a brief review of the major need-based motivation theories is developed, as well as their ties with SDT (i.e., similarities and differences). Furthermore, small sections are added explaining the emergence of autonomy, competence, and relatedness as foundational blocks for human well-being according to SDT. Finally, an extensive literature review regarding SDT theory in work settings is presented with its main findings. To conclude this chapter, the key takeaways from the research are summarised. The reader should note that these key takeaways also guide the Research Methodology that will ensue in Chapter 3.

2.1 A brief introduction to the main motivation theories based on need deficiency

As stated in section 1.3, humanistic management is based on motivation theories. Motivation cannot be observed. What is observable, though, are the resulting behaviors (Kanfer, 1990). Work motivation is *a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behaviour and to determine its form, direction, intensity, and duration* (Latham & Pinder, 2005). In other words, it is the reason behind initiating action (Sanjeev & Surya, 2016). It appears that motivation originates from the interaction between the person and their environment (Latham & Pinder, 2005). Motivation is highly regarded for its dual role. On one hand, it is linked with employee efficiency and business revenue, while on the other hand, it also accounts for employee well-being and flourishing (Van den Broeck et al., 2016). In social sciences, well-being coincides with happiness. Happiness in one's life can be defined as the prevalence of positive affect compared to negative affect and the extent of life satisfaction, which derives from personal judgment (Salas-Vallina & Alegre, 2021).

2.1.1 Maslow's hierarchy of needs

According to Maslow (Maslow, 1943), there is a hierarchy of human needs (see also Figure 2):

- Physiological needs. For this set of needs, Maslow refers to homeostasis or the attempt of the person to preserve the quality of their blood stream (water, salt, sugar, protein, fat, etc.). It is also reported that if these needs are not satisfied, the person

will probably not tend to their higher-order needs. The higher-order needs are pushed into the background till the missing physiological need is satisfied (Maslow, 1943).

- Safety needs. After physiological needs have been satisfied, safety becomes of utmost importance. From research in infants, there are immediate reactions of discomfort and panic when they hear loud noises or lose the comfort of their mother's arm. Apart from that, research shows that children thrive better in a structured and organized daily routine rather than a chaotic and unstructured schedule. In war, disease, and natural disasters, safety needs can become the dominant category of needs (Maslow, 1943).
- Love needs. Once safety needs are fulfilled, relationship needs come to the surface. The person as an organism will start seeking out friends, relationships, or even having children. The need for love, affection, and intimacy is included in this set of needs.
- Esteem needs. These needs include, on the one hand, the desire for achievement, for overcoming adversity, and for usefulness, freedom & autonomy (intrapersonal qualities) while, on the other hand, they include needs for reputation, respect, and appreciation from others (interpersonal qualities).
- Self-actualization needs. *What a man can be, he must be.* These needs emerge as the cornerstone set of needs. They relate to fulfilling one's potential in the desired domains of life. These needs differ from person to person. One woman might be chasing after the exemplar of the perfect mother, while another person with creative tendencies might attempt to compose the greatest symphony, etc. They refer to the human need to fulfill or even surpass one's potential and expand. The upper four categories of needs have an inherent loss element (i.e., loss of homeostasis) or need deficiency that must be satisfied. This last category of needs does not involve imbalance or deficiency. They are termed as growth needs. The more this category of need is exercised, the stronger it becomes.

Figure 2

Maslow's Pyramid of Needs



2.1.2 Herzberg's Two-Factor Theory

The two-factor theory was formulated in 1959. Herzberg formed two distinct sets of factors, namely the Motivation & Hygiene Factors, which would decide employee behaviour (Kian Tan, 2014; Sanjeev & Surya, 2016). At first, satisfaction and dissatisfaction were thought of as the opposite ends of a single continuum; however, the real world is more complicated.

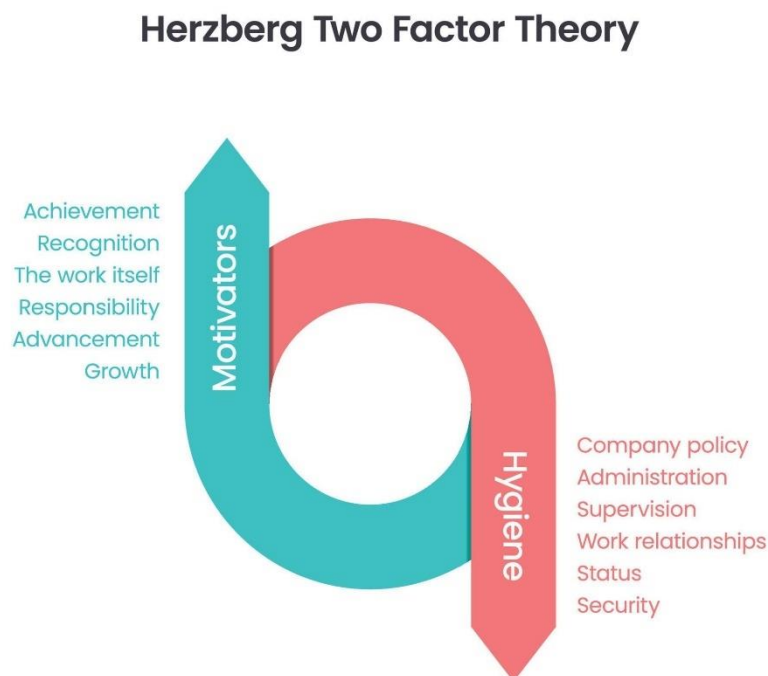
In this theory, the motivation factors are intrinsic (i.e., located within oneself). By satisfying this set of factors, job satisfaction increases. To put it differently, motivation factors determine the continuum from zero to high job satisfaction. Hygiene factors, on the other hand, are extrinsic factors that, when satisfied, result in the prevention of employee dissatisfaction. They control the second continuum, i.e., from zero to high job dissatisfaction. If we would like to connect this theory with Maslow's hierarchy of needs, the satisfaction of hygiene factors will result in the coverage of physiological, security, and love needs. However, fulfilling hygiene factors does not equate to employees thriving or being willing to exert more effort in their job. The managers prevent employee dissatisfaction (in one continuum); however, they do not promote job satisfaction (in the second continuum). To continue the analogy with Maslow's hierarchy of needs and satisfy the individual's higher needs in the workplace (esteem needs & self-actualization needs), one should also fulfill the motivation factors. When this condition is met, productivity and efficiency will improve since employees are finding their work experiences meaningful

while they develop the mastery of their craft. Below are the Hygiene and Motivation factors are listed (see also Figure 3).

- Hygiene factors: Job security, Salary, Working Conditions, Status, Company policy, Interpersonal relationships, Work-Life Balance, Supervision quality.
- Motivation factors: Job Interest, Achievement, Possibility for advancement / promotion / growth, Responsibility & Recognition.

Figure 3

Herzberg's Two-Factor Theory. Hygiene and Motivators predict dissatisfaction and satisfaction independently.



2.1.3 Alderfer's ERG Theory

Alderfer's ERG theory is based on Maslow's theory, attempting to simplify it into three categories of needs, but also extends the number of pathways these needs can interact (Alderfer, 1969).

- E: Existence Needs
- R: Relationship Needs
- G: Growth Needs

While Maslow (Maslow, 1943) insists on a sequential structure of needs, Alderfer proposes a more dynamic relationship between ERG needs. He agrees with Maslow's proposition that if existence needs are satisfied, then the person will seek to satisfy relationship needs and if relationship needs are satisfied, then one will seek to satisfy his / her growth needs. Also, if growth needs are satisfied, there is a stronger tendency to satisfy them even more. However, according to Alderfer, these are not the only pathways. Existence and relationship needs can be desired independently of other needs. Alderfer argues that, regarding existence and relationship needs, need frustration will respectively lead to a heightened need desire. Also, sometimes need frustration leads a person to turn to the satisfaction of other needs. This means that when relationship needs are not met, the person will tend more to his existence needs. Similarly, when the person's growth needs are frustrated, the person is looking for more support and clarity in his quest, thus satisfying his relationship needs (Alderfer, 1969).

2.1.4 The theory of acquired needs by David McClelland

All the theories mentioned above lie in inherent needs; however, this theory lies in life's experiences and socialisation. Although in different degrees, McClelland supported that human beings have three (3) types of needs:

- Need for affiliation
- Need for achievement
- Need for power

When the dominant need of an individual is the need for affiliation, this individual is characterized by a high capacity to build networks of people. The individual has a strong sense of belonging. To satisfy this need, he commits to friendly relationships while he seeks appreciation and respect. At work settings, these individuals present team-player capabilities and can engage with many different people (McClelland, 1961).

When the dominant need of an individual is the need for achievement, these individuals seek constant improvement and pertinent feedback. Their obligations feel more like a duty, while learning opportunities are a significant part of their lives. They seek ever increasing challenges while taking calculated risks. These people convey self-confidence and take more initiative (McClelland, 1961).

When the dominant need of an individual is the need for power, they will emulate behaviours that will provide status and a position higher up in the corporate ladder. They

consider the opinions of others; they want to be admired and practice their influence and negotiation skillset. They think in a more competitive and strategic way while they possess more assertiveness and manipulation in their interaction with others (McClelland, 1961).

2.2 Self-Determination Theory (SDT)

In this section, a more extensive review of the SDT will be presented, as well as some background information regarding its origins. Previously, the main need-based theories were briefly reviewed. SDT continues the tradition of needs theory, arguing that for employee well-being and psychological growth, three psychological needs must be satisfied.

- The need for autonomy (acting willingly according to one's true self, with no external control).
- The need for competence (tendency to explore and master one's environment and craft).
- The need for relatedness (a fundamental need to promote stable and caring bonds with other human beings).

Apart from work settings, SDT research has been employed to explain motivation in various life domains, such as education (V. I. Chirkov & Ryan, 2001; Deci, Koestner, et al., 2001; Sheldon & Krieger, 2007; Wang et al., 2024), health care (Williams et al., 2000, 2016) and exercise / sports (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011; Fortier et al., 2007; Standage et al., 2008; Vansteenkiste et al., 2004). It is a need theory like the previous ones; however, there are also stark differences worth mentioning.

1. The theory of Maslow states that certain types of needs are unlocked after the previous category of needs is satisfied. In other words, there is a cycle of need deficiency and need satisfaction, which unlocks the next level of needs via need deficiency and so on. The theory of acquired needs states that the needs for affiliation, achievement, and power originate from learned experiences and socialisation. SDT theory, on the other hand, views autonomy, competence, and relatedness as innate tendencies such as hunger or thirst. Or to put it differently, these needs are not derived through the process of growing up; they are present since birth (Van den Broeck et al., 2010).

2. These needs are viewed as essential psychological nutriment for a living organism. For example, the more plants are provided with sunlight, water, and quality soil, the greater their

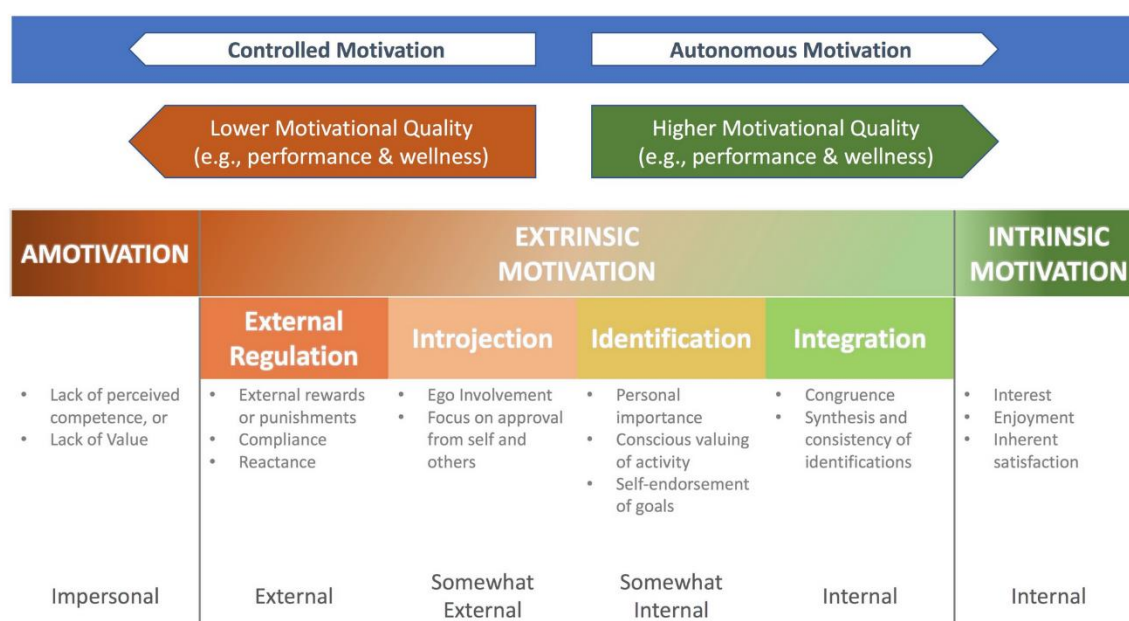
growth will be. In the same manner, as an individual acts towards exercising these needs, or the environment provides the necessary conditions to the individual to exercise these needs, the better the individual's well-being, psychological growth, and internalisation. On the contrary, the fewer opportunities an individual has to exercise these needs, the more psychological growth is halted, well-being is reduced, and the individual moves towards external motivation. In SDT, the focus is on psychological growth and well-being, while previously mentioned theories focus on reducing internal tensions or achieving homeostasis (Van den Broeck et al., 2010).

2.2.1 The concept of internalisation

In the previous section, the concept of internalisation was mentioned. To explain it, the continuum of Intrinsic & Extrinsic Motivation must first be explained (Ryan & Deci, 2020).

Figure 4

The motivation continuum according to SDT



From Ryan & Deci (2000); © 2017 Center for Self-Determination Theory

Note: Adopted from (Deci & Ryan, 2000)

Figure 4 illustrates four (4) distinct types of extrinsic motivation.

- **External regulation:** Individuals are motivated by external reasons to perform tasks, either for specific rewards; or to avoid punishment. While those rewards are maintained, motivation is preserved; however, once these rewards are no longer a

given, motivation subsides. This is called the maintenance problem of external regulation, and that is why it is characterised as an unstable form of motivation.

- **Introjection:** Moving on to the right, introjection is a form of motivation that comes from pressure within the individual. Pressure is derived from the belief that if the tasks are appropriately completed, the person will gain self-esteem, respect & approval from others. This form of motivation is also unstable due to ego-involvement.
- **Identification:** In this stage, motivation becomes partly internal. The individual perceives the outcome of the activity as important and willingly engages with it. These individuals are volitionally engaged (higher sense of autonomy) and more persistent towards task completion. This is the first stable form of motivation within the continuum.
- **Integration:** Moving more to internal motivation, integration means that not only is the value of an activity clearly seen, but also it fits with other personal values and beliefs. The integration of activity with oneself makes this form of motivation even more stable than identification.
- Finally, there is intrinsic motivation on the far right of the Figure 4. The individual is fully absorbed in the activity, making them more engaged and productive. The individual pursues the activity for its own sake. It is interesting and highly engaging. This is the highest form of intrinsic motivation.
- On the far-left side of the spectrum, there is amotivation. The individual does not engage in the activity at all due to perceived incompetence. It is the most negative form of motivation. The feelings of inferior competence might originate from learned helplessness (Seligman, 1975), imposter syndrome (Clance & Imes, 1978), low levels of self-efficacy (Bandura, 1978), or a fixed mindset (Dweck, 2006).

Again, SDT argues that the more an individual moves towards the left side of Figure 4, there is a greater possibility for worse well-being and performance of that individual. When moving towards more autonomous forms of motivation, there is an increased probability that the individual will experience greater well-being and performance. From Figure 4 it can be observed that internalisation is the process of moving from the far left (i.e., from the controlled motivation end) to the far right (i.e., more autonomous control of motivation).

Barry Schwartz, in his book *Why we work* (Schwartz, 2015) perfectly demonstrates examples of haircutters and cleaning personnel who are internally motivated mainly due to their character and stance towards work. However, he insists that there are psychological limits to how much work experiences, independently of the work environment, can be converted into meaningful ones. He argues that most people need the assistance of external factors so that they are led towards the path of internalisation. In other words, there is a relatively rare group of individuals who have acquired intrinsic motivation despite the company's culture or policies. However, the majority of the workforce will require a business environment that will satisfy the needs for autonomy, competence, and relatedness. By satisfying the above needs, their workforce will turn towards more autonomous forms of motivation, which are strongly linked with both increased organizational bottom lines and greater employee well-being. This is the main premise of SDT (Deci et al., 2017).

2.2.2 The origin of autonomy as a basic human need

Deci & Ryan distinguished two types of self-esteem: a) Contingent self-esteem and b) true self-esteem (Deci & Ryan, 1995). Contingent self-esteem is derived from meeting certain criteria of excellence, performance, or societal standards; in other words, they are externally imposed. To live up to externally imposed criteria, one will inevitably compare oneself to others. Contingent self-esteem, therefore, involves egoism and interpersonal comparison. It is not a stable form of self-esteem because it heavily relies on constant achievement. On the contrary, true self-esteem stems from a concrete sense of self, independently of others. When one develops true self-esteem, materialistic goals or goals of status seem less significant. These people still have goals and feel enthusiastic about devoting resources to achieve them. They still feel content when they achieve them or dissatisfied when they do not, however, they do not attribute their success in their superiority or their failures to inferiority relative to others. In other words, true self-esteem is developed when one acts autonomously and not when one is forced, coerced, or pressured by external factors. To sum up, when acting autonomously, an integrated sense of self is developed. This, in turn, enhances true self-esteem which positively correlates with a plethora of other factors such as positive mental health, well-being, vitality, self-actualisation, openness to experience, social functioning and others (Deci & Ryan, 1995). Finally, one must be aware of the following common pitfall. Autonomy does not equal independence or individualism. In fact, autonomy has been criticised for opposing the need for relatedness and group cohesion. In

SDT terms, this is not the case. One might autonomously accept advice from a parent or a close friend. There are also many times that autonomous individuals provide emotional support or advice without being forced to or trying to keep up with societal standards. It is important to distinguish between the two axes of autonomy vs heteronomy and dependence vs independence. To put it differently, when accepting advice from others, one can be autonomously dependent if this action aligns with one's integrated sense of self (interests, values, and desires) (V. Chirkov et al., 2003).

2.2.3 The origin of competence as a basic human need

White, in his seminal work (White, 1959), challenged several assumptions that previous researchers attributed to animals' exploratory behavior. The debunked assumptions are the following:

- Exploratory behaviour was the result of tension-reduction theories or to achieve homeostasis (a term stated in section 2.1.1).
- Exploratory behaviour is performed to reduce fear in the face of the new stimuli.
- Exploratory behaviour was the result of secondary reinforcement. It is the idea that the animal explores first because its internal drives will be satisfied later stage (such as food, sex, or shelter).

After White refuted all the above assumptions, he coined the term of competence as the organism's need to explore, alter, manipulate, and eventually master its environment. It is an active motivational factor that promotes growth and self-efficacy. Again, this is associated with the development of true self-esteem (as stated in section 2.2.2), which promotes further exploratory behaviour (White, 1959).

How much exploratory stimulation is enough? This question has been answered by Mihaly Csikszentmihalyi (Csikszentmihalyi, 2008) in his work regarding the Flow state. On one hand, when the task at hand does not utilize our skill set enough, it leads to boredom and apathy. On the other end of the spectrum, when the task at hand exceeds by far our current capabilities, it leads to anxiety. Mihaly argues that the challenges and novelty experiences must have a difficulty level just above our current skill level. This level of stimulation leads to the highest level of engagement, learning, and psychological growth.

2.2.4 The origin of relatedness as a basic human need

“No person is an island”, mouthed John Donne. It has long been suspected that the need for relatedness or belongingness is a natural human tendency. In an evolutionary sense, cooperation and belonging enormously increased the chances of humanity’s survival, for example, when hunting down ferocious animals or defending against a marching army. Children who depended more on adults have increased chances of survival as well, since it was more likely that they would receive the required nutrients and protection. Finally, belongingness is also associated with increased numbers of offspring compared to individuals who cannot maintain long-term relationships. The authors (Baumeister & Leary, 1995) propose that the need is comprised of two features.

- Individuals who engage in frequent interactions with the other person. Ideally, most of these interactions will be pleasant, almost conflict-free, while maximizing positive affect (Baumeister & Leary, 1995).
- Individuals also value stability and concern in relationships. The need is satisfied when mutual concern remains consistent over time (Baumeister & Leary, 1995).

Finally, there seems to be a threshold where this need is satiated. When an individual successfully forms and maintains a minimum number of close relationships (varies per individual), additional bonds will have a lesser impact on the individual’s emotional state and well-being (Baumeister & Leary, 1995).

Does satisfying the need to belong lead to higher levels of well-being? According to the Harvard Longitudinal Study of Adult Development, quality relationships are the most important factor for health and well-being. Even cholesterol levels had a lesser correlation to physical health compared to the quality of relationships (Hart, 2023).

2.3 Research on Self-Determination Theory at work (SDT)

According to a meta-analytic review conducted by Van den Broeck and others in work settings, (Van den Broeck et al., 2016), the correlation for each basic need and well-being (ρ) was: 0.52 for autonomy, 0.58 for competence, and 0.44 for relatedness.

In addition, this meta-analytic review is important for the following reasons:

- They argue that need satisfaction and need frustration are just opposite of a single scale, but two different scales must be utilized. The results seem to support

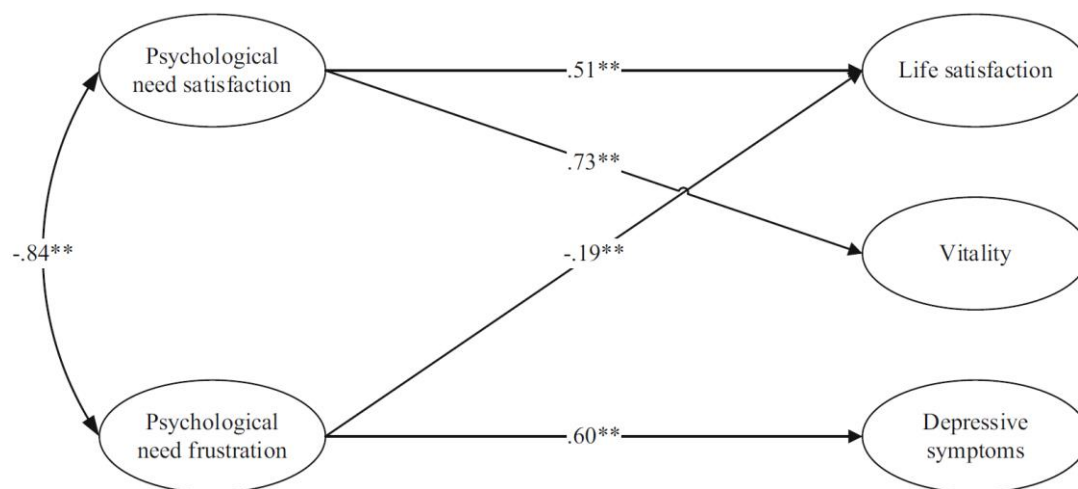
Herzberg's two-factor theory (mentioned in section 2.1.2), where the hygiene factors determine the dissatisfaction-side while the motivational factors determine the satisfaction-side of the spectrum (Deci et al., 2017; Van den Broeck et al., 2010).

- It is not reasonable to add scores for autonomy, competence, and relatedness into one single "Needs satisfaction" score. It is not possible to compensate for a lack of autonomy with more relatedness (Deci et al., 2017; Van den Broeck et al., 2010).

Another important peer-reviewed research (Chen et al., 2015) tested the universality of the claim that the satisfaction of SDT needs leads to better well-being. Some theorists claim that autonomy satisfaction might play a vital role in life satisfaction of western and individualistic countries, but not collectivistic ones. Using a constrained multi-group SEM model, they concluded that the strength of need satisfaction with vitality and life satisfaction is strong and statistically independent among the four cultures (Belgium, China, Peru, and the U.S.).

Figure 5

Research results from (Chen et al., 2015)



It is important to remember that autonomy does not equate to individualism or independence but to willingly and volitionally performing certain tasks and activities (V. Chirkov et al., 2003). Finally, SDT supports that these needs are universal; however, the extent to which a need is required might be different, just as a person's needs for food, sex, or sleep might also differ (Chen et al., 2015). The universality of the claim is also supported by (Nie et al., 2015), who conducted surveys with Chinese teachers. One might argue that autonomy supportive environments and Confucian ethics would create an internal conflict, which

would undermine the Chinese teachers' well-being. However, researchers concluded that even in a collectivistic society, employees still increase their well-being when autonomy support is exercised. The nuance that the researchers reported is that autonomy support increased introjected regulation. Observing this tendency through a Confucian lens is reasonable. Employees in Chinese cultural contexts are pressured to do their job well. This is their way to reciprocate back to society for the blessings they receive, therefore achieving societal harmony. This moral duty produced an enhanced drive to perform, but also elevated levels of stress, resulting in less pronounced effects in well-being, compared with western countries (Nie et al., 2015).

A culminating review of SDT theory (Ryan & Deci, 2020) posits that autonomy, competence, and relatedness support enhance intrinsic motivation while controlling environment and external pressures exacerbate it. In this review paper, the undermining effect of external rewards is mentioned. This translates that when rewards are provided in a controlling manner (i.e., "We would like to provide this reward, so you continue to perform with excellent performance"), employees' internalisation levels move towards the extrinsic motivation (i.e., "I do this job purely for the paycheck") while the intrinsic motivation (i.e., "This job is inherently interesting") is lessened.

In a 40-year meta-analysis, the researchers support that the correlation between intrinsically motivated individuals and work-performance (ρ) is 0.35 when the task requires problem solving / creativity, while the same correlation drops to 0.26 for quantity performance (i.e., repetitive and monotonous tasks) (Cerasoli et al., 2014). This translates to people who perform cognitive-related tasks or tasks involving creativity might see a greater boost in work performance when they are intrinsically motivated. The same idea is popularised in Daniel Pink's book *Drive* (Pink, 2011). This meta-analysis predicts that the inherent meaning of the external rewards matters to performance. Again, controlling and performance-related rewards reduce work performance, while informational rewards (for example, rewards for completion) enhance work performance. This review sees both types of rewards as complementary and not mutually exclusive. This means one must account for both intrinsic and extrinsic rewards to find a better correlation with performance.

In a review paper (Deci et al., 2017), the role of transformational leadership is referred to be need supportive, in contrast with transactional / authoritarian leadership, which predicts need frustration and ill-being. Again, this publication distinguishes between quantity and

quality in task performance. Extrinsic rewards enhance job performance for simple tasks related to quantity (i.e., repetitive tasks), however, the same strategy does not work on creative or more complex tasks. To boost performance in jobs where more complex tasks are executed, fair and non-controlling pay combined with intrinsic need satisfaction is recommended. Finally, regarding extrinsic rewards, it is shown that positive, non-controlling feedback boosts intrinsic motivation and performance.

On the other hand, Jenkins et al. conducted a meta-analysis, which contradicts the crowding-out effect that SDT proposes. In other words, their research proposes that extrinsic rewards do not universally reduce intrinsic motivation, reigniting the debate on the effect of extrinsic rewards on intrinsic motivation (Jenkins et al., 1998).

A comprehensive table (see Table 1 in next page) will be provided, where much research has been conducted regarding self-determination theory in work settings and its association with well-being. The key findings of each publication are briefly mentioned.

Table 1

Literature Review Matrix

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
1	(Amabile et al., 1976)	Effects of Externally Imposed Deadlines on Subsequent Intrinsic Motivation	Presence and explicitness of deadlines (explicit, implicit, none)	Subsequent intrinsic motivation, interest in the task	Experimental; participants solved word puzzles under time constraints	Imposed deadlines reduce intrinsic motivation and interest compared with the no-deadline group.
2	(Gagne et al., 2000)	Facilitating Acceptance of Organizational Change: The Importance of Self-Determination	Autonomy-supportive practices: providing rationale, offering choice, acknowledging feelings	Acceptance of organizational change	Longitudinal survey; employees at a Canadian telecommunication s firm	Autonomy support increased acceptance of organizational change and internalization. This supports SDT theory.
3	(Kasser & Ryan, 1996)	Further Examining the American Dream: Differential Correlates of Intrinsic and Extrinsic Goals	Orientation toward intrinsic vs. extrinsic life goals	Well-being, life satisfaction	Correlational; adult participants in the U.S.	Intrinsic goals, such as community and growth, correlated with well-being, while extrinsic goals, such as pursuing wealth and fame, were negatively related to well-being.
4	(Cerasoli et al., 2014)	Intrinsic Motivation and Extrinsic Incentives Jointly Predict Performance: A 40-Year Meta-Analysis	Intrinsic motivation and extrinsic incentives	Performance quality and quantity	Meta-analysis (183 studies, 212,000+ participants)	Intrinsic motivation predicted quality, while extrinsic motivation predicted quantity. Performance is affected jointly by both types of motivation.
5	(Deci et al., 1999)	A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation	Type of extrinsic reward (task, performance, engagement-contingent)	Intrinsic motivation (free-choice behavior, self-reported interest)	Meta-analysis (128 studies)	Tangible rewards reduced intrinsic motivation while verbal rewards increased it. Effects were more pronounced in children than in adults.
6	(Kuvaas, 2009)	A Test of Hypotheses Derived from Self-Determination Theory Among Public Sector Employees	Job autonomy, task interdependence, supervisor support	Work performance (self-reported)	Survey of 779 Norwegian public employees	Intrinsic motivation mediated autonomy → performance link. Intrinsic motivation fully mediated the supervisor support → performance link.
7	(Jenkins et al., 1998)	Are Financial Incentives Related to Performance? A Meta-Analytic Review of Empirical Research	Financial incentives (individual and group pay-for-performance)	Job performance	Meta-analysis of empirical studies	Financial incentives improved performance for simple, and quantitative tasks.

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
8	(Eisenberger & Cameron, 1996)	Detrimental Effects of Reward: Reality or Myth?	Reward type and context	Intrinsic task interest, creativity	Review and analysis of prior research	Negative effects of extrinsic rewards occur rarely. If rewards are provided properly, they can boost creativity.
9	(Kuvaas et al., 2006)	Do You Get What You Pay For? Sales Incentives and Implications for Motivation and Changes in Turnover Intention and Work Effort	Base pay, annual, and quarterly pay-for-performance	Work effort, turnover intention	Longitudinal survey (2 years, sales employees)	Base pay enhanced autonomous motivation, while variable pay-for-performance enhanced controlled motivation. Frequency of pay-for-performance moderated the effects.
10	(Lian et al., 2012)	Does Taking the Good With the Bad Make Things Worse? How Abusive Supervision and Leader–Member Exchange Interact to Impact Need Satisfaction and Organizational Deviance	Abusive supervision, leader-member exchange	Psychological need satisfaction, organizational deviance	Multi-wave survey (260 employees)	Abusive supervisors were correlated with deviance via reduced need satisfaction. SDT is supported.
11	(Gerhart & Fang, 2015)	Pay, Intrinsic Motivation, Extrinsic Motivation, Performance, and Creativity in the Workplace: Revisiting Long-Held Beliefs	Type of pay (pay-for-performance vs. fixed pay), reward salience	Intrinsic motivation, creativity, and performance	Literature review and theoretical reassessment	Supports the overstatement of extrinsic rewards on intrinsic motivation. Instead, it supports that pay for performance can actually increase creativity and motivation when it is well-designed.
12	(Weibel et al., 2010)	Pay for Performance in the Public Sector: Benefits and Hidden Costs	Pay-for-performance systems in public institutions	Motivation, performance, trust	Theoretical and empirical review	PFP boosts performance but may erode intrinsic motivation and trust in the public sector context.
13	(Fernet, Guay, et al., 2012)	Predicting Intraindividual Changes in Teacher Burnout: The Role of Perceived School Environment and Motivational Factors	Classroom overload, disruptive behavior, and leadership support	Teacher burnout components (emotional exhaustion, depersonalization, and accomplishment)	Longitudinal study of 806 teachers (Canada)	Higher job demands → reduced autonomous motivation → higher burnout Supportive leadership → Reduced burnout via enhanced self-efficacy
14	(Baard et al., 2004)	Intrinsic Need Satisfaction: A Motivational Basis of Performance and Well-Being in Two Work Settings	Autonomy support; causality orientation	Job performance, psychological adjustment	Survey; two work organizations	Autonomy-supportive management increased need satisfaction → greater performance & well-being
15	(Hetland et al., 2011)	Leadership and Fulfillment of the Three Basic Psychological Needs at Work	Leadership styles (transformational vs. laissez-faire)	Need satisfaction (autonomy,	Survey of employees in Norway	Transformational leadership → Increased need satisfaction

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
				competence, relatedness)		Laissez-faire leadership → reduced need satisfaction
16	(Gözükara & Şimşek, 2015)	Linking Transformational Leadership to Work Engagement and the Mediator Effect of Job Autonomy	Transformational leadership	Work engagement (vigor, dedication, absorption)	Survey. Turkish private non-profit university (academics)	The link between transformational leadership → work engagement was fully mediated by job autonomy.
17	(Williams et al., 2014)	Managerial Support for Basic Psychological Needs, Somatic Symptom Burden, and Work-Related Correlates: A Self-Determination Theory Perspective	Managerial support for autonomy, competence, and relatedness	Somatic symptom burden, job satisfaction, motivation	Survey study (cross-sectional, multiple organizations)	Need-supportive management improved well-being and reduced body symptoms.
18	(Gubler et al., 2016)	Motivational Spillovers from Awards: Crowding Out in a Multitasking Environment	Implementation of award programs	Attendance, task performance	Field study (industrial laundry firm)	Awards improved attendance for low performers but reduced intrinsic motivation & performance for high performers. The study provides evidence for the crowding-out effect of external rewards.
19	(Deci, Ryan, et al., 2001)	Need Satisfaction, Motivation, and Well-Being in the Work Organizations of a Former Eastern Bloc Country	Work climate (autonomy support), need satisfaction	Motivation, psychological adjustment, and well-being	Cross-cultural SEM study (U.S. vs. Bulgaria)	Autonomy-supportive climates predicted need satisfaction in both countries.
20	(Vansteenkiste et al., 2007)	On the Relations Among Work Value Orientations, Psychological Need Satisfaction and Job Outcomes: A Self-Determination Theory Approach	Work value orientations (intrinsic vs. extrinsic)	Need satisfaction, job engagement, performance	Survey of employees (Belgium)	Intrinsic work values led to higher need satisfaction and engagement. On the contrary, extrinsic work values predicted lower satisfaction and lesser outcomes.
21	(Deci, 1971)	The Effects of Externally Mediated Rewards on Intrinsic Motivation	Contingent vs. noncontingent rewards (monetary, verbal)	Intrinsic motivation (task persistence, interest)	Laboratory experiments	Contingent monetary rewards decreased intrinsic motivation. Non-contingent monetary rewards had no effect on intrinsic motivation, while verbal rewards (praise) enhanced it.
22	(Gillet et al., 2012)	The Impact of Organizational Factors on Psychological Needs and Their Relations with Well-Being	Perceived organizational support; supervisor interpersonal style	Need satisfaction and thwarting; hedonic and eudaimonic well-being	Two survey studies (n=468 and n=650 employees, France)	Perceived organizational / supervision support can predict need satisfaction or need thwarting. Need satisfaction → increased well-being

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
						Need thwarting → reduced well-being
23	(Gagne et al., 1997)	Proximal Job Characteristics, Feelings of Empowerment, and Intrinsic Motivation: A Multidimensional Model	Job characteristics (feedback, autonomy support)	Empowerment dimensions (autonomy, competence, meaningfulness, impact), intrinsic motivation	Survey of technical and telemarketing workers	Empowerment mediated job characteristics' (feedback, autonomy support) effect on intrinsic motivation.
24	(Grant, 2007)	Relational Job Design and the Motivation to Make a Prosocial Difference	Relational architecture of jobs; task significance	Prosocial motivation & performance	Theoretical model, supported by qualitative and empirical research	Task significance (the degree to which the job impacts others) and connection enhance prosocial motivation and sense of meaning.
25	(Deci et al., 1989)	Self-Determination in a Work Organization	Managerial interpersonal orientation (autonomy-supportive vs. controlling)	Job satisfaction, motivation	Field study of 23 managers and subordinates	Autonomy-supportive managers → increased intrinsic motivation and job satisfaction Controlling managers → reduced intrinsic motivation and job satisfaction.
26	(Ryan & Deci, 1985)	Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being	Social-contextual support for autonomy, competence, relatedness	Subordinates' perceived autonomy, job satisfaction, and motivation	Theoretical and empirical synthesis	Autonomy, competence, and relatedness predict higher levels of intrinsic motivation and well-being.
27	(Gagné & Deci, 2005)	Self-Determination Theory and Work Motivation	Work environment factors (feedback, rewards, autonomy, leadership)	Work motivation (intrinsic, extrinsic, and amotivation)	Conceptual and empirical review	Autonomy and competence drive intrinsic motivation, while controlling rewards reduce it.
28	(Olafsen et al., 2015)	Show Them the Money? The Role of Pay, Managerial Need Support, and Justice in a Self-Determination Theory Model of Intrinsic Work Motivation	Pay amount, distributive and procedural justice, managerial need support	Need satisfaction; intrinsic motivation	Survey of 166 bank employees (Norway)	Managerial support strongly predicted intrinsic motivation, whereas pay and distributive justice did not affect intrinsic motivation, procedural justice increased intrinsic motivation slightly.
29	(Liu et al., 2011)	The Effects of Autonomy and Empowerment on Employee Turnover: Test of a Multilevel Model in Teams	Autonomy orientation; autonomy support (leader and peers)	Psychological empowerment, voluntary turnover	Multilevel survey; 817 employees, 115 teams	Empowerment mediated the link: autonomy orientation / autonomy support → Turnover reduction.

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
30	(Deci, 1972)	The Effects of Contingent and Noncontingent Rewards and Controls on Intrinsic Motivation	Reward contingency and control type	Intrinsic motivation (interest, performance)	Experiment series	Contingent rewards and controls reduced intrinsic motivation. On the other hand, verbal rewards (i.e., praise) increased it.
31	(Nie et al., 2015)	The Importance of Autonomy Support and the Mediating Role of Work Motivation for Well-Being: Testing Self-Determination Theory in a Chinese Work Organization	Autonomy support	Work motivation (autonomous vs. controlled), well-being	Survey of Chinese employees (n≈400)	Autonomy-support predicted well-being via autonomous motivation. This supports the universality of the SDT framework.
32	(Vander Elst et al., 2012)	The Mediating Role of Frustration of Psychological Needs in the Relationship Between Job Insecurity and Work-Related Well-Being	Job insecurity	Emotional exhaustion, vigor	SEM analysis of 3,185 Flemish employees	Need frustration (autonomy, competence, relatedness thwarting) mediated the link between job security → well-being.
33	(Andreassen et al., 2010)	The Relationship Between Workaholism, Basic Needs Satisfaction at Work, and Personality	Personality traits (Big Five) and needs satisfaction	Workaholism dimensions (Work Involvement, Drive, Enjoyment)	Cross-sectional survey (661 Norwegian employees)	Need satisfaction increased enjoyment and decreased compulsive drive. The effect was moderated by personality type.
34	(Deci & Ryan, 2000)	The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior	Goal content (intrinsic vs. extrinsic) and regulatory processes	Well-being & Psychological Growth	Theoretical synthesis (review and conceptual model)	Argues that autonomy, competence, and relatedness are requirements for well-being. Intrinsic goals correlated with better functioning and psychological growth.
35	(Hardré & Reeve, 2009)	Training Corporate Managers to Adopt a More Autonomy-Supportive Motivating Style Toward Employees: An Intervention Study	Manager training in an autonomy-supportive style	Employee motivation, engagement	Experimental intervention (25 managers; 169 employees)	Trained managers increased employee engagement and autonomous motivation due to an increase in autonomy-supportive behaviors.
36	(Conchie, 2013)	Transformational Leadership, Intrinsic Motivation, and Trust: A Moderated-Mediated Model of Workplace Safety	Safety-specific transformational leadership, trust	Safety citizenship behavior	Two survey studies (UK construction sector)	Intrinsic motivation mediated leadership’s effect on safety behaviors. Trust also moderated the relationship.
37	(Fernet et al., 2010)	When Does Quality of Relationships With Coworkers Predict Burnout Over Time? The Moderating Role of Work Motivation	Relationship quality with coworkers, self-determined motivation	Burnout (exhaustion, depersonalization)	Two survey studies (UK construction sector)	High-quality relationships reduced burnout. The effects were more pronounced for employees with low levels of intrinsic need satisfaction.

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
38	(Thibault Landry et al., 2016)	Why Individuals Want Money Is What Matters: Using Self-Determination Theory to Explain the Differential Relationship Between Motives for Making Money and Employee Psychological Health	Motives for making money (self-integrated vs. non-integrated)	Well-being, ill-being, need satisfaction, need frustration	Two working samples (Canada, Germany)	Integrated motives increased well-being via need satisfaction. In contrast, non-integrated motives predicted ill-being due to need frustration.
39	(Schreurs et al., 2014)	Work Values and Work Engagement Within Teams: The Mediating Role of Need Satisfaction	Team-level shared work values (intrinsic vs. extrinsic)	Work engagement (vigor, dedication, absorption)	Multilevel study (31 teams, 307 employees in Belgium & Netherlands)	Intrinsic team values increased engagement because the individual's need satisfaction level is increased.
40	(Harrison et al., 1996)	Working Without a Net: Time, Performance, and Turnover Under Maximally Contingent Rewards	Reward contingency (commission-based vs. mixed pay)	Turnover, performance over time	Field study of 189 sales representatives	Contingent pay strengthened performance–turnover link. Low performers quit earlier, while high performers stayed longer.
41	(Trépanier et al., 2013)	Workplace Bullying and Psychological Health at Work: The Mediating Role of Satisfaction of Needs for Autonomy, Competence, and Relatedness	Workplace bullying (person-related, work-related, physical intimidation)	Psychological health via need satisfaction	SEM (1,179 nurses) in Canada	Bullying reduces need satisfaction (autonomy, competence, relatedness), increasing burnout and lowering engagement. Autonomy reduction had the strongest effect.
42	(Brien et al., 2012)	The Basic Psychological Needs at Work Scale: Measurement Invariance between Canada and France	Need satisfaction (autonomy, competence, relatedness)	Well-Being / Scale validation	Employees from Canada and France, 271 workers from Canada, and 851 teachers from France & Canada	Strong reliability and measurement invariance for the scale used. The scale can be used for assessing employee need satisfaction.
43	(Church et al., 2013)	Need Satisfaction and Well-Being: Testing Self-Determination Theory in Eight Cultures	Need satisfaction (autonomy, competence, relatedness)	Hedonic & eudaimonic well-being	SEM / College students from 8 countries	Across all countries, need satisfaction predicted greater well-being, supporting SDT universal application. Cultural differences affected the strength between need satisfaction and well-being.

Index	Authors (Year)	Paper Title	Independent Variables	Dependent Variables	Methodology / Sample	Key Findings
44	(Deci, Koestner, et al., 2001)	Extrinsic Rewards and Intrinsic Motivation in Education: Reconsidered once again	Extrinsic rewards	Intrinsic motivation	Meta-analysis (128 experimental studies)	Tangible rewards decreased intrinsic motivation. Verbal rewards increased it via an increase in competence.
45	(Martela et al., 2023)	Needs and Well-Being Across Europe: Basic Psychological Needs Are Closely Connected with Well-Being, Meaning, and Symptoms of Depression in 27 European Countries	Need satisfaction (autonomy, competence, relatedness)	Well-being, meaning, depressive symptoms	SEM with N=48550 across 27 European countries	Need satisfaction was associated with well-being and meaning while it was negatively related to depressive symptoms across all countries, supporting SDT universality.
46	(Coxen et al., 2023)	What matters more for daily well- and ill-being? The dual pathways of daily need satisfaction and frustration	Need Satisfaction & Need Frustration	Work engagement & exhaustion	Multilevel SEM / Daily diary study for 10 working days	Need satisfaction & frustration are distinct. Pathways: Need satisfaction → Intrinsic motivation (Mediator) → strong effect on work engagement Need frustration → Intrinsic motivation (Mediator) → strong effect on exhaustion

Overall, despite the fact that each motivation theory has a different structure and predictive accuracy, all motivation theories discussed point to a unifying element, that human motivation is driven by need satisfaction. SDT advances this tradition and considers autonomy, competence and relatedness as the basic nutrients for human beings universally. The studies shown in Table 1 consistently support that autonomy-supportive climates, skill development opportunities and meaningful social connections increase well-being, while controlling environments which stifle these needs predict burnout and ill-being. Table 1 highlights that external rewards can either support or undermine motivation, depending on how they are perceived, either as informational or controlling. From this plethora of research presented in Table 1, SDT offers a robust framework to understand occupational well-being. Additionally, although SDT research has been conducted in many different countries around the world, it has not been implemented in the Greek labour market, exposing a literature gap. This literature gap has motivated this thesis research which investigates how need satisfaction and external rewards jointly predict subjective well-being in the Greek labour market.

2.4 Summary of 2nd Chapter & Key themes appearing in SDT research & Well-Being in work settings

To conclude, motivation has been defined as the reason to initiate and sustain a certain set of actions (Sanjeev & Surya, 2016). Well-being can be defined as the prevalence of positive affect compared to negative one and the extent of life satisfaction which derives from personal judgment (Salas-Vallina & Alegre, 2021).

First, the chapter started with a brief presentation of the classical need-deficiency theories:

- Maslow proposed a hierarchical set from needs ranging from physiological needs to self-actualisation needs (Maslow, 1943).
- Herzberg, distinguished between two sets of factors, one set called hygiene factors which prevent dissatisfaction and the other set of factors called motivators which promote satisfaction and engagement (Kian Tan, 2014).
- Alderfer compressed Maslow's need into ERG (existential, relational, growth) while he expanded on the pyramidal shape of Maslow, allowing for more interactions among the needs (Alderfer, 1969).

- McClelland underlined the need for power, achievement, and affiliation. He argued that these needs are not inherent but acquired through socialisation (McClelland, 1961).

Self-determination theory is also a need framework. However, these needs do not originate from need-deficiency, but they are termed as basic nutrients for human life to flourish, function properly, psychologically grow and thrive (Van den Broeck et al., 2010). These needs are:

- The need for autonomy (acting willingly, with no external control). Autonomy has a direct link with true (i.e., non-contingent) self-esteem (Deci & Ryan, 1995).
- The need for competence (tendency to explore and master one's environment and craft, to evoke change) (White, 1959).
- The need for relatedness (a fundamental need to promote stable and caring bonds with other human beings). Literature has extended findings correlating the satisfaction of this need with mental, physical health, and happiness (Baumeister & Leary, 1995).

The motivation continuum ranging from amotivation, external and introjected regulation, identified and integrated motivation, and intrinsic motivation is presented. In addition, the concept of internalisation was explained (i.e., moving towards more stable forms of motivation), its benefits to well-being, and the required need satisfaction from the environment to promote this healthy transition (Van den Broeck et al., 2010).

Finally, an extended literature review was conducted where the following patterns consistently emerged.

I) The basic psychological needs (autonomy, competence, relatedness) play a central role in:

- 1) Well-Being
- 2) Performance Quality
- 3) Optimal functioning

If the basic psychological needs are supported, employees demonstrate creativity, persistence and vitality. On the contrary, when the same needs are frustrated (i.e., bullying, job insecurity, authoritarian and controlling leadership), there is a greater correlation

towards ill-being, burnout, disengagement and eventually, turnover (Cerasoli et al., 2014; Church et al., 2013; Coxen et al., 2023; Deci, 1971, 1972; Deci et al., 2017; Deci & Ryan, 2000; Gagné & Deci, 2005; Martela et al., 2023; Ryan & Deci, 1985, 2020).

II) To enhance intrinsic motivation and move towards internalisation, autonomy has been demonstrated to play a vital role. Research shows that autonomy-supportive leadership predicts greater intrinsic motivation and engagement while on the other hand, controlling environments such the imposition of strict deadlines predict the reduction of intrinsic motivation (Amabile et al., 1976; Baard et al., 2004; Deci et al., 1989; Deci, Ryan, et al., 2001; Gagné & Deci, 2005; Hardré & Reeve, 2009).

III) There is an enduring debate about the effect of extrinsic rewards on performance and intrinsic motivation. The following points provide a concise summary:

1) Contingent external rewards, if they are provided in a controlling manner, reduce intrinsic motivation. That is due to autonomy reduction. A satisfactory and interesting job might be reduced to a means towards an end, i.e., monetary rewards. The average employee will shift towards external motivation which is also associated with ill-being. However, a well-designed and fair compensation system might compensate for the reduction in intrinsic motivation (Cerasoli et al., 2014; Deci, 1971, 1972; Deci et al., 1999; Deci, Koestner, et al., 2001; Gerhart & Fang, 2015; Harrison et al., 1996; Olafsen et al., 2015; Weibel et al., 2010).

2) Verbal & informational feedback can boost intrinsic motivation when it is perceived as a competence-enhancing (Deci, 1972; Deci et al., 1999; Deci, Koestner, et al., 2001; Deci & Ryan, 2000; Gagné & Deci, 2005).

3) When performing simple, repetitive tasks where quantity matters, extrinsic rewards can enhance job performance, however, this is not true in jobs where creativity, deeper thinking and problem-solving capabilities are required (Cerasoli et al., 2014; Deci et al., 2017; Gerhart & Fang, 2015; Pink, 2011; Weibel et al., 2010).

IV) Self-determination theory seems to have a universal applicability. Even if autonomy is perceived differently in collectivistic countries, they still seem to benefit from autonomy-supportive policies, even at a less pronounced effect. For example, even in China, autonomy support can shift employees from external regulation to introjected motivation, which is

beneficial. However, the change in the internalisation spectrum is not particularly pronounced when considering the Confucian ethics rooted in the country (V. Chirkov et al., 2003; Deci, Ryan, et al., 2001; Deci & Ryan, 2000; Gagné & Deci, 2005; Nie et al., 2015).

Other points derived from the above literature review concern leadership styles, behaviour, empowerment, job characteristics, health outcomes, etc., however, these are out of the current thesis context and shall not be referred to.

To conclude, it is important to remember that to conduct proper research, a need satisfaction and a need frustration scale is required, as proposed by (Gagné & Deci, 2005) since need satisfaction and frustration are not opposite ends of a single continuum.

3. Research Methodology

3.1 Research Questions and Parameter Calculation

This chapter presents the research methodology. First, the research questions are restated below.

1. What is the level of intrinsic and extrinsic need (pay) satisfaction in employees in the Greek labour market?
2. What is the level of subjective well-being & ill-being at work among employees in the Greek labour market?
3. What is the relationship between internal / external need satisfaction and subjective well-being / ill-being at work? From this research question, the following hypotheses are derived (according to section 2.4, pattern I):

Main Hypothesis 1

H_0 : Intrinsic Needs Satisfaction & Pay Satisfaction do not statistically affect employee well-being in the Greek labour market.

H_1 : Intrinsic Needs Satisfaction & Pay Satisfaction statistically affect employee well-being in the Greek labour market.

Main Hypothesis 2

H_0 : Intrinsic Needs Frustration & Pay Satisfaction do not statistically affect employee ill-being in the Greek labour market.

H_1 : Intrinsic Needs Frustration & Pay Satisfaction statistically affect employee ill-being in the Greek labour market.

4. Do external rewards given in a controlling or informational manner undermine intrinsic motivation? Is intrinsic motivation associated positively with subjective well-being? From this research question, the following hypotheses are derived (according to section 2.4, pattern III):

Main Hypothesis 3

H_0 : Viewing external rewards as controlling or informational does not mediate the relationship between autonomy / competence satisfaction and well-being.

H_1 : Viewing external rewards as controlling or informational mediates the relationship between autonomy / competence satisfaction and well-being.

Main Hypothesis 4

H_0 : Viewing external rewards as controlling or informational does not mediate the relationship between autonomy / competence frustration and ill-being.

H_1 : Viewing external rewards as controlling or informational mediates the relationship between autonomy / competence frustration and ill-being.

5. Does the relationship between internal / external need satisfaction and well-being change across generations (Gen X, Gen Y, Gen Z), education levels, or organisation size?

6. The following topics will be answered (in Chapter 5): a) Comparison of intrinsic / extrinsic need satisfaction and subjective well-being at work among Greece and other countries, b) the implications for the most appropriate organizational leadership styles and suitable management practices that promote employee well-being.

To answer the above questions, an extensive survey was prepared. Data was collected through primary research. The questionnaire assessed the following variables or constructs (Table 2).

Table 2

Calculation Method for each variable or construct

Variable / Construct	Method
(1) Autonomy satisfaction (AS)	A set of four (4) questions was provided regarding each of the six (6) constructs for each individual in the sample. Each question was answered by using a 7-point Likert scale (1: Strongly disagree to 7: Strongly agree). Each of the six (6) constructs for each participant was calculated as the mean score
(2) Autonomy frustration (AF)	

(3) Competence satisfaction (CS) (4) Competence frustration (CF) (5) Relatedness satisfaction (RS) (6) Relatedness frustration (RF)	in each question set. This set of 24 questions is based on the work of (Van den Broeck et al., 2010).
(7) Pay satisfaction (PS)	A set of eight (8) questions was used to calculate PS for each individual in the sample. The question set is based on the work by (Heneman et al., 1985). Each question was answered by using a 7-point Likert scale (1: Strongly dissatisfied to 7: Strongly satisfied). PS for each participant was calculated as the mean score in the pertinent question set.
Tendency to view external rewards as controlling (CTR) Tendency to view external rewards as informational (INF) (8) Perception of Payment Rewards (PPR)	A set of seven (7) questions was used to calculate PPR for each individual in the sample. Since there was no reference in the scientific literature, a relevant questionnaire was made to assess PPR. Four (4) items were used to assess the tendency of the individual to view the external rewards as informational, while the remaining three (3) items were used to assess the individual's tendency to view external rewards as controlling. Each question was answered by using a 5-point Likert scale (1: Strongly disagree to 5: Strongly agree). To estimate PPR the following, one must follow the steps shown below: • First, the average informational tendency and the average controlling tendency were calculated. • The average controlling tendency was subtracted from the average informational tendency of external rewards.

	• The more positive the result (maximum value of 4), the greater the tendency of the individual to view rewards as informational • The more negative values express (lowest value of -4) express the individual's tendency to view external rewards as controlling.
(9) Well-Being at work (WB) (10) Ill-Being at work (IB)	To estimate occupational well-being, a set of nine (9) items was used, as proposed by (Salas-Vallina & Alegre, 2021). To estimate ill-being at work, a set of eight (8) items was used as proposed in (Gruszczynska et al., 2021). Each question was answered by using a 7-point Likert scale (1: Strongly disagree to 7: Strongly agree). WB / IB for each participant was calculated as the average score in the pertinent question set.

In total, 10 variables or constructs were measured by using a total of 56 questions. Four (4) demographic questions were added regarding biological sex, age group (generation), educational level, and organisation size, totaling 60 questions. For the full questionnaire, see Appendix A.

Important note: Pearson correlations, ANOVA, t-tests, mediation analysis, and multiple regression equations were drawn from Likert-scale responses, which are by their nature ordinal. However, they were treated as continuous interval variables. While ordinal variables do not guarantee an equal distance between categories (e.g., between “low” and “medium” versus “medium” and high”), continuous interval variables imply almost equal distances between scale points (e.g., between “1” and 2” versus “6” and “7”). This approach is generally accepted in social science when composite items are created from averaging multiple questionnaire items, and therefore, parametric statistical techniques such as the ones mentioned above can be applied.

To participate in this survey, a participant should be currently working in the Greek labour market, regardless of industry or business sector. All responses were anonymous and were used solely for academic purposes. No identifying information was collected from the participants. A convenience sampling method was employed for the current MBA thesis. In

other words, participants were chosen based on easy accessibility (e.g., Viber groups, social media posts such as Facebook or LinkedIn, colleagues & friends, etc.). Most of the time, those participants were requested to add more participants from their respective networks. This is called the snowball sampling method. Although this combination of sampling methods provided a fast and low-cost method to obtain answers, the sample might not be representative of the overall population, as there was no control of the characteristics of the participants filling in the survey.

Due to time, accessibility constraints, and the exploratory nature of the current thesis, convenience sampling enabled fast access to current employees within the Greek labour market. In addition, snowball sampling aided in the expansion of the respondents' pool via professional and social networks. Although access among different demographic groups was provided via snowball sampling, the sample obtained is not fully randomized and representative of the overall Greek labour force (sampling bias). Other weaknesses introduced to the current sampling methods are:

- Self-selection bias: Increased probability of participation only from individuals having an interest in occupational well-being and motivation.
- Network bias: In snowballing sampling, participants tend to propagate the survey to participants with a similar demographic background (i.e., professional, educational, etc). As a result, some demographic groups are overrepresented while others are underrepresented.

Overall, the results cannot be generalised to the broader Greek workforce. They provide a significant indication of internal need satisfaction, pay satisfaction, well-being, and their relationships in Greece; however, they are not definitive. For a definite result, the research must be conducted using probability sampling techniques and larger sample sizes.

Participation in the current survey was voluntary. All respondents were informed that no personal data would be collected and that their answers would be used solely for academic purposes. Before completion, the participants were informed about the purpose of the current study, its target audience, the questionnaire setup, and its approximate duration. Participants could only participate with their informed consent, while they could discontinue answering at any moment without any consequences. The data collection period for the current thesis ranged from October 2025 to December 2025.

To check the reliability of each question set, Cronbach's alpha (α) was calculated. Values greater than 0.7 are acceptable; however, values greater than 0.9 imply a high consistency of the questionnaire. This means that all questions point to the same construct (e.g., autonomy satisfaction, or relatedness frustration). However, values greater than 0.95 might indicate redundancy.

Although Cronbach's alpha (α) might show smooth internal consistency among the items, the item group might not point to its associated theoretical construct. Confirmatory Factor Analysis (CFA) will be used within the Structural Equation Modelling (SEM) framework to validate construct validity. To validate the latent structures, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), root mean square error of approximation (RMSEA) και standardized root mean square residual (SRMR) values will be reported.

- CFI and TLI are used for the validation of the latent structures. If CFI and TLI values are greater than 0.9, the theoretical model fit is considered acceptable, while if CFI and TLI values are greater than 0.95, the theoretical model fit is considered excellent.
- RMSEA shows the approximation error of this model compared to the overall population. Values less than 0.08 are considered acceptable, while values between 0.08 and 0.1 are considered mediocre. The more complex a CFA is (many items per latent construct, many latent constructs, smaller sample), the greater the RMSEA value is expected.
- SRMR checks the difference between the observed correlations and the correlations predicted by the theoretical model within the SEM framework. If SRMR is below 0.1, it is acceptable. However, the model reproduces the real data best when SRMR is below 0.08.

3.2 Statistical Processing

Statistical processing was conducted with SPSS® (Statistical Package for the Social Sciences) software. To answer the stated research questions, descriptive statistics, t-tests, ANOVA, mediation, and regression analyses were used. CFA was conducted using Jamovi® software, while also installing the SEM (lavaan) add-on to check the construct validity.

More specifically, *to answer research question 1*: The sample mean and standard deviation were estimated for parameters (1) to (7). In addition, for each parameter, normality and skewness of the distribution were calculated.

Moreover, pertinent checks (t-tests and ANOVA) were conducted to answer whether parameters (1) – (7) differ:

- Among generations (Gen X, Gen Y, Gen Z, Baby Boomers).
- Between the biological sexes (male, female).
- With respect to the highest education level completed (High School, BSc, MSc, PhD).
- With respect to the organizational size (small, medium, large).

T-tests were employed when comparing the means of two independent groups (such as male-female groups). To conduct t-tests, first, a Levene's test is required to check if the subgroups' variances are equal. If they are equal, a Student's t-test with pooled variances can be used, otherwise Welch's t-test is used, as it is more robust.

ANOVA tests were employed when comparing the means of more than two groups. This was applied for the different age groups, education levels, and organization size categories. To apply a one-way ANOVA, normal distribution and equal variances are assumed for each subgroup. A more robust method to be used is Welch's ANOVA, as it does not rely on the above assumptions.

To answer research question 2, the sample mean and standard deviation were estimated for parameters (9) and (10). Apart from the above, for each parameter, normality and skewness of the distribution were calculated.

In addition, pertinent checks (t-tests and ANOVA) were conducted to determine if parameters (9) and (10) differ:

- Among generations (Gen X, Gen Y, Gen Z, Baby Boomers).
- Between the biological sexes (male, female).
- With respect to the highest education level completed (High School, BSc, MSc, PhD).
- With respect to the organizational size (small, medium, large).

The procedure described in Research Question 1 was also applied in Research Question 2.

To answer research question 3:

1) A correlational analysis was conducted first. This is an important check to observe variable associations as well as the strength of those associations. Spearman's correlations

are most used when the data are not normally distributed, and the variables are ordinal since they have been derived from Likert scales. A final note is that correlation does not automatically mean causation.

2) A multiple linear regression analysis for well-being was considered as follows:

$$WB = \beta_0 + \beta_1 \cdot AS + \beta_2 \cdot CS + \beta_3 \cdot RS + \beta_4 \cdot PS + \varepsilon$$

Pertinent t-tests were conducted to examine the significance of each slope parameter. In addition, the R^2 parameter was calculated as a measure of regression fit. Regression analysis quantifies each variable separately. For example, one could answer how much well-being is increased when AS increases by 1 unit, while all other variables remain constant. With a regression model, predictions can be made. Finally, regression estimates how much of the variance in the independent variable is explained by the dependent variables.

3) A multiple linear regression analysis for ill-being was considered (for the reasons mentioned above):

$$IB = \beta'_0 + \beta'_1 \cdot AF + \beta'_2 \cdot CF + \beta'_3 \cdot RF + \beta'_4 \cdot PS + \varepsilon$$

Pertinent t-tests were conducted to examine the significance of each slope parameter. In addition, the R^2 parameter was calculated as a measure of regression fit. Finally, F-tests were conducted to validate the significance of the above models.

To answer research question 4:

Mediation analysis (PROCESS model 4 proposed by Andrew F. Hayes) was employed.

For participants whose PRP was controlling, the link between PRP and well-being / ill-being was examined to check if there is any partial or full mediation through a reduction in autonomy or competence. The hypothesis to be tested was whether those participants whose PRP is controlling experience a reduction in well-being (or increase in ill-being) through a reduction in autonomy and / or competence satisfaction or through an increase in autonomy and / or competence frustration.

For participants whose PRP was informational, the link between PRP and well-being / ill-being was examined to check if there was any partial or full mediation through an increase in autonomy or competence. Specifically, the hypothesis to be tested was whether those participants whose PRP is informational experience an increase in well-being (or reduction

in ill-being) through an increase in autonomy and / or competence satisfaction or through a decrease in autonomy and / or competence frustration.

The input for the PROCESS model is the independent variable (e.g., autonomy satisfaction), the dependent variable (e.g., well-being), and the mediator variable for the sample (in our case, the perception of pay rewards – PPR). For a visual explanation, see Figure 6.

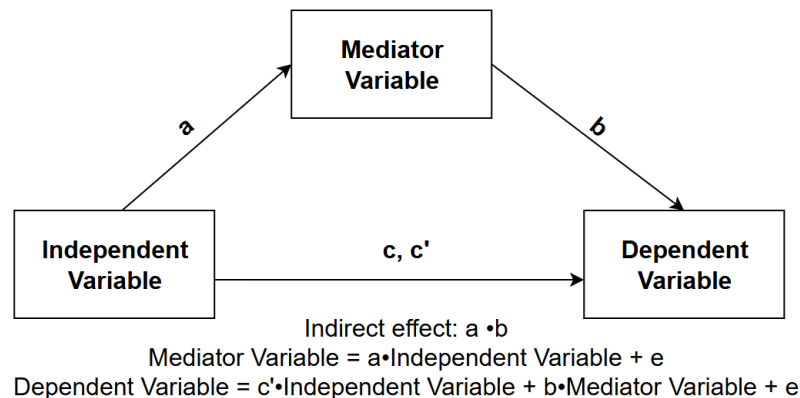
PROCESS then estimates:

Pathway 1: Independent Variable → Mediator Variable (Coefficient a)

Pathway 2: Mediator Variable → Dependent Variable (Coefficient b)

Figure 6

PROCESS mediation model (Model 4)



Pathway 3: Independent Variable → Dependent Variable (Coefficient c' – Direct effect, with the presence of the mediator variable)

Pathway 4: Independent Variable → Dependent Variable (Coefficient c – Total Effect, without the presence of the mediator variable)

Among the above coefficients, the following equation holds:

$$c = c' + a \cdot b$$

The relative mediation effect (%) is calculated as:

$$\text{Mediation effect (\%)} = \frac{a \cdot b}{c} = \frac{c - c'}{c} = 1 - \frac{c'}{c}$$

Apart from uniquely calculating a mediation effect from the datasheet, it instead uses bootstrapping to create a 95% confidence interval. Bootstrapping is a resampling technique.

Drawing from the provided dataset, bootstrapping draws thousands of samples (5000 in the current thesis) to estimate the confidence interval of $a \cdot b$. If the confidence interval includes zero, then the mediation effect is not statistically significant, and vice versa.

Research question 5 is an extension of research question 3. To answer research question 5, well-being and ill-being equations were formulated while controlling for a) biological sex, b) age-group, c) study level, and d) organisation size. For example, a possible conclusion of this research question might be that well-being in women is positively correlated with relatedness satisfaction; Gen Z well-being might be positively associated more by autonomy satisfaction compared to Gen X since they value a more balanced approach in need satisfaction. Another conclusion might be that as organisation size increases, autonomy satisfaction is reduced (or autonomy frustration is enhanced) due to an increasing number of procedures, and approval layers, which restrict free-will and initiative.

In general, multiple regression models assume not highly correlated independent variables. Therefore, in all regression models included in research questions 3 & 5, a multicollinearity check has been conducted. By passing the multicollinearity check, the multiple regression model is validated and interpretable. The Variance Inflation Factor (VIF) was calculated for each model. The acceptance criteria for the multicollinearity test are as follows:

- $VIF < 5 \rightarrow$ Acceptable
- $5 < VIF < 10 \rightarrow$ Potential concern
- $VIF > 10 \rightarrow$ Multicollinearity issues

Research question 6 was answered mainly by scientific literature, but also business- related articles and surveys on the subject matter.

4. Survey Results

The questionnaire was answered by 174 participants ($n=174$). An actual response rate cannot be derived since the survey was posted on social media (Facebook / LinkedIn) & group chats mostly (HOU group chats, group chats for external activities, etc). The questionnaire was also forwarded to specific individuals, colleagues at work, and MBA classmates. In section 4.1, the demographic characteristics of the sample are summarised in pie-charts, while in section 4.2, the frequency distribution of the constructs of psychological needs, pay satisfaction, well-being, and ill-being are presented.

To estimate the reliability of the items used for each construct, such as autonomy satisfaction or tendency to view external rewards as controlling, Cronbach's alpha (α) has been calculated for each one. The results are depicted in Table 3. All Cronbach's alpha values indicated internal consistency of each construct without any redundancy. This means that participants answer similarly in the items for each construct.

Table 3

Cronbach's alpha (α) calculation

Variable	Cronbach's Alpha (α)
AS	0.809
CS	0.891
RS	0.872
PS	0.928
CTR	0.886
INF	0.782
AF	0.788
CF	0.806
RF	0.748
WB	0.891
IB	0.912

To check the construct validity, CFA was conducted and the following values are obtained (see Table 4):

Table 4*CFA results for construct validity*

Index	Value	Remarks
CFI	0.980	Excellent – Constructs validated
TLI	0.979	Excellent – Constructs validated
RMSEA	0.096	Mediocre fit for population (usually a combination of many latent constructs and small sample size increase RMSEA)
SRMR	0.088	Acceptable theoretical and real data fit

4.1 Survey Demographics

Figure 7 to Figure 10 show the distribution (in percentages) of demographic characteristics of the sample.

Figure 7

Participants' answer to "What is your biological sex" question

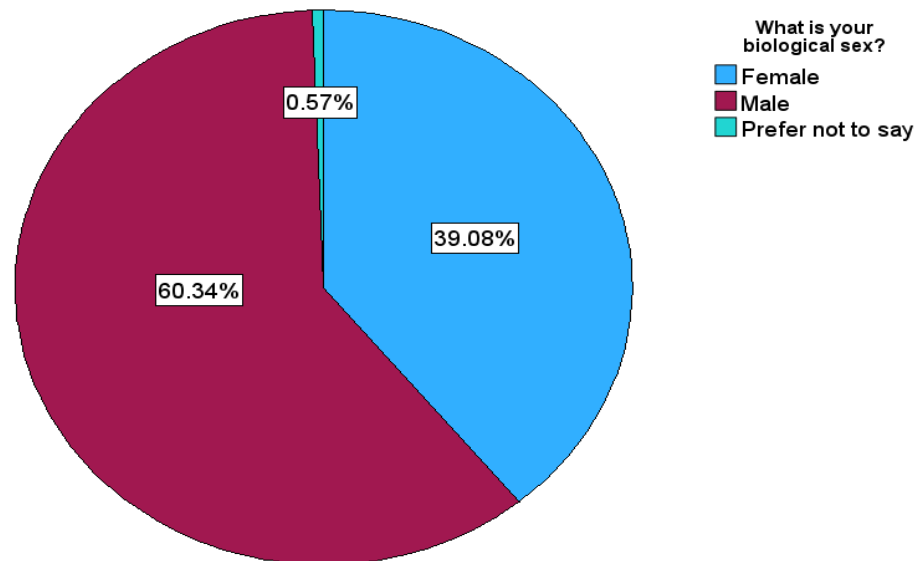


Figure 8

Participants' answer to "What is your age" question

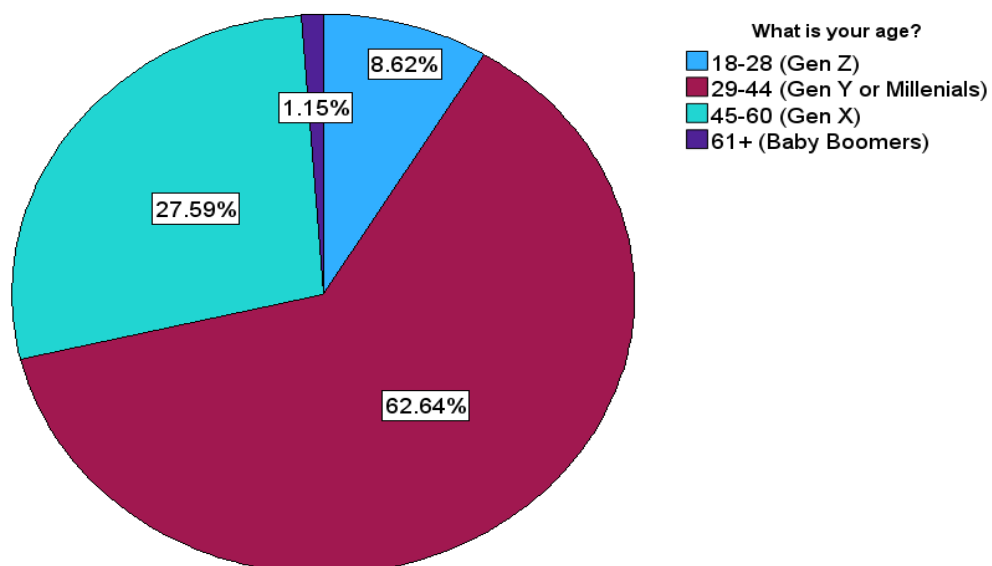


Figure 9

Participants' answer to "What is your highest level of education completed" question

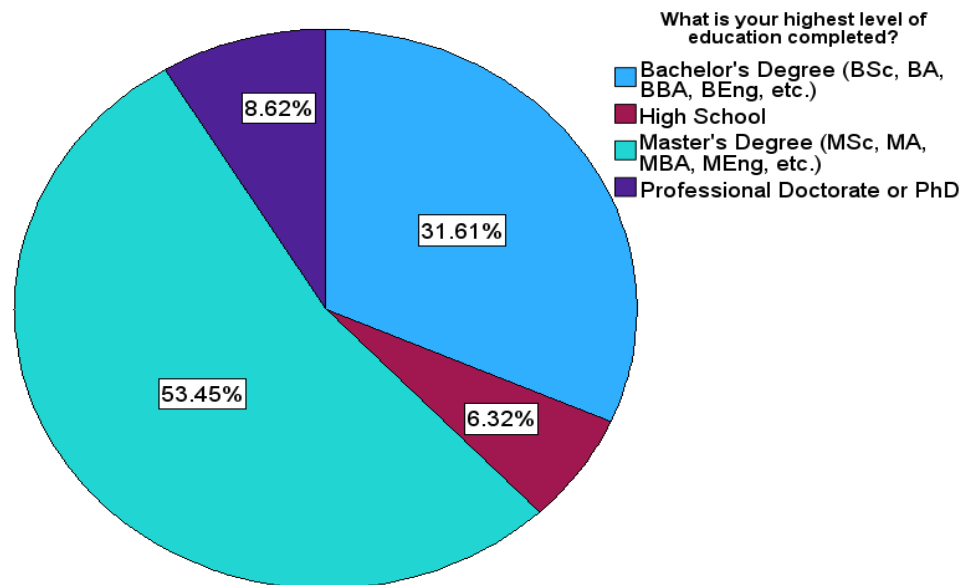
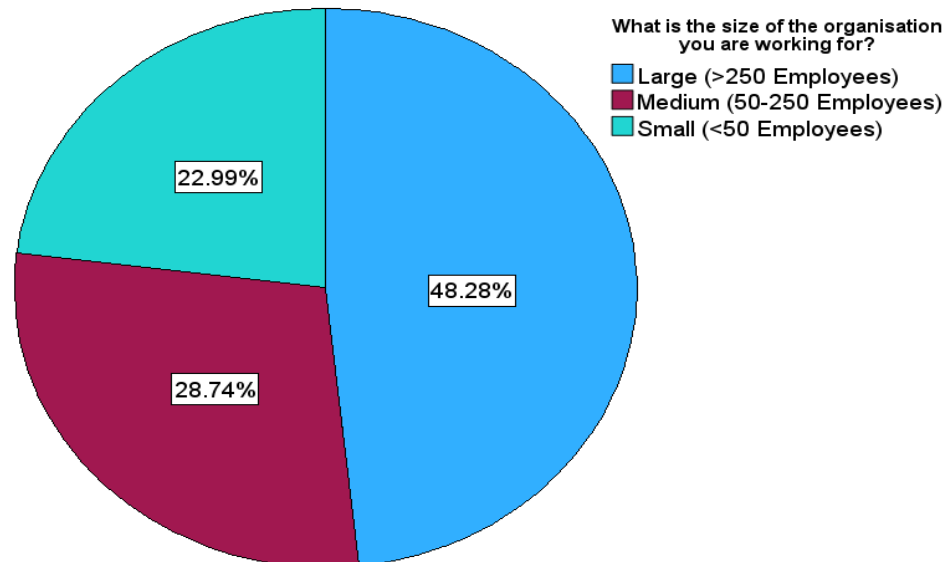


Figure 10

Participants' answer to "What is the size of the organisation you are working for" question



4.2 Distributions of Psychological Constructs, Pay Satisfaction, Well-being and Ill-being

Figure 11 to Figure 20 show of sample distribution for each of the constructs used.

Figure 11

Frequency bar graph - Autonomy satisfaction based on participants' answers

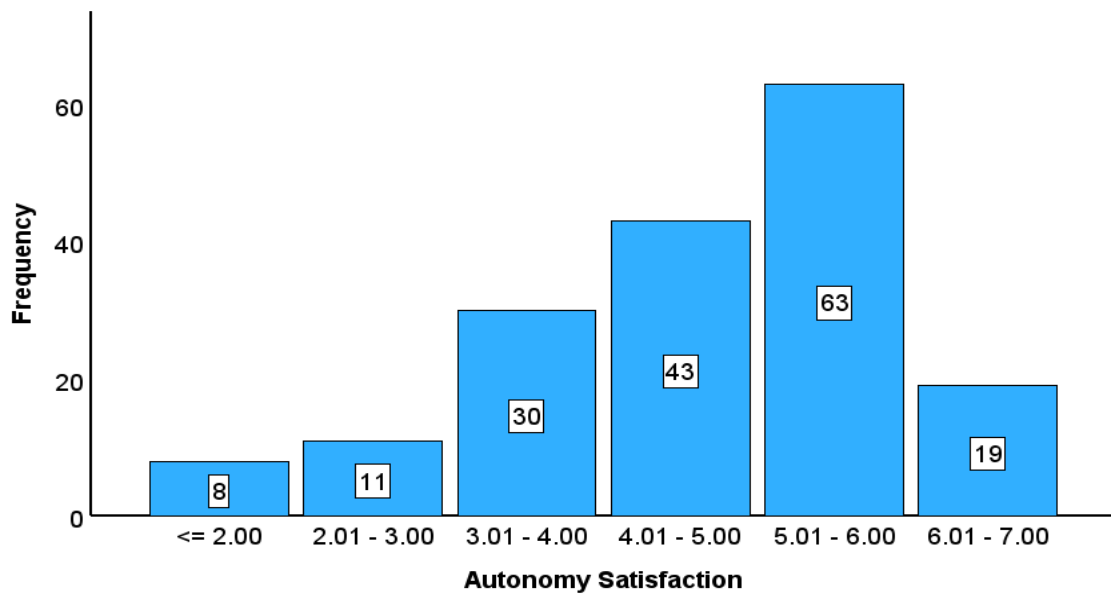


Figure 12

Frequency bar graph - Competence satisfaction based on participants' answers

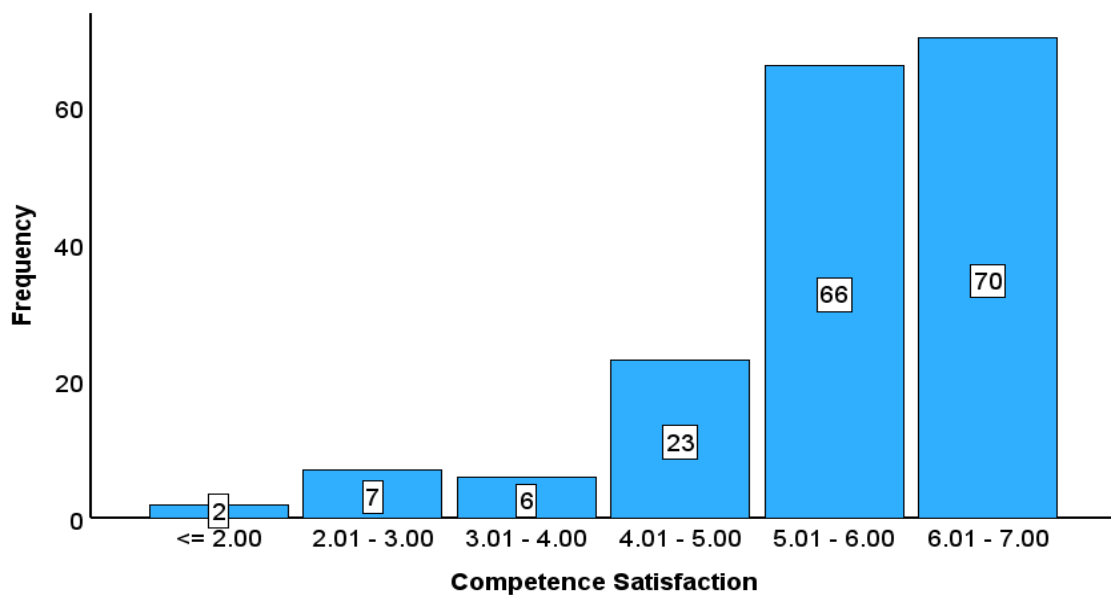


Figure 13

Frequency bar graph - Relatedness satisfaction based on participants' answers

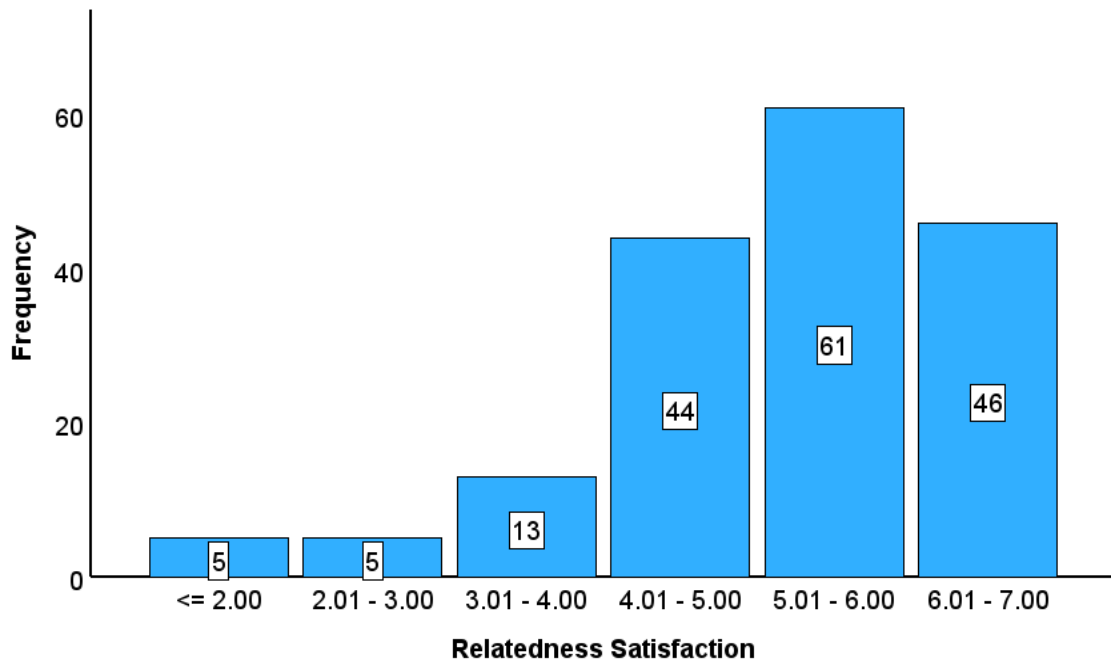


Figure 14

Frequency bar graph - Autonomy frustration based on participants' answers

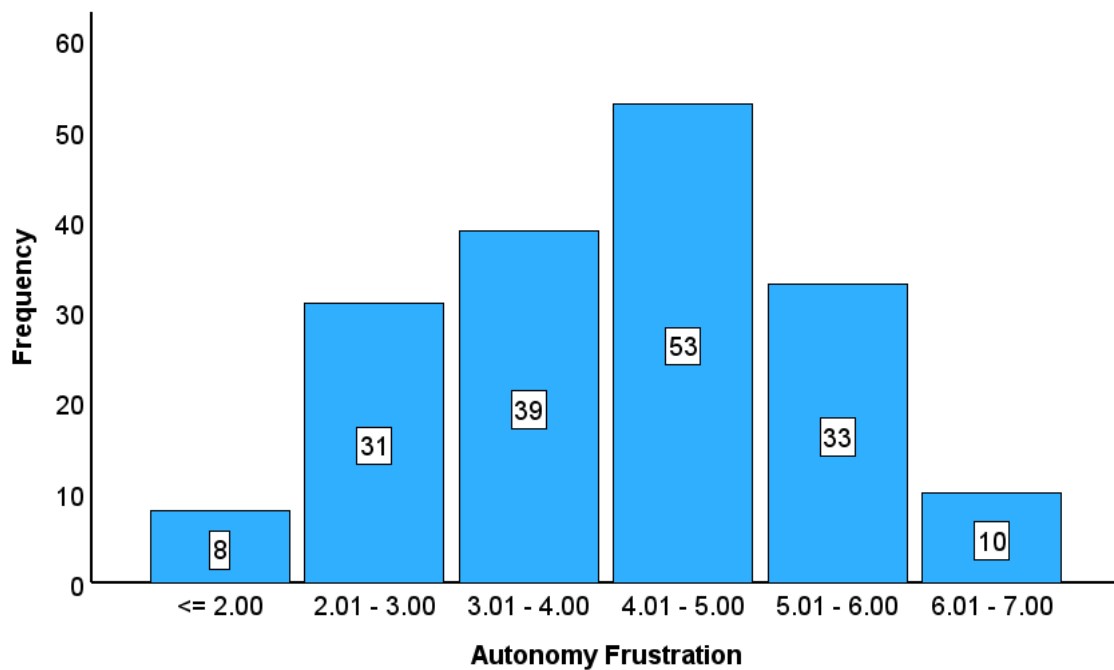


Figure 15

Frequency bar graph - Competence frustration based on participants' answers

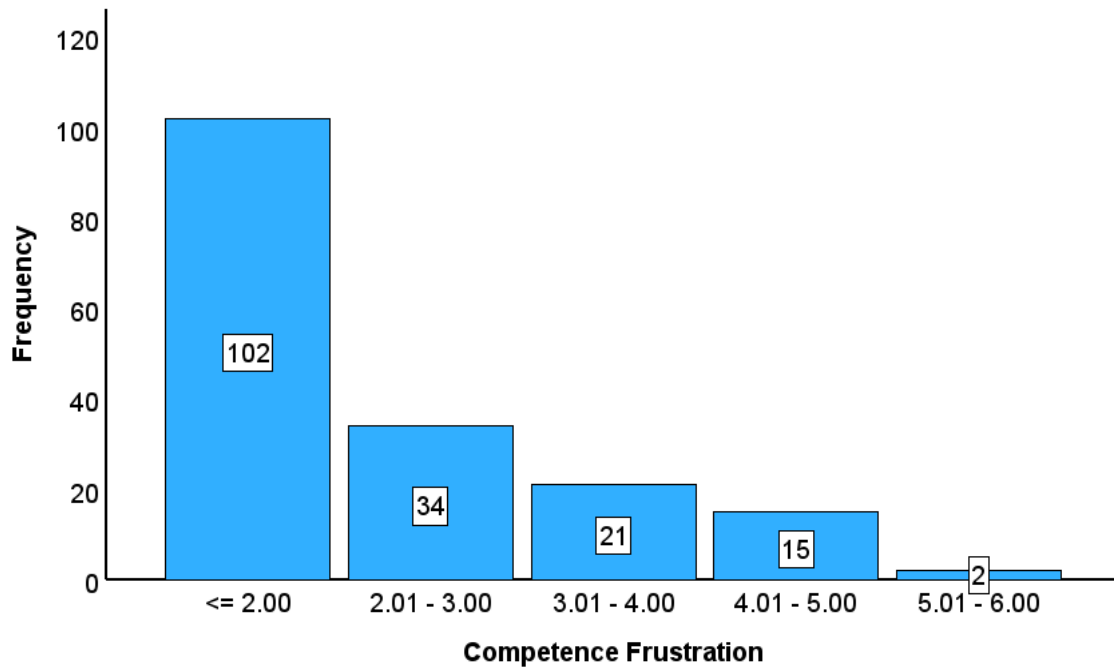


Figure 16

Frequency bar graph – Relatedness frustration based on participants' answers

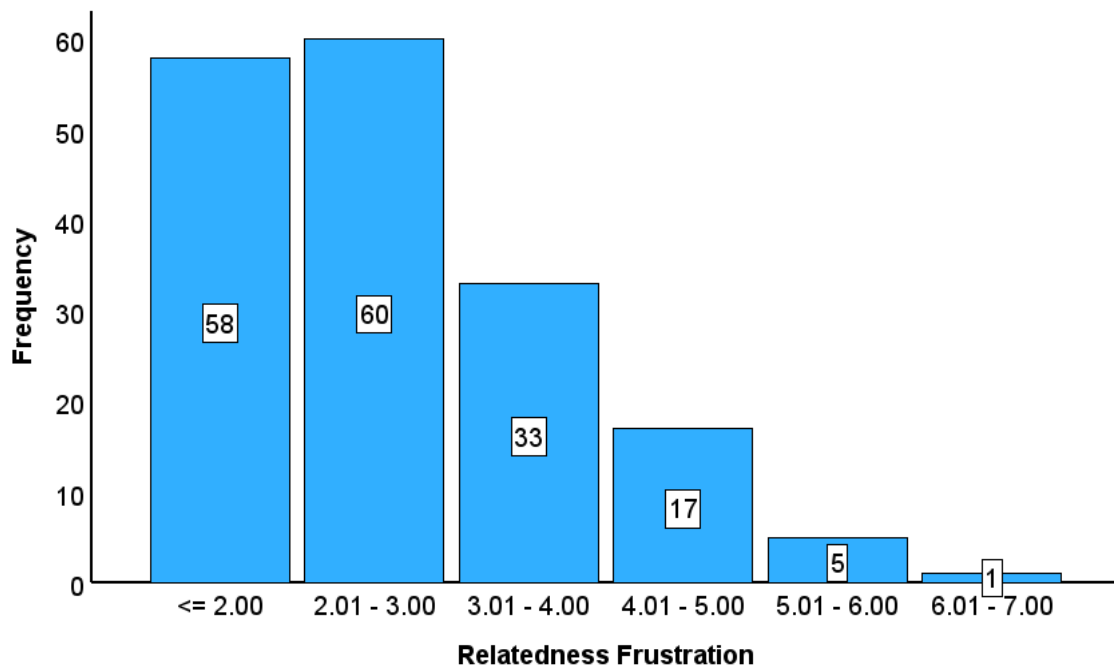


Figure 17

Frequency bar graph - Pay satisfaction based on participants' answers

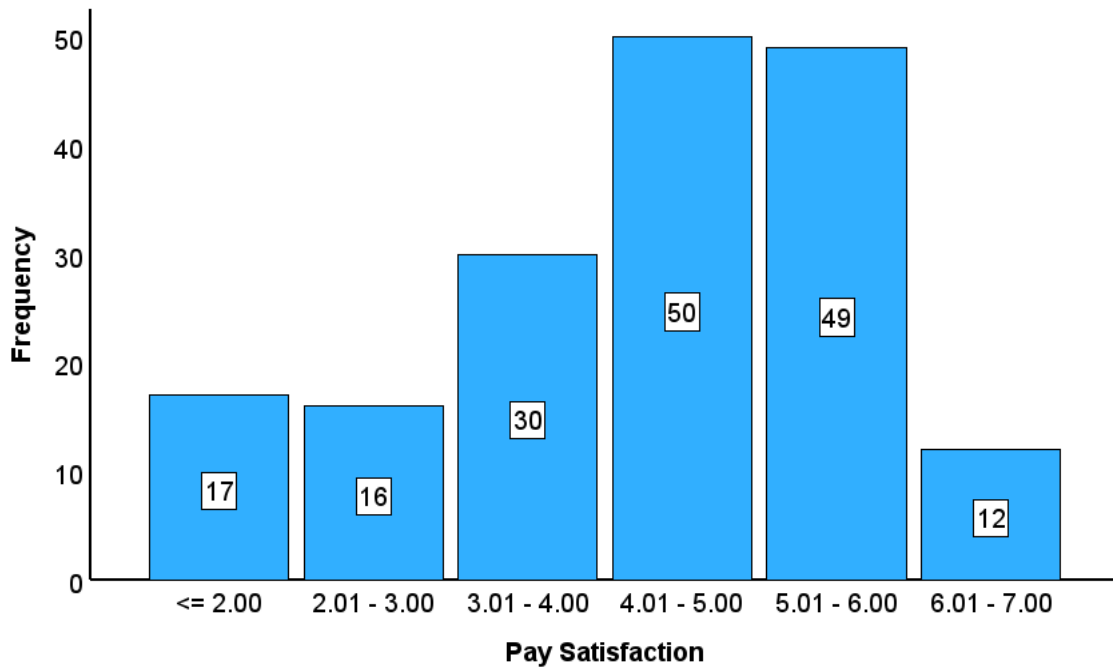


Figure 18

Frequency bar graph - Well-being based on participants' answers

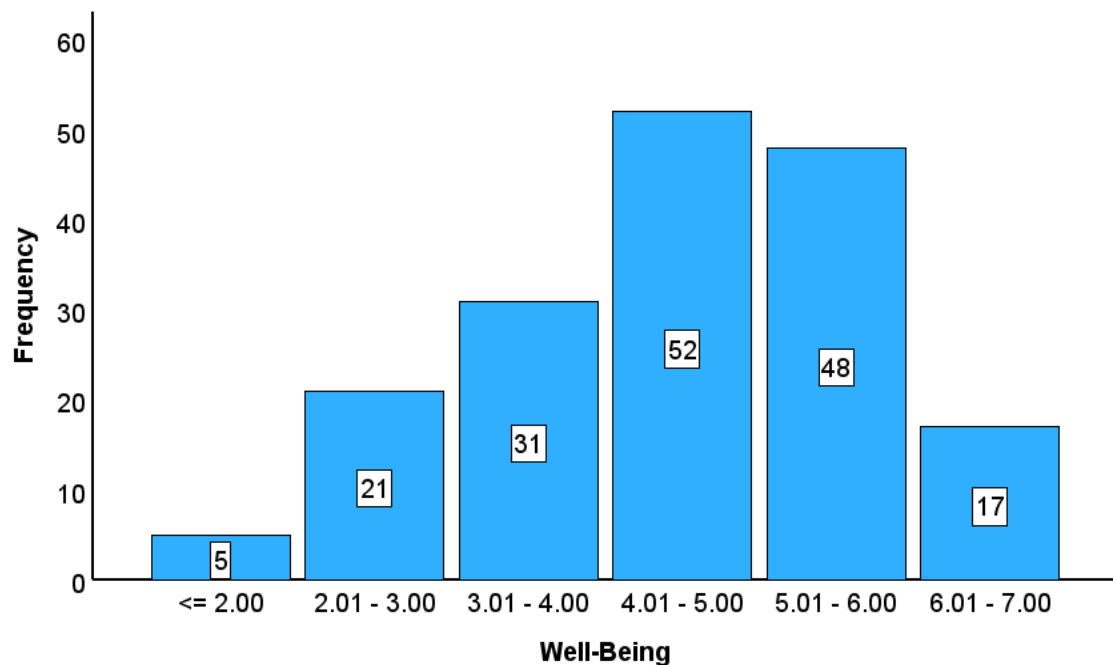


Figure 19

Frequency bar graph - Ill-being based on participants' answers

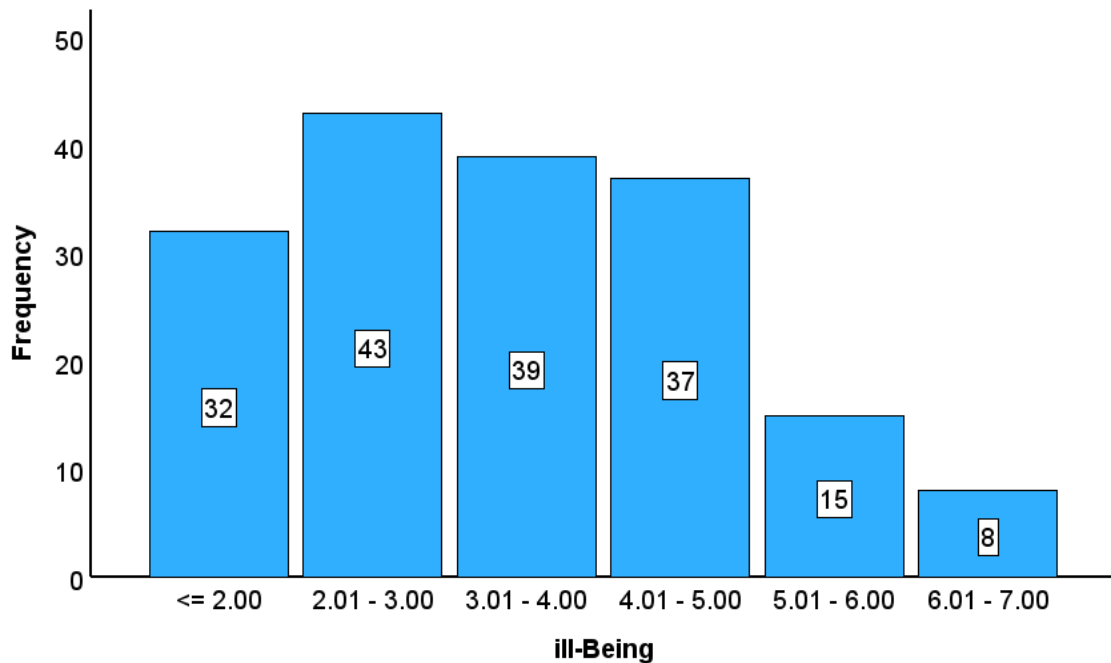
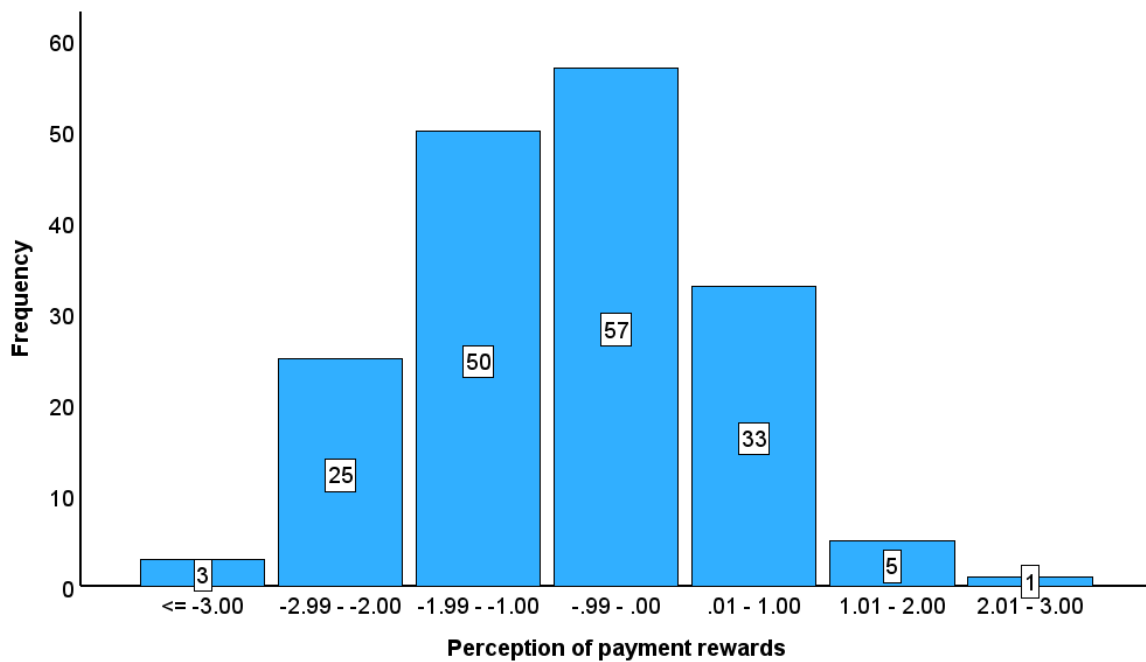


Figure 20

Frequency bar graph - Perception of payment rewards based on participants' answers



Summarizing the Figures from Figure 11-Figure 20, the following results are obtained (see Table 5):

Table 5

Distribution of psychological needs, pay satisfaction, well-being and ill-being per participants' answers

Variable	Low (1-3)	Medium (3-5)	High (5-7)
AS	19 (10.92%)	73 (41.95%)	82 (47.13%)
CS	9 (5.17%)	29 (16.67%)	136 (78.16%)
RS	10 (5.75%)	57 (32.76%)	107 (61.49%)
PS	33 (18.97%)	80 (45.98%)	61 (35.05%)
AF	39 (22.41%)	92 (52.87%)	43 (24.72%)
CF	136 (78.16%)	36 (20.69%)	2 (1.15%)
RF	118 (67.82%)	50 (28.74%)	6 (3.44%)
WB	26 (14.94%)	83 (47.70%)	65 (37.36%)
IB	75 (43.10%)	76 (43.68%)	23 (13.22%)
Variable	Low (≤ -1)	Med. (-1 to 1)	High (≥ 1)
PPR	78	90	6

4.2 Results for Research Question 1

The descriptive statistics regarding research question 1 are shown in Table 6.

Table 6

Descriptive Statistics (Research Question 1)

Variables	$\bar{x}$	s	Skewness	Kurtosis
AS	4.7787	1.2835	-0.615	-0.081
CS	5.7399	1.1087	-1.501	2.697
RS	5.3448	1.2050	-1.093	1.424
PS	4.3362	1.4114	-0.565	-0.405
AF	4.2198	1.2505	-0.178	-0.606
CF	2.2644	1.1375	0.913	0.001
RF	2.7500	1.1643	0.698	0.099

By observing the above results, one can extract the following observations:

- Satisfaction mean values are generally high, especially for Competence satisfaction and Relatedness satisfaction. Lower mean value is reported for Autonomy and Pay Satisfaction variables, however, it is still above the middle point. All satisfaction and dissatisfaction scales ranged from 1 (very low) to 7 (very high).
- Frustration mean values are considered low, except for Autonomy frustration, which seems to surpass the middle point of the scale.
- The values of standard deviation report a uniform and moderate dispersion of all satisfaction and dissatisfaction scales. The highest standard deviation value is reported for “Pay Satisfaction”, which indicated that participants’ opinions regarding their pay differed more sharply compared to the rest of the variables.
- Negative skewness values indicated that most participants are concentrated at the high end of the scale. This can be especially observed in the “Competence Satisfaction” and “Relatedness Satisfaction” scales. A slightly negative value of skewness in “Autonomy Frustration” indicated a relatively high concentration of participants at the middle to higher score levels. On the contrary, positive skewness values in “Competence Frustration” and “Relatedness Frustration” indicated that participants’ answers are concentrated towards the lowest score levels.
- Kurtosis values for most variables are close to 0, indicating a mesokurtic distribution. High values for “Competence satisfaction” and “Relatedness satisfaction” show a more peaked (leptokurtic) distribution.

Table 7 to Table 10 show if there are any differences in the means of the variables shown in Table 6 a) among generations, b) between the sexes, c) among employees with different educational background and d) among employees who work in organizations of different sizes.

Table 7

ANOVA test for pertinent variables, among different age groups

Variable	Descriptive Statistics / ANOVA	Result
AS	H₀: The mean score of AS is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean AS score. Gen Z: $\bar{x}_1 = 4.72, s_1 = 1.24$, Gen Y: $\bar{x}_2 = 4.76, s_2 = 1.25$, Gen X: $\bar{x}_3 = 4.86, s_3 = 1.40$ $F(2, 169) = 0.13, p = 0.88, \eta^2 = 0.001$	No statistical difference among generations (H ₀ cannot be rejected). Negligible effect size.
CS	H₀: The mean score of CS is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean CS score. Gen Z: $\bar{x}_1 = 5.28, s_1 = 1.24$, Gen Y: $\bar{x}_2 = 5.79, s_2 = 1.00$, Gen X: $\bar{x}_3 = 5.76, s_3 = 1.29$ $F(2, 169) = 1.40, p = 0.25, \eta^2 = 0.016$	No statistical difference among generations (H ₀ cannot be rejected). Small effect size.
RS	H₀: The mean score of RS is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean RS score. Gen Z: $\bar{x}_1 = 5.28, s_1 = 1.41$, Gen Y: $\bar{x}_2 = 5.43, s_2 = 1.09$, Gen X: $\bar{x}_3 = 5.17, s_3 = 1.39$ $F(2, 169) = 0.785, p = 0.458, \eta^2 = 0.009$	No statistical difference among generations (H ₀ cannot be rejected). Negligible effect size.
PS	H₀: The mean score of PS is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean PS score. Gen Z: $\bar{x}_1 = 4.04, s_1 = 1.32$, Gen Y: $\bar{x}_2 = 4.42, s_2 = 1.36$, Gen X: $\bar{x}_3 = 4.2, s_3 = 1.55$ $F(2, 169) = 0.734, p = 0.482, \eta^2 = 0.009$	No statistical difference among generations (H ₀ cannot be rejected). Negligible effect size.

AF	H₀: The mean score of AF is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean AF score. Gen Z: $\bar{x}_1 = 3.82, s_1 = 0.98$, Gen Y: $\bar{x}_2 = 4.38, s_2 = 1.24$, Gen X: $\bar{x}_3 = 3.98, s_3 = 1.32$ $F(2, 169) = 2.631, p = 0.075, \eta^2 = 0.03$	Statistical difference in means depending on the confidence interval. <u>Gen Y might indicate greater autonomy frustration than other generations.</u> H₀ rejected when CI=0.1. Small effect size.
CF	H₀: The mean score of CF is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean CF score. Gen Z: $\bar{x}_1 = 2.78, s_1 = 1.18$, Gen Y: $\bar{x}_2 = 2.28, s_2 = 1.10$, Gen X: $\bar{x}_3 = 2.08, s_3 = 1.19$ $F(2, 169) = 2.26, p = 0.111, \eta^2 = 0.026$	No statistical difference among generations (H₀ cannot be rejected). Small effect size.
RF	H₀: The mean score of RF is equal across generations (Gen X, Gen Y, Gen Z) H₁: At least one generation has a different mean RF score. Gen Z: $\bar{x}_1 = 2.63, s_1 = 0.97$, Gen Y: $\bar{x}_2 = 2.75, s_2 = 1.13$, Gen X: $\bar{x}_3 = 2.80, s_3 = 1.32$ $F(2, 169) = 0.734, p = 0.482, \eta^2 = 0.001$	No statistical difference among generations (H₀ cannot be rejected). Negligible effect size.

Table 8

ANOVA test for pertinent variables, between the two sexes

Variables	Descriptive Statistics / t-test	Result
AS	$H_0: \mu_{AS, Male} = \mu_{AS, Female}$ $H_1: \mu_{AS, Male} \neq \mu_{AS, Female}$ Male: $\bar{x}_1 = 4.84, s_1 = 1.26$, Female: $\bar{x}_2 = 4.72, s_2 = 1.30$ $t = 0.621, p = 0.535, d = 0.097$	No statistical difference between sexes (H_0 cannot be rejected). Small effect size.
CS	$H_0: \mu_{CS, Male} = \mu_{CS, Female}$ $H_1: \mu_{CS, Male} \neq \mu_{CS, Female}$ Male: $\bar{x}_1 = 5.76, s_1 = 1.02$, Female: $\bar{x}_2 = 5.75, s_2 = 1.20$ $t = 0.034, p = 0.973, d = 0.005$	No statistical difference between sexes (H_0 cannot be rejected). Negligible effect size.
RS	$H_0: \mu_{RS, Male} = \mu_{RS, Female}$ $H_1: \mu_{RS, Male} \neq \mu_{RS, Female}$ Male: $\bar{x}_1 = 5.37, s_1 = 1.10$, Female: $\bar{x}_2 = 5.36, s_2 = 1.30$ $t = 0.962, p = 0.962, d = 0.007$	No statistical difference between sexes (H_0 cannot be rejected). Negligible effect size.
PS	$H_0: \mu_{PS, Male} \leq \mu_{PS, Female}$ $H_1: \mu_{PS, Male} > \mu_{PS, Female}$ Male: $\bar{x}_1 = 4.52, s_1 = 1.22$, Female: $\bar{x}_2 = 4.09, s_2 = 1.62$ $t = 1.867, p = 0.032$ (one – sided), $d = 0.308$	<u>Female workers indicate lower pay satisfaction compared to their male counterparts.</u> H_0 is rejected at $CI=0.05$. Small effect size.
AF	$H_0: \mu_{AF, Male} = \mu_{AF, Female}$ $H_1: \mu_{AF, Male} \neq \mu_{AF, Female}$ Male: $\bar{x}_1 = 4.28, s_1 = 1.26$, Female: $\bar{x}_2 = 4.16, s_2 = 1.23$ $t = 0.603, p = 0.547, d = 0.094$	No statistical difference between sexes (H_0 cannot be rejected). Negligible effect size.
CF	$H_0: \mu_{CF, Male} = \mu_{CF, Female}$ $H_1: \mu_{CF, Male} \neq \mu_{CF, Female}$ Male: $\bar{x}_1 = 2.33, s_1 = 1.25$, Female: $\bar{x}_2 = 2.17, s_2 = 0.96$	No statistical difference between sexes (H_0 cannot be rejected). Negligible effect size.

	$t = 0.912, p = 0.363, d = 0.134$	
RF	$H_0: \mu_{RF, Male} = \mu_{RF, Female}$ $H_1: \mu_{RF, Male} \neq \mu_{RF, Female}$ Male: $\bar{x}_1 = 2.95, s_1 = 1.24,$ Female: $\bar{x}_2 = 2.44, s_2 = 0.98$ $t = 3.015, p = 0.003, d = 0.446$	<u>Female workers</u> <u>indicate more</u> <u>relatedness</u> <u>frustration than</u> <u>their male</u> <u>counterparts.</u> H_0 is rejected at CI=0.05. Small-to-medium effect size.

Table 9

ANOVA test for pertinent variables, among different education levels

Variables	Descriptive Statistics / ANOVA	Result
AS	H₀: The mean score of AS is equal across education level categories. H₁: At least one education level category has a different mean AS score. High School: $\bar{x}_1 = 4.14, s_1 = 2.02$, BSc: $\bar{x}_2 = 4.59, s_2 = 1.22$, MSc: $\bar{x}_3 = 4.92, s_3 = 1.23$, PhD: $\bar{x}_4 = 5.10, s_4 = 1.01$ $F(3, 170) = 2.038, p = 0.11, \eta^2 = 0.035$	No statistical difference among education levels (H₀ cannot be rejected). Small effect size.
CS	H₀: The mean score of CS is equal across education level categories. H₁: At least one education level category has a different mean CS score. High School: $\bar{x}_1 = 4.91, s_1 = 1.99$, BSc: $\bar{x}_2 = 5.63, s_2 = 0.97$, MSc: $\bar{x}_3 = 5.88, s_3 = 1.01$, PhD: $\bar{x}_4 = 5.87, s_4 = 1.11$ $F(3, 170) = 2.898, p = 0.037, \eta^2 = 0.049$	Acquiring at least a BSc degree enhances subjective competence satisfaction levels. H₀ is rejected at CI=0.05. Small-to-Medium size effect.
RS	H₀: The mean score of RS is equal across education level categories. H₁: At least one education level category has a different mean RS score. High School: $\bar{x}_1 = 4.75, s_1 = 2.10$, BSc: $\bar{x}_2 = 5.34, s_2 = 1.01$, MSc: $\bar{x}_3 = 5.41, s_3 = 1.13$, PhD: $\bar{x}_4 = 5.43, s_4 = 1.46$ $F(3, 170) = 1.001, p = 0.394, \eta^2 = 0.017$	No statistical difference among education levels (H₀ cannot be rejected). Small size effect.
PS	H₀: The mean score of PS is equal across education level categories. H₁: At least one education level category has a different mean PS score. High School: $\bar{x}_1 = 3.99, s_1 = 1.80$, BSc: $\bar{x}_2 = 4.32, s_2 = 1.27$, MSc: $\bar{x}_3 = 4.41, s_3 = 1.45$, PhD: $\bar{x}_4 = 4.2, s_4 = 1.44$ $F(3, 170) = 0.356, p = 0.785, \eta^2 = 0.006$	No statistical difference among education levels (H₀ cannot be rejected). Negligible size effect.

AF	H₀: The mean score of AF is equal across education level categories. H₁: At least one education level category has a different mean AF score. High School: $\bar{x}_1 = 4.50, s_1 = 1.71$, BSc: $\bar{x}_2 = 4.28, s_2 = 1.21$, MSc: $\bar{x}_3 = 4.11, s_3 = 1.23$, PhD: $\bar{x}_4 = 4.48, s_4 = 1.23$ $F(3, 170) = 0.679, p = 0.566, \eta^2 = 0.012$	No statistical difference among education levels (H₀ cannot be rejected). Small size effect.
CF	H₀: The mean score of CF is equal across education level categories. H₁: At least one education level category has a different mean CF score. High School: $\bar{x}_1 = 2.55, s_1 = 1.00$, BSc: $\bar{x}_2 = 2.43, s_2 = 1.13$, MSc: $\bar{x}_3 = 2.21, s_3 = 1.17$, PhD: $\bar{x}_4 = 1.80, s_4 = 0.95$ $F(3, 170) = 1.518, p = 0.212, \eta^2 = 0.026$	No statistical difference among education levels (H₀ cannot be rejected). Small size effect.
RF	H₀: The mean score of RF is equal across education level categories. H₁: At least one education level category has a different mean RF score. High School: $\bar{x}_1 = 3.09, s_1 = 1.61$, BSc: $\bar{x}_2 = 2.71, s_2 = 1.14$, MSc: $\bar{x}_3 = 2.77, s_3 = 1.13$, PhD: $\bar{x}_4 = 2.53, s_4 = 1.18$ $F(3, 170) = 0.507, p = 0.678, \eta^2 = 0.009$	No statistical difference among education levels (H₀ cannot be rejected). Negligible size effect.

Table 10

ANOVA test for pertinent variables, among different organizational sizes

Variables	Descriptive Statistics / ANOVA	Result
AS	H₀: The mean score of AS is equal across organization size categories. H₁: At least one organization size category has a different mean AS score. Small: $\bar{x}_1 = 4.90, s_1 = 1.26$, Medium: $\bar{x}_2 = 4.56, s_2 = 1.31$, Large: $\bar{x}_3 = 4.85, s_3 = 1.28$ $F(2, 171) = 1.084, p = 0.34, \eta^2 = 0.013$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.
CS	H₀: The mean score of CS is equal across organization size categories. H₁: At least one organization size category has a different mean CS score. Small: $\bar{x}_1 = 5.87, s_1 = 1.05$, Medium: $\bar{x}_2 = 5.51, s_2 = 1.29$, Large: $\bar{x}_3 = 5.82, s_3 = 1.00$ $F(2, 171) = 1.55, p = 0.22, \eta^2 = 0.018$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.
RS	H₀: The mean score of RS is equal across organization size categories. H₁: At least one organization size category has a different mean RS score. Small: $\bar{x}_1 = 5.68, s_1 = 1.05$, Medium: $\bar{x}_2 = 5.17, s_2 = 1.34$, Large: $\bar{x}_3 = 5.29, s_3 = 1.17$ $F(2, 171) = 2.21, p = 0.113, \eta^2 = 0.025$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.
PS	H₀: The mean score of PS is equal across organization size categories. H₁: At least one organization size category has a different mean PS score. Small: $\bar{x}_1 = 3.99, s_1 = 1.70$, Medium: $\bar{x}_2 = 4.30, s_2 = 1.39$, Large: $\bar{x}_3 = 4.52, s_3 = 1.25$ $F(2, 171) = 1.93, p = 0.15, \eta^2 = 0.022$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.
AF	H₀: The mean score of AF is equal across organization size categories. H₁: At least one organization size category has a different mean AF score.	No statistical difference among organization size categories (H ₀

	Small: $\bar{x}_1 = 4.16, s_1 = 1.31$, Medium: $\bar{x}_2 = 4.20, s_2 = 1.12$, Large: $\bar{x}_3 = 4.26, s_3 = 1.31$ $F(2, 171) = 0.09, p = 0.92, \eta^2 = 0.001$	cannot be rejected). Negligible size effect.
CF	H_0: The mean score of CF is equal across organization size categories. H_1: At least one organization size category has a different mean CF score. Small: $\bar{x}_1 = 2.42, s_1 = 1.24$, Medium: $\bar{x}_2 = 2.37, s_2 = 1.12$, Large: $\bar{x}_3 = 2.13, s_3 = 1.09$ $F(2, 171) = 1.14, p = 0.32, \eta^2 = 0.013$	No statistical difference among organization size categories (H_0 cannot be rejected). Small size effect.
RF	H_0: The mean score of RF is equal across organization size categories. H_1: At least one organization size category has a different mean RF score. Small: $\bar{x}_1 = 2.66, s_1 = 1.23$, Medium: $\bar{x}_2 = 2.65, s_2 = 1.03$, Large: $\bar{x}_3 = 2.85, s_3 = 1.21$ $F(2, 171) = 0.65, p = 0.523, \eta^2 = 0.008$	No statistical difference among organization size categories (H_0 cannot be rejected). Negligible size effect.

4.3 Results for Research Question 2

The descriptive statistics regarding research question 2 are shown in Table 11.

Table 11

Descriptive Statistics (Research Question 2)

Variables	$\bar{x}$	s	Skewness	Kurtosis
WB	4.5702	1.2402	-0.400	-0.611
IB	3.4864	1.4303	0.242	-0.713

By observing the above results, one can extract the following observations:

- Well-Being and Ill-Being mean values are close to the middle value of the scale, showing that one can get simultaneously relatively high levels of well-being and ill-being.
- The values of standard deviation report a uniform and moderate dispersion of well-being and ill-being scores.
- Skewness values are close to 0, indicating an almost symmetric distribution around the mean.
- Negative kurtosis values indicated a platykurtic (less peaked than normal) distribution, with thinner tails.

Table 12 to Table 15 show if there are any differences in the means of the variables shown in Table 11 a) among generations, b) between the sexes, c) among employees with different educational backgrounds, and d) among employees who work in organizations of different sizes.

Table 12

ANOVA test for pertinent variables, among different age groups

Variables	Descriptive Statistics / ANOVA	Result
WB	H₀: The mean score of WB is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean WB score. Gen Z: $\bar{x}_1 = 4.20, s_1 = 1.21$, Gen Y: $\bar{x}_2 = 4.60, s_2 = 1.22$, Gen X: $\bar{x}_3 = 4.58, s_3 = 1.32$ $F(2, 169) = 0.692, p = 0.50, \eta^2 = 0.008$	No statistical difference among generations (H ₀ cannot be rejected). Negligible size effect.
IB	H₀: The mean score of IB is equal across generations (Gen X, Gen Y, Gen Z). H₁: At least one generation has a different mean IB score. Gen Z: $\bar{x}_1 = 3.67, s_1 = 1.40$, Gen Y: $\bar{x}_2 = 3.56, s_2 = 1.46$, Gen X: $\bar{x}_3 = 3.32, s_3 = 1.39$ $F(2, 169) = 0.593, p = 0.55, \eta^2 = 0.007$	No statistical difference among generations (H ₀ cannot be rejected). Negligible size effect.

Table 13

ANOVA test for pertinent variables, between the two sexes

Variables	Descriptive Statistics / t-test	Result
WB	H₀: $\mu_{WB, Male} = \mu_{WB, Female}$ H₁: $\mu_{WB, Male} \neq \mu_{WB, Female}$ Male: $\bar{x}_1 = 4.61, s_1 = 1.16$, Female: $\bar{x}_2 = 4.54, s_2 = 1.33$ $t = 0.346, p = 0.729, d = 0.054$	No statistical difference between sexes (H ₀ cannot be rejected). Negligible size effect.
IB	H₀: $\mu_{IB, Male} = \mu_{IB, Female}$ H₁: $\mu_{IB, Male} \neq \mu_{IB, Female}$ Male: $\bar{x}_1 = 3.48, s_1 = 1.44$, Female: $\bar{x}_2 = 3.51, s_2 = 1.43$ $t = -0.135, p = 0.893, d = -0.021$	No statistical difference between sexes (H ₀ cannot be rejected). Negligible size effect.

Table 14

ANOVA test for pertinent variables, among different education levels

Variables	Descriptive Statistics / ANOVA	Result
WB	H₀: The mean score of WB is equal across education level categories. H₁: At least one education level category has a different mean WB score. High School: $\bar{x}_1 = 4.40, s_1 = 1.47$, BSc: $\bar{x}_2 = 4.42, s_2 = 1.29$, MSc: $\bar{x}_3 = 4.65, s_3 = 1.22$, PhD: $\bar{x}_4 = 4.76, s_4 = 1.09$ $F(3, 170) = 0.56, p = 0.65, \eta^2 = 0.01$	No statistical difference among education levels (H₀ cannot be rejected). Small size effect.
IB	H₀: The mean score of IB is equal across education level categories. H₁: At least one education level category has a different mean IB score. High School: $\bar{x}_1 = 3.69, s_1 = 1.43$, BSc: $\bar{x}_2 = 3.47, s_2 = 1.54$, MSc: $\bar{x}_3 = 3.55, s_3 = 1.40$, PhD: $\bar{x}_4 = 3.00, s_4 = 1.43$ $F(3, 170) = 0.721, p = 0.541, \eta^2 = 0.013$	No statistical difference among education levels (H₀ cannot be rejected). Small size effect.

Table 15

ANOVA test for pertinent variables, among different organizational sizes

Variables	Descriptive Statistics / ANOVA	Result
WB	H₀: The mean score of WB is equal across organization size categories. H₁: At least one organization size category has a different mean AS score. Small: $\bar{x}_1 = 4.28, s_1 = 1.47$, Medium: $\bar{x}_2 = 4.52, s_2 = 1.10$, Large: $\bar{x}_3 = 4.74, s_3 = 1.19$ $F(2, 171) = 1.989, p = 0.14, \eta^2 = 0.023$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.
IB	H₀: The mean score of AS is equal across organization size categories. H₁: At least one organization size category has a different mean AS score. Small: $\bar{x}_1 = 3.53, s_1 = 1.51$, Medium: $\bar{x}_2 = 3.68, s_2 = 1.39$, Large: $\bar{x}_3 = 3.49, s_3 = 1.42$ $F(2, 171) = 0.851, p = 0.429, \eta^2 = 0.01$	No statistical difference among organization size categories (H ₀ cannot be rejected). Small size effect.

4.4 Results for Research Question 3

Table 16 presents the results of the correlation analysis.

Table 16

Correlation analysis

			Autonomy Satisfaction	Competence Satisfaction	Relatedness Satisfaction	Pay Satisfaction	Autonomy Frustration	Competence Frustration	Relatedness Frustration	Well-Being	Ill-Being
Spearman's Correlation Coefficient (ρ)	Autonomy Satisfaction	Correlation Coefficient	1.000	.620**	.649**	.407**	-.244**	-.419**	-.251**	.607**	-.489**
		Sig. (2-tailed)	.	<.001	<.001	<.001	.001	<.001	<.001	<.001	<.001
		n	174	174	174	174	174	174	174	174	174
	Competence Satisfaction	Correlation Coefficient	.620**	1.000	.518**	.216**	.022	-.601**	-.164*	.357**	-.224**
		Sig. (2-tailed)	<.001	.	<.001	.004	.772	<.001	.030	<.001	.003
		n	174	174	174	174	174	174	174	174	174
	Relatedness Satisfaction	Correlation Coefficient	.649**	.518**	1.000	.314**	-.163*	-.311**	-.482**	.529**	-.404**
		Sig. (2-tailed)	<.001	<.001	.	<.001	.031	<.001	<.001	<.001	<.001
		n	174	174	174	174	174	174	174	174	174
	Pay Satisfaction	Correlation Coefficient	.407**	.216**	.314**	1.000	-.267**	-.280**	-.363**	.737**	-.418**
		Sig. (2-tailed)	<.001	.004	<.001	.	<.001	<.001	<.001	<.001	<.001
		n	174	174	174	174	174	174	174	174	174
	Autonomy Frustration	Correlation Coefficient	-.244**	.022	-.163*	-.267**	1.000	.235**	.442**	-.236**	.367**
		Sig. (2-tailed)	.001	.772	.031	<.001	.	.002	<.001	.002	<.001
		n	174	174	174	174	174	174	174	174	174
	Competence Frustration	Correlation Coefficient	-.419**	-.601**	-.311**	-.280**	.235**	1.000	.428**	-.292**	.304**
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.002	.	<.001	<.001	<.001
		n	174	174	174	174	174	174	174	174	174
	Relatedness Frustration	Correlation Coefficient	-.251**	-.164*	-.482**	-.363**	.442**	.428**	1.000	-.370**	.347**
		Sig. (2-tailed)	<.001	.030	<.001	<.001	<.001	<.001	.	<.001	<.001
		n	174	174	174	174	174	174	174	174	174
	Well-Being	Correlation Coefficient	.607**	.357**	.529**	.737**	-.236**	-.292**	-.370**	1.000	-.576**
		Sig. (2-tailed)	<.001	<.001	<.001	<.001	.002	<.001	<.001	.	<.001
		n	174	174	174	174	174	174	174	174	174
	Ill-Being	Correlation Coefficient	-.489**	-.224**	-.404**	-.418**	.367**	.304**	.347**	-.576**	1.000
		Sig. (2-tailed)	<.001	.003	<.001	<.001	<.001	<.001	<.001	<.001	.
		n	174	174	174	174	174	174	174	174	174

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

The correlational analysis above (Table 16) shows the following:

1. The three psychological needs of SDT are strongly positively correlated.
2. Need satisfaction of the same needs is negatively correlated to need frustration of the same.
3. Need satisfaction is positively related to well-being. Pay satisfaction is the strongest predictor of well-being (0.737) while autonomy satisfaction comes second (0.607).
4. Need frustration is correlated with ill-being. Pay satisfaction is negatively correlated with ill-being.
5. Well-being and ill-being are strongly negatively correlated (-0.576).

Regression Equation for Well-Being

$$WB = 0.32 + 0.321 \cdot AS + 0.009 \cdot CS + 0.102 \cdot RS + 0.49 \cdot PS, R^2 = 0.651$$

It is observed that the above model is statistically significant since $F(4, 169) = 78.72$. It explains 65.1% of the variance in well-being. The most important predictors were PS ($\beta_4 = 0.49, p < 0.001$) and AS ($\beta_1 = 0.321, p < 0.001$) while CS & RS were adding no predictive value to the above model. A simplified regression model was recalculated using only the most important predictors (see also Table 17).

$$WB = 0.558 + 0.391 \cdot AS + 0.494 \cdot PS, R^2 = 0.646$$

Table 17

Well-Being regression Model

Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
β_0	0.558	0.082	1.034	-
β_1	0.391	0.298	0.485	1.152
β_4	0.494	0.409	0.579	1.152

Again, the above model is statistically significant since $F(2, 171) = 155.69$. It explains 64.6% of the variance in well-being. The most important predictors were PS ($\beta_4 = 0.494$, $p < 0.001$) and AS ($\beta_1 = 0.391$, $p < 0.001$).

Note: The same variables provide a statistically significant result, either with a confidence interval of 95% or 90%. Regarding the collinearity test, the independent variables are not strongly correlated with each other since $VIF < 3$.

Regression Equation for ill-Being

$$IB = 2.698 + 0.296 \cdot AF + 0.172 \cdot CF + 0.114 \cdot RF - 0.268 \cdot PS, R^2 = 0.287$$

It is observed that the above model is statistically significant since $F(4, 169) = 16.99$. It explains 28.7% of the variance in ill-being. The most important predictors were PS ($\beta'_4 = -0.268$, $p < 0.001$) and AF ($\beta'_1 = 0.296$, $p < 0.001$) while CF & RF were adding no predictive value to the above model when the confidence interval is 95%. At 90% confidence interval, CF is becoming statistically significant, CF ($\beta'_2 = 0.172$, $p < 0.062$). A simplified regression model was recalculated using the most important predictors (see also Table 18).

$$IB = 2.857 + 0.331 \cdot AF + 0.209 \cdot CF - 0.286 \cdot PS, R^2 = 0.281$$

Table 18

Ill-Being regression model

Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
β'_0	2.857	1.784	3.929	-
β'_1	0.331	0.176	0.487	1.118
β'_2	0.209	0.041	0.378	1.091
β'_4	-0.286	-0.424	-0.149	1.123

Again, the above model is statistically significant since $F(3, 170) = 22.177$. It explains 28.1% of the variance in ill-being. The most important predictors were PS ($\beta'_4 = -0.286$, $p < 0.001$), AF ($\beta'_1 = 0.331$, $p < 0.001$) and CF ($\beta'_2 = 0.209$, $p = 0.015$). The model is statistically significant at a confidence interval of 95%. Regarding the collinearity test, the independent variables are not correlated strongly among them since $VIF < 3$.

4.5 Results for Research Question 4

Figure 21 shows that the greater the autonomy satisfaction, the more an employee sees an increase in his salary as informational (autonomy is not stifled). This, in turn, positively correlates with employees' well-being. Therefore, the impact of autonomy satisfaction on well-being is partially mediated by the employee's informational perception of external rewards.

Figure 21

Autonomy satisfaction → Well-Being pathway mediated by Perception of External Rewards

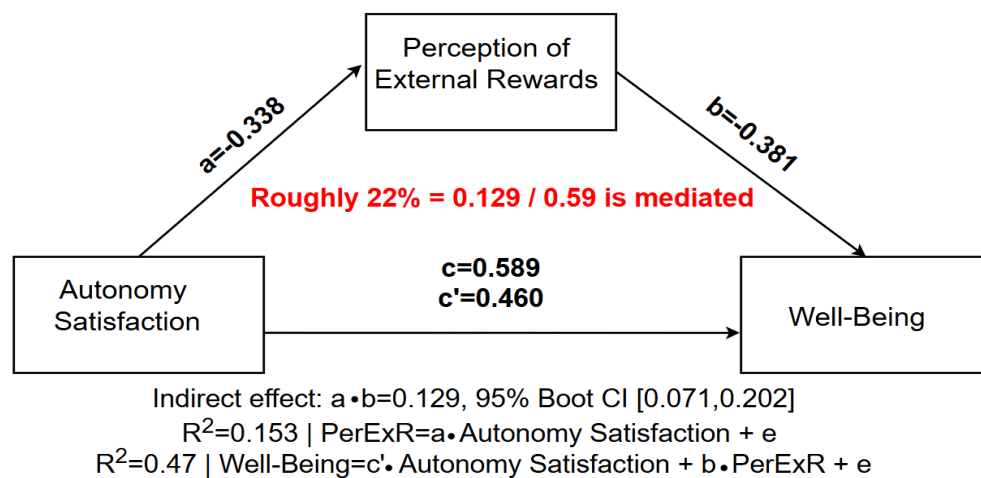


Figure 22

Competence satisfaction → Well-Being pathway mediated by Perception of External Rewards

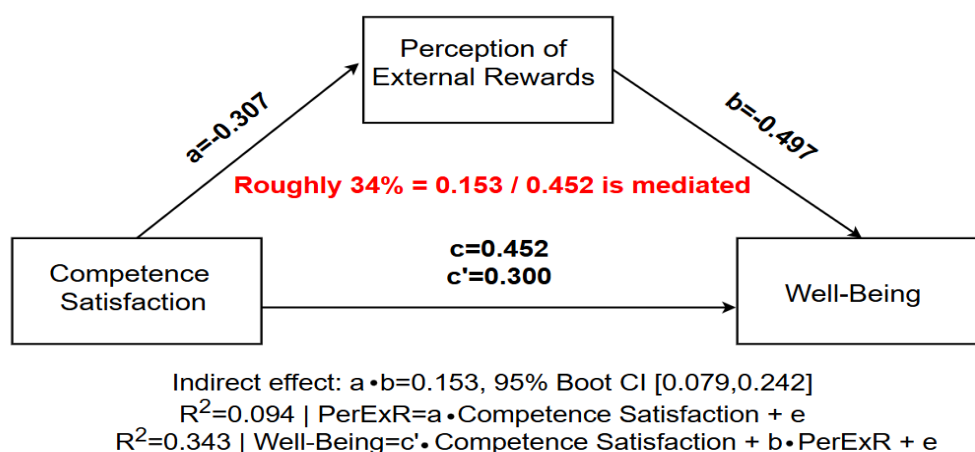


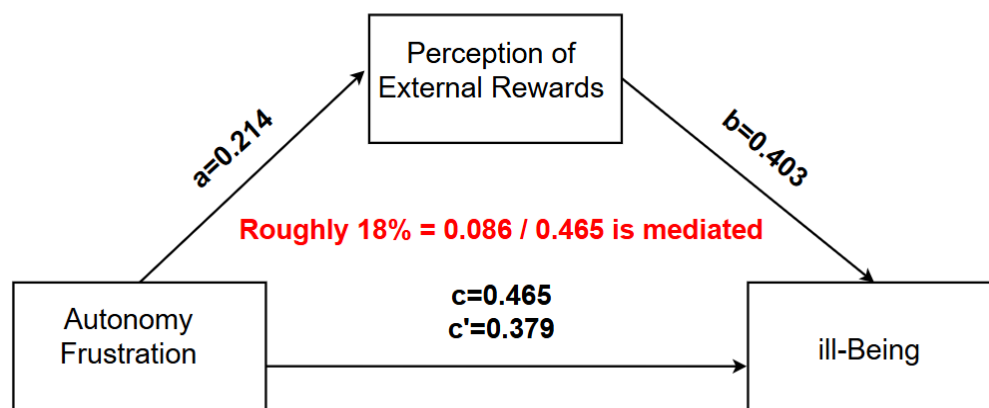
Figure 22 shows that the greater the competence satisfaction, the more an employee sees an increase in his salary as informational (competence-boosting). This, in turn, positively correlates with employees' well-being. Therefore, the impact of competence satisfaction

on well-being is partially mediated by the employee's informational perception of external rewards.

Figure 23 shows that the greater the autonomy frustration, the more an employee sees an increase in his salary as controlling (autonomy-stifling). This, in turn, positively correlates with employees' ill-being. Therefore, the impact of autonomy frustration on ill-being is partially mediated by the employee's controlling perception of external rewards.

Figure 23

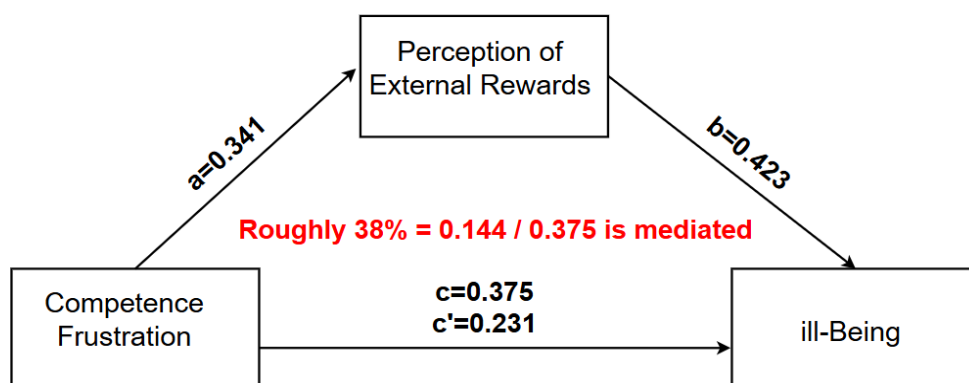
Autonomy Frustration → Ill-Being pathway mediated by Perception of External Rewards



Indirect effect: $a \cdot b = 0.086$, 95% Boot CI [0.025, 0.164]
 $R^2 = 0.058$ | $\text{PerExR} = a \cdot \text{Autonomy Frustration} + e$
 $R^2 = 0.257$ | $\text{ill-Being} = c' \cdot \text{Autonomy Frustration} + b \cdot \text{PerExR} + e$

Figure 24

Competence Frustration → Ill-Being pathway mediated by Perception of External Rewards



Indirect effect: $a \cdot b = 0.144$, 95% Boot CI [0.067, 0.242]
 $R^2 = 0.122$ | $\text{PerExR} = a \cdot \text{Competence Frustration} + e$
 $R^2 = 0.184$ | $\text{ill-Being} = c' \cdot \text{Competence Frustration} + b \cdot \text{PerExR} + e$

Figure 24 shows that the greater the competence frustration, the more an employee sees an increase in his salary as controlling (autonomy-stifling). The external reward pressures the employee to perform more, increasing the subjective competence frustration scale. This, in turn, positively correlates with employees' ill-being. Therefore, the impact of competence frustration on ill-being is partially mediated by the employee's controlling perception of external rewards.

Finally, in all mediation figures, it is worth noting that the 95% bootstrapping confidence interval does not include zero. The mediation effect is statistically significant in all the examined cases.

4.6 Results for Research Question 5

The results of research question 5 are summarised in Table 19 and Table 20 (see Table 19 & Table 20 for regression equations for well-being and ill-being respectively). All multiple regression equations are statistically significant according to the respective F-test results.

Well-Being Trends

Age: Pay satisfaction better predicts well-being for Gen Y by 19.2% more compared to Gen X. Autonomy satisfaction predicts well-being more strongly by 48.2% for Gen X compared to Gen Y.

Sex: Well-being is dependent on autonomy and pay satisfaction for both sexes. Men seem to be motivated slightly more by pay satisfaction (4%), while the weightage of autonomy satisfaction on well-being is equally important for both sexes.

Organisation size: Well-Being is predicted by autonomy satisfaction and pay satisfaction for all cases. Relatedness satisfaction comes into play in large organisations. Interestingly, as the size of the organisation increases, the importance of autonomy satisfaction in well-being decreases (-36% from small to medium and -16% from medium to large organisations), while relatedness satisfaction becomes important (or has enough explanatory power on its own for the variations in well-being). Pay satisfaction is almost equally important in all cases.

Education: As the education level increases, autonomy satisfaction becomes more important (21%) while pay satisfaction weight is lessened (-32%), in predicting well-being.

Ill-Being Trends

Age: Ill-Being is only predicted by autonomy frustration for Gen X, while it is predicted by autonomy frustration and pay satisfaction for Gen Y. Autonomy frustration is much more important for Gen X (by 66%), compared to Gen Y.

Sex: Both sexes' ill-being is predicted from pay satisfaction; however, women's ill-being is also affected positively by relatedness frustration, while male participants' ill-being is also shaped positively by their autonomy frustration.

Organisation size: As organisation size increases, ill-being is less predicted by pay satisfaction. At large organizations, ill-being does not depend on pay satisfaction at all. On the other hand, ill-being is strongly predicted by autonomy frustration in medium and large organizations.

Education: For BSc graduates, ill-being is only strongly predicted by autonomy frustration, while for MSc graduates, it is affected both by autonomy frustration (-48.2% compared to BSc graduates) and negatively affected by pay satisfaction.

All multiple regression models presented in Table 19 & Table 20 are statistically significant and show no sign of multicollinearity among the independent variables since all VIF < 3.

Table 19

Well-Being regression equations, controlling for certain demographic characteristics

Controlling Variable	Well-Being				
Age					
Gen Y	$WB = 0.162 + 0.255 \cdot AS + 0.166 \cdot RS + 0.527 \cdot PS, R^2 = 0.681$ F (3, 105) = 74.826				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	0.162	-0.559	0.882	-
	β_1	0.255	0.104	0.406	2.001
	β_3	0.166	0.008	0.324	1.694
	β_4	0.527	0.416	0.637	1.282
Gen X	$WB = 0.402 + 0.492 \cdot AS + 0.426 \cdot PS, R^2 = 0.646$ F (2, 45) = 44.575				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	0.558	0.082	1.034	-
	β_1	0.391	0.298	0.485	1.078
	β_4	0.494	0.409	0.579	1.078
	Sex				
Male	$WB = 0.43 + 0.384 \cdot AS + 0.514 \cdot PS, R^2 = 0.615$ F (2, 102) = 81.449				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	0.430	-0.239	1.099	-
	β_1	0.384	0.264	0.504	1.131
	β_4	0.514	0.390	0.637	1.131
	Female	$WB = 0.653 + 0.397 \cdot AS + 0.493 \cdot PS, R^2 = 0.677$ F (2, 65) = 68.052			
Regression Model		Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
β_0		0.653	-0.094	1.399	-
β_1		0.397	0.243	0.552	1.151
β_4		0.493	0.368	0.618	1.151

Organisation Size					
Small	$WB = -0.13 + 0.509 \cdot AS + 0.479 \cdot PS, R^2 = 0.709$ $F(2, 37) = 45.127, p < 0.001$				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	-0.130	-1.024	0.764	-
	β_1	0.509	0.316	0.702	1.232
	β_4	0.479	0.336	0.623	1.232
Medium	$WB = 1.162 + 0.326 \cdot AS + 0.434 \cdot PS, R^2 = 0.689$ $F(2, 47) = 52.118, p < 0.001$				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	1.162	0.580	1.743	-
	β_1	0.326	0.189	0.464	1.439
	β_4	0.434	0.305	0.564	1.439
Large	$WB = 0.146 + 0.274 \cdot AS + 0.213 \cdot RS + 0.473 \cdot PS, R^2 = 0.608$ $F(3, 80) = 41.396, p < 0.001$				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	0.146	-0.569	0.861	-
	β_1	0.274	0.116	0.432	2.119
	β_3	0.213	0.034	0.392	2.311
	β_4	0.473	0.355	0.592	1.148
Education					
BSc	$WB = -0.137 + 0.399 \cdot AS + 0.632 \cdot PS, R^2 = 0.644$ $F(2, 52) = 47.045, p < 0.001$				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	-0.137	-0.971	0.696	-
	β_1	0.399	0.248	0.549	1.057
	β_4	0.632	0.489	0.776	1.057
MSc	$WB = 0.380 + 0.482 \cdot AS + 0.430 \cdot PS, R^2 = 0.708$ $F(2, 90) = 109.261, p < 0.001$				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β_0	0.380	-0.125	0.885	-
	β_1	0.482	0.380	0.584	1.202
	β_4	0.430	0.343	0.517	1.202

Table 20

Ill-Being regression equations, controlling for certain demographic characteristics

Controlling Variable	III-Being				
Age					
Gen Y	$IB = 3.876 + 0.317 \cdot AF - 0.386 \cdot PS, R^2 = 0.264$ F (2, 106) = 18.962, p < 0.001				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β'_0	3.876	2.462	5.290	-
	β'_1	0.317	0.112	0.522	1.108
	β'_4	-0.386	-0.572	-0.200	1.108
Gen X	$IB = 0.772 + 0.639 \cdot AF, R^2 = 0.367$ F (1, 46) = 26.632, p < 0.001				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β'_0	0.772	-0.272	1.816	-
	β'_1	0.639	0.390	0.888	1.000
Sex					
Male	$IB = 3.011 + 0.438 \cdot AF - 0.311 \cdot PS, R^2 = 0.287$ F (2, 102) = 20.494, p < 0.001				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β'_0	3.011	1.484	4.538	-
	β'_1	0.438	0.234	0.643	1.150
	β'_4	-0.311	-0.522	-0.100	1.150
Female	$IB = 3.614 + 0.457 \cdot RF - 0.298 \cdot PS, R^2 = 0.29$ F (2, 65) = 13.275, p < 0.001				
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)	Collinearity VIF
	β'_0	3.614	2.249	4.978	-
	β'_3	0.457	0.129	0.784	1.079
	β'_4	-0.298	-0.496	-0.100	1.079

Organisation Size				
Small	$IB = 5.412 - 0.47 \cdot PS, R^2 = 0.278$ $F(1, 38) = 13.275, p < 0.001$			
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)
	β'_0	5.412	4.335	6.489
	β'_4	-0.470	-0.719	-0.221
Medium	$IB = 2.91 + 0.531 \cdot AF - 0.34 \cdot PS, R^2 = 0.321$ $F(2, 47) = 11.096, p < 0.001$			
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)
	β'_0	2.910	1.174	4.647
	β'_1	0.531	0.229	0.833
Large	$IB = 1.38 + 0.462 \cdot AF, R^2 = 0.183$ $F(1, 82) = 18.350, p < 0.001$			
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)
	β'_0	1.380	0.424	2.337
	β'_1	0.462	0.248	0.677
Education				
BSc	$IB = 0.669 + 0.654 \cdot AF, R^2 = 0.264$ $F(1, 53) = 18.990, p < 0.001$			
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)
	β'_0	0.669	-0.668	2.006
	β'_1	0.654	0.353	0.955
MSc	$IB = 3.787 + 0.339 \cdot AF - 0.369 \cdot PS, R^2 = 0.302$ $F(2, 90) = 19.483, p < 0.001$			
	Regression Model	Values	95% CI (Lower Bound)	95% CI (Upper Bound)
	β'_0	3.787	2.425	5.149
	β'_1	0.339	0.128	0.550
	β'_4	-0.369	-0.547	-0.19

5. Results & Discussion

This chapter also includes the required content to address research question 6.

5.1 Discussion of results of research question 1

Considering the results for research question 1, the average Greek employee reported a high score in both competence satisfaction and relatedness satisfaction in his or her occupation (79% and 72.33% respectively). In addition, on the frustration scale of the same internal needs, participants scored 19.41% on competence frustration and 29.17% on relatedness frustration, both of which represent low scores.

Regarding autonomy satisfaction and frustration, and pay satisfaction, the average Greek employee reports the following:

- 62.97% on autonomy satisfaction and
- 53.66% on autonomy frustration
- 55.60% on pay satisfaction

Such scores have been presented for different countries in SDT literature. (Deci, Ryan, et al., 2001) conducted a need satisfaction and well-being at work survey for Bulgaria and the US. (Chen et al., 2015) conducted a need satisfaction and frustration survey across four different cultures (the USA, China, Belgium, and Peru) among university students. (Gillet et al., 2012) tested SDT in the workplace in 650 employees in France. (Brien et al., 2012) conducted basic need satisfaction measurements in Canada (work settings) while (Church et al., 2013) examined whether need satisfaction leads to greater well-being universally. He conducted surveys in eight (8) different countries; however, the sample consisted of university students. Table 21 summarises all the findings regarding need satisfaction in different countries and settings.

Table 21

Need satisfaction in different countries (NS stands for Need Satisfaction – average of AS, RS, CS)

	Greece	US	Bulgaria	US	China	Peru	Belgium	Canada	France
Sample	174	128	431	298	309	244	200	271	650
Setting	Work	Work	Work	Stud.	Stud.	Stud.	Stud.	Work	Work
AS (%)	62.97	53.75	64.50	71.25	60.50	81.00	73.00	42.40	-
RS (%)	72	72.25	73.50	80.50	71.50	85.75	81.00	43.00	-
CS (%)	79.00	68.50	71.50	74.25	65.00	82.75	64.25	50.40	-
NS (%)	71.32	64.83	69.83	75.33	65.67	83.17	72.75	45.27	70.67
	Greece	US	Australia	Mexico	Venezuela	Phili	Malays.	China	Japan
Sample	174	153	122	158	102	167	268	223	191
Setting	Work	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.
AS (%)	62.97	53.00	50.80	57.20	58.20	44.00	41.40	49.40	41.80
RS (%)	72	57.20	53.60	59.40	62.00	46.00	46.00	53.60	38.80
CS (%)	79.00	47.80	40.20	51.40	52.60	50.80	50.60	43.60	43.40
NS (%)	71.32	52,67	48,20	56,00	57,60	46,93	46,00	48,87	41,33

Although the above numbers compare the same (or similar) constructs, they cannot be used for direct comparison due to the following reasons.

It is worth noting that each study had:

- A different set of questions for each construct or variable.
- Data collected in different time periods. It is important to note that each questionnaire depicts a snapshot of the exact period the study was undertaken.

To overcome the problem described above and check Greece's ranking in need satisfaction, comprehensive studies are required that were conducted in the same period, had identical questionnaires and sampling methods.

Result: Moderate to high autonomy frustration / Moderate Autonomy Satisfaction

According to the journal paper by (Giousmpasoglou, 2010), where the Hofstede's cultural dimensions are measured, Greece stands on top in the uncertainty avoidance dimension among 53 countries studied. Another cultural characteristic of Greece is a moderate score

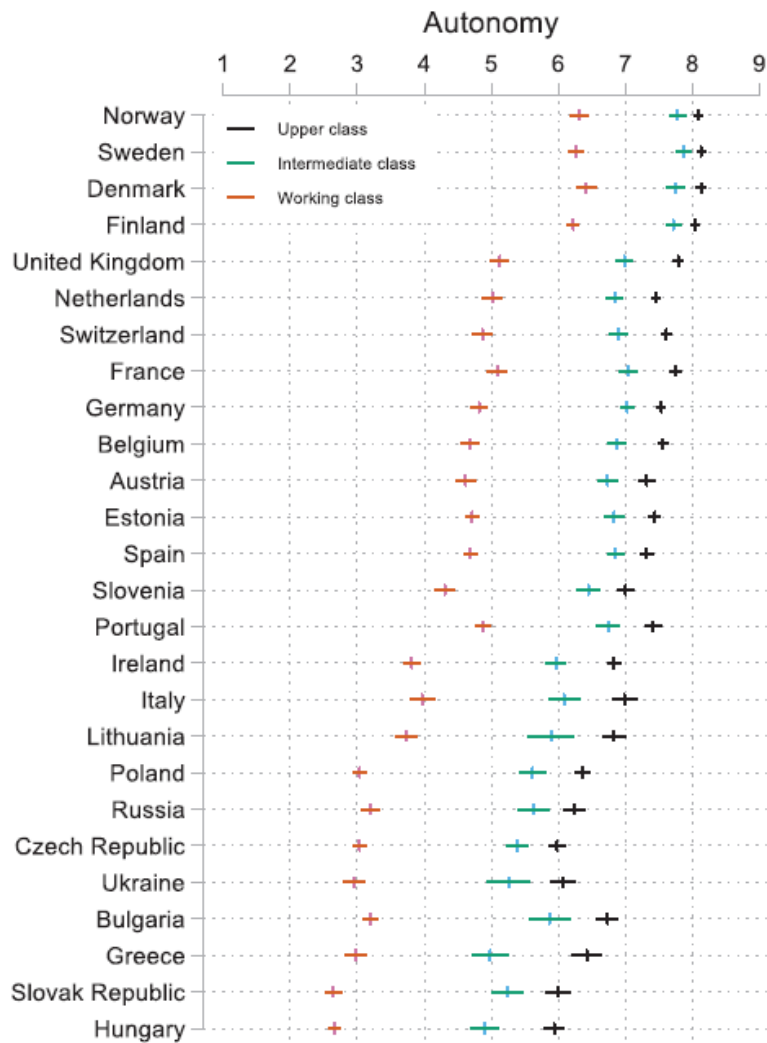
in power distance. In a high-power distance society, authority and unequal distribution of power are accepted (Achieve Performance Consulting Group, 2020). This enhances centralization of power and top-down, hierarchical structures. In other words, in hierarchical structures, employees are told what to do, and they cannot voice their opinions. Uncertainty avoidance also promotes rules and bureaucracy over trust between management and employees. On one hand, this enhances predictability; however, on the other hand, experimentation is not rewarded, and flexibility is discouraged. The work ethic of “filotimo”, which represents a combination of personal honor, moral duty, responsibility, and the desire to do the right thing, is a deep-seated value of the Greek culture. It has acted as a social pressure mechanism for employees to perform even more than their role requires. The mixture of extreme uncertainty avoidance, high power distance, and work values such as “filotimo” stifle employee autonomy. Research in Greek management has shown that the diffusion of European management principles has historically been low in Greek management; however, it is still an evolving system (Bourantas & Papadakis, 1996; Giousmpasoglou, 2010).

Another piece of evidence supporting the relatively high autonomy frustration is the research by (Belias et al., 2015). Measurements were conducted for 24 different parameters, and the sample answers for autonomy averaged to 2.26 out of 5, the lowest of all the factors measured in the survey.

(Paskov, 2026) drew data from the European Social Survey from 9 different survey waves, where employees from 26 European Countries participated. Figure 25 shows that Greece ranks among the lowest countries in terms of autonomy. Intermediate class employees show autonomy satisfaction at 50% which is considerably below the sample’s average of 63%.

Figure 25

Autonomy across 26 EU countries



Among the satisfaction variables, the lowest score for the average Greek employee is pay satisfaction. Pay satisfaction appears to be the variable with the greatest room for improvement. While autonomy satisfaction is at medium levels, autonomy frustration is at medium levels as well, showing again that they are partially independent constructs. (Vansteenkiste & Ryan, 2013) mentioned that satisfaction and frustration of the same need are not exact opposites, but distinct processes.

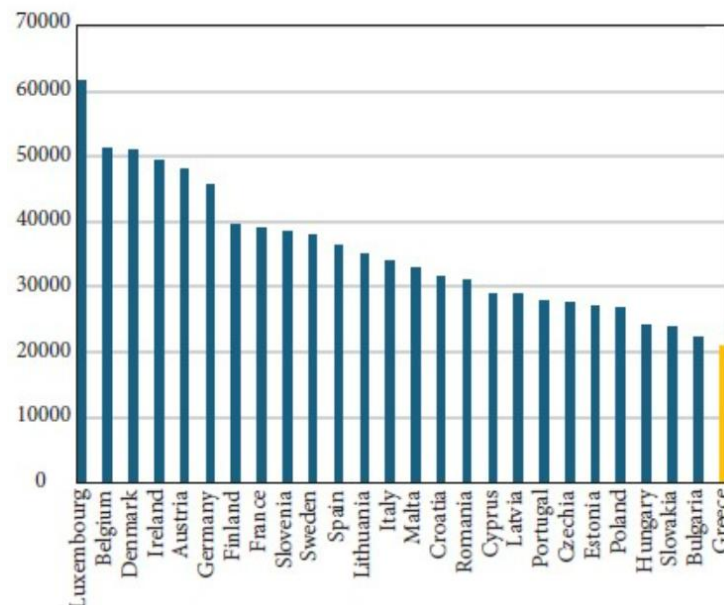
Result: Low pay satisfaction

According to (Missos & Rodousakis, 2025), Greeks have suffered through severe austerity measures for more than 15 years. While the total number of work hours has reached pre-crisis levels, GDP and disposable household income are lagging significantly (27% and 35%

reduced in 2024, compared to pre-crisis levels in 2008). One possible reason for the current situation is the generation of many low-paying jobs. The burden was taken on labour costs and pension cuts since Greece was unable to regulate its exchange rate while belonging to the Eurozone. In Average Annual Full-Time adjusted Salary in PPS (Purchasing Power Standards) for all EU countries in 2023, Greece scored last (see Figure 26). PPS acts as a currency conversion tool to adjust for different price levels of the same products among EU countries. Especially after 2012, the minimum wage has become increasingly representative of a greater portion of the workforce. This means that an increasing percentage of the workforce is concentrated in the lowest range of wages.

Figure 26

Average Annual Full-Time adjusted Salary in PPS of EU countries in 2023



Note: Obtained from (Missos & Rodousakis, 2025).

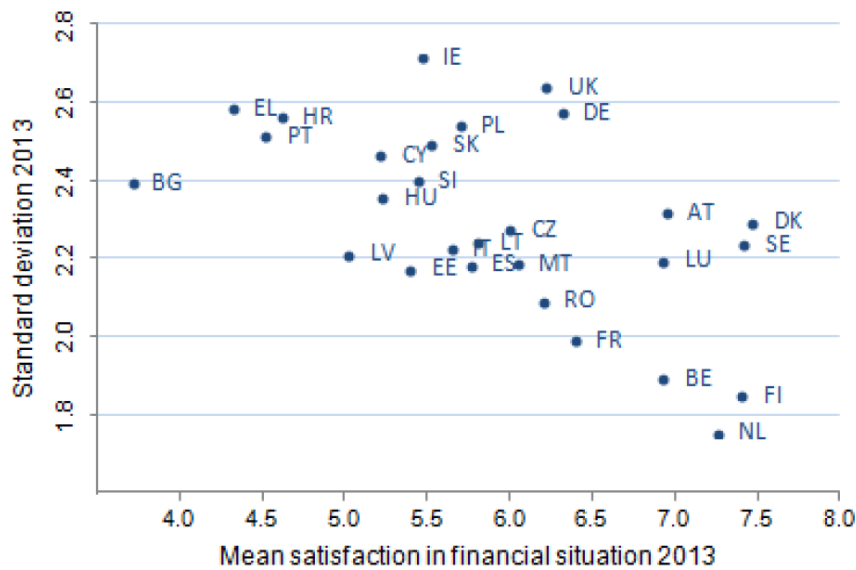
Research conducted in Greek public hospitals, unveiled that, of all factors examined, pay was the factor with the greatest dissatisfaction (Likert scale from 1-6 with a score of 2.12) (Karaferis et al., 2022). In 2023, OECD reported that Greeks on average work the longest hours in the European Union; however, it ranked Greece in 34th place out of 35 countries with an average gross salary of 1034€ according to July data of Eurostat (Editors OT, 2023). From 2019 to early 2026, there is data supporting that the minimum salary increased by 230€ per month, amounting to 35.4% (Salourou, 2025). On the other hand, the consumer price index in Greece, during the same period, in Greece increased by approximately 21% according to ELSTAT data. Finally, housing prices have skyrocketed, reporting an average

increase of 38% in 6 years (2019-2025) in the Athens region, further diminishing the purchasing power of the Greek households (Rousanoglou, 2025).

Finally, Figure 27 depicts the mean financial satisfaction across EU countries in 2013 (Medgyesi & Zolyomi, 2016). Greece (EL) scored a mean financial satisfaction score below 45%. This score placed Greece in the 2nd from the bottom, just above Bulgaria.

Figure 27

Financial satisfaction across EU countries in 2013



Note: Obtained from (Medgyesi & Zolyomi, 2016).

Objectively, Greece's financial situation between 2013 and 2026 has improved. An increase from 45% financial satisfaction in 2013 to approximately 56% in 2026 is therefore reasonable.

Result: Gen Y expresses greater autonomy frustration than the other generations

According to (Rozlan & Subramaniam, 2020), Gen Y values autonomy more than any other previous generation. In addition, the research article from (Andrade et al., 2024) shows that younger generations, such as Millennials and Gen Z, value job autonomy highly. Our results showed that autonomy frustration is greater in Gen Y compared to Gen Z and Gen X. The results on autonomy frustration of Gen Z participants are only indicative, and they might not represent the Gen Z population since only 15 of those employees participated in the study.

Result: Female employees - Less pay satisfaction than males

Pay satisfaction is subjective; however, objective data support this finding. According to ELSTAT data, there is an average gender pay gap of 13.4%, while the greatest pay gaps are observed in the IT and Telecommunications sectors (25.3% in 2024). On the other end, women were more favored when working in the water supply & waste management sectors. Regarding age, the greatest disparity between men and women is for ages above 65, which show the greatest pay gap, while for workers below 25 this pay gap is the smallest. See also Figure 28 (Editors OT, 2026).

Figure 28

The gender pay gap in Greece by section of economic activity in 2022, 2023 & 2024

SECTION OF ECONOMIC ACTIVITY (Nace rev.2)	GPG %		
	2022	2023	2024
Total	13.4	13.6	13.4
B-Mining & Quarrying	9.4	7.0	9.2
C-Manufacturing	18.0	17.8	17.4
D-Electricity, gas, steam and air conditioning supply	14.5	13.0	8.7
E-Water supply, waste management etc	-4.8	-4.4	-5.5
F-Construction	12.3	9.9	9.7
G-Wholesale and retail trade	20.1	20.2	20.1
H-Transportation and storage	9.8	10.2	10.1
I-Accommodation and food service activities	7.0	7.2	7.6
J-Information and communication	24.5	24.9	25.3
K-Financial and insurance activities	19.3	19.4	19.0
L-Real estate activities	18.0	18.8	18.7
M-Professional scientific and technical activities	13.9	13.3	11.8
N-Administrative and support service activities	6.8	7.9	7.8
P-Education	9.0	9.4	10.0
Q-Human health and social work activities	14.6	14.5	14.4
R-Arts, entertainment and recreation	8.8	8.8	9.8
S-Other service activities	4.4	5.2	3.8

Note: Obtained from (Editors OT, 2026)

More research regarding the pay gap (Livanos & Pouliakas, 2012) suggests that part of the pay gap between genders in Greece is because women usually prefer jobs with more stable working environments. These are the same jobs that usually pay less, such as in careers in education, humanities, or social sciences. Men tend to prefer higher-paying fields such as engineering and business-related occupations. The publication attributes 8.4% of the gender wage gap to the difference in degree choice between the sexes, while the rest is attributed to discrimination.

In addition, research conducted by (Kosmetatou, 2020) proposes that the main reasons that the pay gap persists in Greece are the following:

- a) Greek culture strongly follows the traditional roles of the genders.
- b) The policies supporting work and family balance are weak. The same applies to parental leave and childcare policies.
- c) Labour market segmentation. Female workers are concentrated more in lower-paying sectors.

Result: Female employees - More relatedness frustration than males

Relatedness frustration can be attributed mostly to stereotypes against women. According to Michail's survey (Michail, 2006), 69% of Greeks believe in the traditional role of women as primary caretakers. This is a stark difference compared to the EU average of 44%. In addition, according to (Karaiskaki, 2018; SEV, 2023) women are seen as less suitable for managerial roles where the stereotypical masculine traits of aggressiveness, competitiveness, and toughness are dominating. Women are perceived as soft or less assertive. This discrimination leads to women being excluded from social groups at work.

Relatedness frustration originates from the fact that:

- Women are perceived as less committed or career-oriented and are underestimated in work social settings.
- Women find less support from their organization regarding their needs and the balance between family and work.
- Women are more likely to be left out of work discussions or professional gatherings.

Result: Holding at least a BSc is associated with greater subjective competence satisfaction

Early economic thought from Adam Smith and John Stuart Mill recognized the role of education in the increase of labour productivity. This early economic thought was later formalized with the emergence of Human Capital Theory, led by economists such as Theodore Shultz, Jacob Mincer, and Gary Becker. More modern interpretations have expanded the role of education, leading to greater well-being, acting as a social stabilization mechanism, enhancing political participation, and reducing poverty (Leoni, 2025).

Research also shows that critical thinking and problem solving, which are developed in university courses, are among the most sought-after graduate skills by employers. These skills are considered essential for professional success and workplace performance (Vudzijena et al., 2026).

5.2 Discussion of results of research question 2

In the current thesis, the average occupational well-being score of the sample is 60%. According to the Mental Health Report 2025 (EY Hellas EAP & Εργαστήριο Πειραματικής Ψυχολογίας ΕΚΠΑ, 2025), 6 out of 10 respondents feel that they can effectively manage their obligations and their lives have a deeper purpose and direction, while 61% can effectively adapt to changing circumstances. Therefore, a degree of consistency is observed in terms of well-being in the Greek workforce between the current thesis and relevant research in psychological health in Greek work settings.

On the other hand, 66% reported that workplace stress leaks to their personal lives, and 55% claim that they experience burnout. These statistics paint a grimmer picture regarding workplace ill-being compared to the current thesis results, with an average ill-being of 41%.

The same papers used to compose Table 21 will be used to compose Table 22 (Brien et al., 2012; Chen et al., 2015; Church et al., 2013; Deci, Ryan, et al., 2001; Gillet et al., 2012). The comparison between numbers in this table is not appropriate since proxy constructs for well-being (such as Self-esteem, Life satisfaction, Work Satisfaction, or Positive Affect) and ill-being (such as Anxiety, Depressive symptoms, Distress, or Negative Affect) have been used. For the reasons stated in section 5.1, the numbers below cannot be compared directly.

To overcome the problem described above and check Greece's ranking in need satisfaction, comprehensive studies are required that were conducted in the same period, had identical questionnaires and sampling methods.

Table 22

Well-Being & Ill-Being in different countries

	Greece	US	Bulgaria	US	China	Peru	Belgium	Canada	France
Sample	174	128	431	298	309	244	200	271	650
Setting	Work	Work	Work	Stud.	Stud.	Stud.	Stud.	Work	Work
WB (%)	59.50	60.75	52.50	65.25	51.50	68.00	64.75	58.20	47.67
IB (%)	41.44	17.75	38.50	32.00	20.00	15.75	30.25	13.4	-
	Greece	US	Australia	Mexico	Venezuela	Phili	Malays.	China	Japan
Sample	174	153	122	158	102	167	268	223	191
Setting	Work	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.	Stud.
WB (%)	59.50	48.33	42.33	43.00	47.00	47.50	43.00	41.12	31.67
IB (%)	41.44	15.00	17.83	17.67	18.17	27.00	23.33	16.33	22.17

Figure 29 shows subjective well-being data (Life Satisfaction) across European countries from 2021 to 2025. This scale extends work settings, but it can provide a meaningful cross-country comparison. Life satisfaction has been marked with a distinct red line. In 2025, Greece scored 69%. Again, this score placed Greece in the 2nd last position, just above Bulgaria, which has considerably lower well-being (Source: <https://www.oecd.org/>). For comparison, OECD countries' average life satisfaction is 72.7%.

Figure 29

Life Satisfaction across EU countries

Current well-being ⓘ

Measure: Life satisfaction • Unit of measure: 0-10 scale

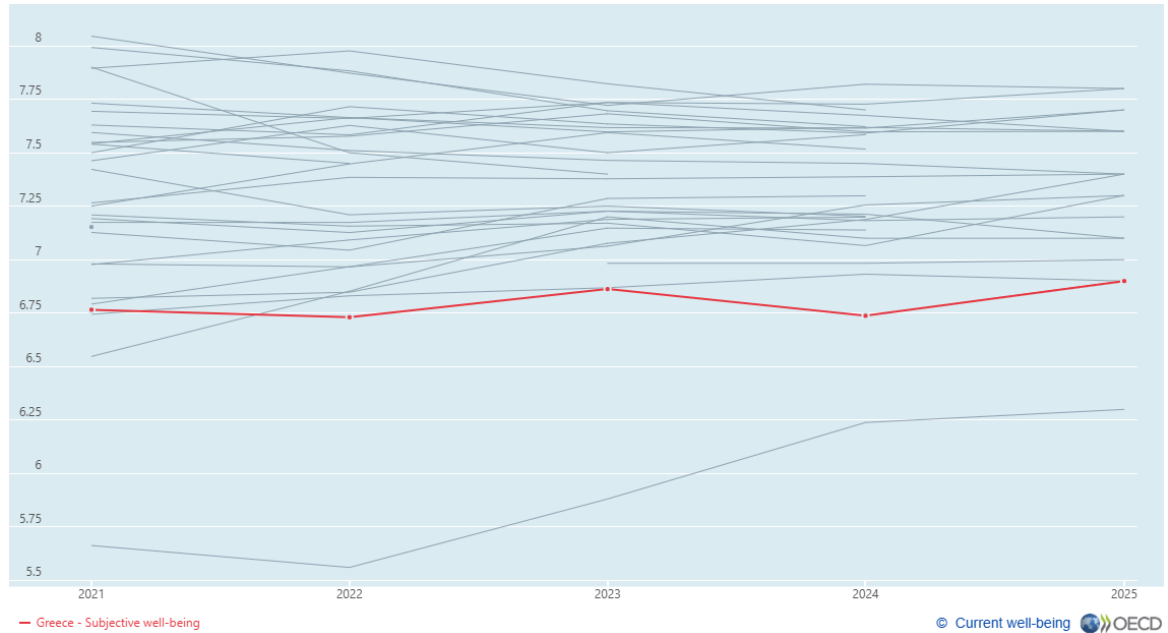


Figure 30 shows job satisfaction (a proxy parameter for occupational well-being) across European countries. With a score of 67.9%, Greece was placed at the 2nd last position, above Bulgaria (Source: <https://www.oecd.org/>). Finally, this score broadly aligns with the average occupational well-being score of 60% found in the present study.

Figure 30

Job Satisfaction across EU countries in 2023

Domain		Measure: Job satisfaction
Time period	Reference area	
2023	Norway	7,99
2023	Romania	7,95
2023	Finland	7,90
2023	Switzerland	7,84
2023	Lithuania	7,83
2023	Hungary	7,80
2023	Slovenia	7,79
2023	Canada	7,73
2023	Belgium	7,72
2023	Austria	7,71
2023	Czechia	7,69
2023	Netherlands	7,68
2023	Denmark	7,68
2023	Slovak Republic	7,68
2023	Estonia	7,65
2023	Latvia	7,65
2023	Ireland	7,59
2023	Sweden	7,57
2023	Croatia	7,43
2023	Poland	7,38
2023	Portugal	7,31
2023	Spain	7,25
2023	Germany	7,22
2023	Italy	7,22
2023	Luxembourg	7,18
2023	France	7,08
2023	Greece	6,79
2023	Bulgaria	6,20

5.3 Discussion of results of research question 3

Regarding the correlation analysis, the discussion first focuses on the satisfaction / frustration variables of the internal psychological needs.

Table 23

Spearman correlation coefficients in psychological need pairs (both satisfaction & frustration combinations)

Relationship	Correlation	Relationship	Correlation
Autonomy Satisfaction – Competence Satisfaction	0.620	Competence Frustration – Autonomy Satisfaction	-0.419
Autonomy Satisfaction – Relatedness Satisfaction	0.649	Competence Frustration – Autonomy Satisfaction	-0.601
Competence Satisfaction – Relatedness Satisfaction	0.518	Relatedness Frustration – Competence Satisfaction	-0.311
Autonomy Frustration – Autonomy Satisfaction	-0.244	Relatedness Frustration – Relatedness Satisfaction	-0.251
Autonomy Frustration – Competence Satisfaction	0.022	Relatedness Frustration – Competence Satisfaction	-0.164
Competence Frustration – Relatedness Satisfaction	-0.163	Relatedness Frustration – Relatedness Satisfaction	-0.482
Autonomy Frustration – Competence Frustration	0.235	Competence Frustration – Relatedness Frustration	0.428
Autonomy Frustration – Relatedness Frustration	0.442		

As shown in Table 23, employees who feel autonomous tend to feel competent and connected to others (see orange cells). This result is consistent with the self-determination theory. Although these needs are distinct, there is a great overlap between them, with each need reinforcing the rest (Chen et al., 2015; Ryan & Deci, 1985; Van den Broeck et al., 2016). By observing the correlations shown in the green cells of Table 23, this complies with SDT. According to (Vansteenkiste & Ryan, 2013), “*Need satisfaction and need frustration are distinct but negatively related constructs*”. When employees feel their psychological needs are satisfied, they tend to experience decreased levels of psychological distress. Finally, by observing the results in the yellow cells of Table 23, as with the satisfaction of psychological needs, the frustration of the same needs has positive correlations. Therefore, if employees feel controlled, they also tend to experience incompetence and social disconnection. This result strongly conforms with SDT (Chen et al., 2015), where a) there is a positive correlation among frustration needs and therefore, b)

if one of those needs is frustrated, there is a tendency for multiple needs to be frustrated simultaneously.

Next, the relationship between pay satisfaction and the three psychological needs is examined (see Table 24).

Table 24

Spearman correlation coefficients in Pay-Satisfaction / Internal Psychological Need pairs

Relationship	Correlation	Relationship	Correlation
Pay – Autonomy Satisfaction	0.407	Pay – Autonomy Frustration	-0.267
Pay – Competence Satisfaction	0.216	Pay – Competence Frustration	-0.280
Pay – Relatedness Satisfaction	0.314	Pay – Relatedness Frustration	-0.363

The above pattern of correlations is again supported by SDT scientific literature. It has been consistently shown that external rewards are conducive to internal needs satisfaction but negatively related to internal needs frustration (Gillet et al., 2012; Olafsen et al., 2015; Van den Broeck et al., 2016). This means that employees who are more satisfied with their pay also tend to feel moderately more autonomous, connected, and slightly more competent, while their frustration needs are moderately lessened.

This discussion shall now focus on the correlations between occupational well-being and satisfaction variables (see Table 25).

Table 25

Spearman correlation coefficients in well-being / ill-being – need (psychological & pay) satisfaction / frustration pairs

Relationship	Correlation	Relationship	Correlation
Well-Being – Autonomy Satisfaction	0.607	Ill-Being – Autonomy Satisfaction	-0.489
Well-Being – Competence Satisfaction	0.357	Ill-Being – Competence Satisfaction	-0.224
Well-Being – Relatedness Satisfaction	0.529	Ill-Being – Relatedness Satisfaction	-0.404
Well-Being – Pay Satisfaction	0.737	Ill-Being – Pay Satisfaction	-0.418
Well-Being – Autonomy Frustration	-0.236	Ill-Being – Autonomy Frustration	0.367
Well-Being – Competence Frustration	-0.292	Ill-Being – Competence Frustration	0.304

Well-Being – Relatedness Frustration	-0.370	Ill-Being – Relatedness Frustration	0.347
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Table 25 shows that well-being is very strongly associated with pay satisfaction and autonomy satisfaction in the sample examined, while it is less associated with relatedness and competence satisfaction. Generally, the above table is aligned with SDT. According to (Chen et al., 2015; Coxen et al., 2023; Martela et al., 2023; Ryan & Deci, 1985), need satisfaction is positively correlated with well-being, while need frustration is positively correlated with ill-being.

The well-being to ill-being correlation is at -0.576. It is a strongly negative association showing that people high in well-being tend to have low ill-being. The constructs of well-being and ill-being are not perfect opposites; therefore, it is appropriate to treat them as two separate constructs.

The above correlation numbers also agree with scientific literature. (Chen et al., 2015; Deci, Ryan, et al., 2001; Olafsen et al., 2021; Thibault Landry et al., 2016; Thibault Landry & Whillans, 2018; Vansteenkiste & Ryan, 2013) reported:

- Correlations between needs satisfaction range from 0.28 to 0.71.
- Correlations between needs satisfaction and well-being metrics range from 0.18 to 0.7.
- Correlations between needs satisfaction and ill-being metrics range from 0.14 to 0.51.
- Correlations between needs satisfaction and needs frustration range from -0.05 to -0.64.
- Correlations between pay satisfaction and needs satisfaction range from 0.47 to 0.58.

The discussion proceeds with the analysis of the well-being equation:

$$WB = 0.32 + 0.391 \cdot AS + 0.494 \cdot PS, R^2 = 0.646$$

The above regression model suggests that two variables are strongly associated with well-being in the sample examined.

- Economic dimension via pay satisfaction. An increase in pay satisfaction by 1 unit is linked with a 0.494 unit increase in well-being while holding autonomy

satisfaction constant. The result is consistent with research by (Drakopoulos & Grimani, 2015).

- Psychological dimension via autonomy satisfaction. An increase of autonomy satisfaction by 1 unit is linked with a 0.391 unit increase in well-being while holding pay satisfaction constant.

A greater pay satisfaction coefficient shows that pay satisfaction is somewhat more significant than autonomy satisfaction for the increase in well-being. This result is also consistent with the fact that in the current study, pay satisfaction and autonomy satisfaction were the lowest among all the satisfaction needs. A note of caution is that competence satisfaction and relatedness satisfaction are not insignificant; however, since the regression equation includes the variables that have a high explanatory power of the well-being variance, it signifies that there is a high correlation coefficient of competence satisfaction (0.620) and relatedness satisfaction (0.649) with autonomy satisfaction, therefore they cannot emerge as unique predictors.

It is worth noting the high value of $R^2=0.646$. This means that a substantial proportion (64.6%) of the variance in well-being is structured around the poles of autonomy (psychological mechanism) and pay satisfaction (economic mechanism) in the current sample.

Scientific SDT literature (Deci, Ryan, et al., 2001; Van den Broeck et al., 2016) also agrees that among the psychological needs, autonomy came out as the most powerful predictor of well-being.

The discussion turns to the analysis of the well-being equation:

$$IB = 2.698 + 0.331 \cdot AF + 0.209 \cdot CF - 0.286 \cdot PS, R^2 = 0.281$$

The above regression model suggests that three (3) variables are strongly associated with ill-being in the sample examined.

- Economic dimension via pay satisfaction. An increase in pay satisfaction by 1 unit is linked with a 0.286 unit decrease in ill-being while holding all other factors constant.
- Psychological dimension via autonomy frustration and competence frustration. An increase in autonomy frustration by 1 unit is linked with a 0.331 unit increase in ill-

being. An increase in competence frustration by 1 unit is linked with a 0.209 increase in ill-being.

Ill-being is more strongly affected first by autonomy frustration, then by pay satisfaction, and finally by competence frustration. In this equation, competence frustration also emerges as a predictor. By observing Table 23, we can observe that the intercorrelation between autonomy frustration and competence frustration is moderate (0.235) and therefore, competence frustration plays a significant role in uniquely predicting the variance in ill-being. On the other hand, the intercorrelation between autonomy frustration and relatedness frustration is 0.442, which signifies a stronger intercorrelation between the two and therefore its unique explanatory power to explain variance in ill-being has dissipated.

It is worth noting that the model has moderate explanatory power of $R^2=.281$. This means that a 28.1% proportion of the variance in ill-being is uniquely explained by these three independent variables.

Again, the above results are consistent with SDT literature. According to (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011; Bartholomew, Ntoumanis, Ryan, Bosch, et al., 2011; Van den Broeck et al., 2016; Vansteenkiste & Ryan, 2013) need frustration predicts ill-being, anxiety, emotional exhaustion, psychological distress, and suboptimal functioning. According to (Olafsen et al., 2015), pay satisfaction is related to greater well-being. Since there is a strong negative correlation between well-being and ill-being, it follows that greater pay satisfaction indeed reduces employee ill-being.

5.4 Discussion of results of research question 4

Regarding the perception of external rewards and psychological needs:

- When external rewards are perceived as controlling, employees tend to report lesser autonomy satisfaction & competence satisfaction and vice versa.
- When external rewards are mostly viewed as informational, employees tend to report greater autonomy & competence satisfaction and vice versa.

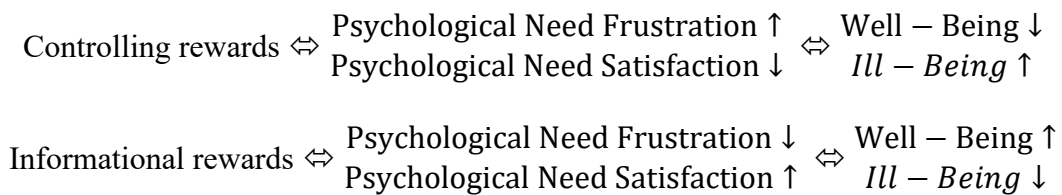
Regarding the perception of external rewards and well-being / ill-being:

- When external rewards are perceived as controlling, employees tend to report reduced well-being and greater ill-being symptoms, and vice versa.

- When external rewards are mostly viewed as informational, employees tend to report enhanced levels of well-being and decreased levels of ill-being and vice versa.

In all cases, the perception of external rewards partially mediated the relationship between the satisfaction or frustration of autonomy and competence and well-being / ill-being.

The overall association pathways are the following:



The first part of the above pathways is consistent with SDT findings. According to (Deci & Ryan, 1988), if external rewards are perceived as informational, they enhance intrinsic motivation. Plenty of literature supports the same position. This literature has already been mentioned in the Literature review part (Chapter 2) of this thesis motivation (Cerasoli et al., 2014; Deci, 1971, 1972; Deci et al., 1999; Gerhart & Fang, 2015; Harrison et al., 1996; Olafsen et al., 2015; Weibel et al., 2010)

Regarding the second part of the pathway, the answer can be found in section 5.3.

5.5 Discussion of results of research question 5

Well-Being

Pay satisfaction appears in all subgroup equations, suggesting that it is the most important predictor of occupational well-being in Greece. The second most prominent predictor is autonomy satisfaction. When employees feel less controlled, they tend to experience greater levels of well-being. The relatedness satisfaction factor becomes statistically significant for Gen X and Gen Y groups as well as for Large Organizations. This does not mean that relatedness satisfaction or competence satisfaction are not significant, rather that they do not explain sufficient unique variance in well-being on their own, and therefore autonomy includes all of them simultaneously.

By observing the equations in greater detail, we can extract the following conclusions:

- Younger generations' (Gen Y) well-being is more strongly associated with pay satisfaction and less associated with relatedness satisfaction and autonomy satisfaction.

- Older generations' (Gen X) well-being is more strongly associated with pay and autonomy satisfaction. Relatedness satisfaction does not have enough unique explanatory power.
- Gen Y well-being is tied to relatedness satisfaction, while Gen X is not. A possible explanation might be that Gen Y will still work for many years in the future and might consider their connections more important when considering career choices or promotions.
- Gen X, on the other hand, has most probably established their reputation and they might not have to prove their skills and abilities to their seniors. For them, autonomy satisfaction might be more important because it signals a sense of respect, trust, and recognition for them.

Regarding the organisation size, as the organisation size increases, companies need to put more effort into the autonomy satisfaction of their employees since autonomy satisfaction and well-being are positively correlated. In small firms, it is usually easier to provide more flexible job settings and reduce bureaucracy. In large corporations, companies can also use the lever of relatedness satisfaction since it is positively connected with well-being. Regarding large organizations where employee relations become more informal, it is reasonable that relatedness satisfaction becomes statistically important and positively correlated with well-being. Pay satisfaction consistently correlates with greater employee well-being in all cases.

While observing the results for BSc and MSc subgroups, it is notable that:

- MSc graduates connect their well-being more by being psychologically independent and having control over their work.
- BSc graduates seem to associate well-being primarily with their pay satisfaction. They might feel that they have less bargaining power and therefore, they more heavily rely on a high salary to maintain their well-being.

It is also very interesting when looking at the equations between the two sexes that the differences in the coefficients are not significant. Therefore, occupational well-being in Greece is gender-independent.

Overall, well-being appears to correlate strongly with two main levers:

- Economic well-being (Pay Satisfaction)

- Psychological well-being (Autonomy Satisfaction and Relatedness satisfaction in some contexts)

Ill-Being

Regarding ill-being, the regression equation suggests that autonomy frustration more dominantly associates with ill-being, while pay satisfaction is negatively correlated with employee ill-being. Greater pay satisfaction is correlated with lower ill-being.

Between the sexes:

- Female employees might experience ill-being strongly when there is relatedness frustration (i.e., social exclusion). Therefore, relatedness frustration is most strongly and positively associated with changes in ill-being for female employees. This finding highlights the importance of interpersonal relationships in workplace well-being for female employees.
- On the other hand, male employees might experience ill-being when they feel pressured, controlled, cannot voice their opinion, and are micromanaged (autonomy frustration).
- For both sexes, ill-being almost equally correlates with pay satisfaction.

Regarding the age groups:

- Younger generation employees might be distressed both by autonomy frustration and financial dissatisfaction (positive correlations).
- Older employees, on the other hand, might experience distress primarily as a result of autonomy frustration (positive correlation).

This might indicate that older employees' earnings are satisfactory or that their expectations regarding salary gains in the future match reality. They appear to place greater emphasis on the qualitative parts of their job. Autonomy may signal recognition, trust, and respect in their work. On the other hand, when younger generations are struggling to become financially independent and cover the ever-increasing housing costs, pay satisfaction might play a crucial role in their psychological stability.

Regarding organization size, the following pattern is observed. For small organizations, ill-being heavily and negatively correlates with pay satisfaction. As the organization size

increases, the autonomy frustration term appears in the ill-being equation, showing its positive correlation, while pay satisfaction is eliminated in large organizations. The insight from the above is that employees in small firms might suffer more from economic stress due to financial uncertainty, while in larger organizations, they might have to endure a greater psychological burden expressed through autonomy frustration, mainly derived from countless approval layers, bureaucracy, and limited participation in decision-making.

Regarding their education level:

- BSc graduates reduce their ill-being symptoms primarily by reducing autonomy frustration (positive correlation).
- MSc graduates reduce their ill-being symptoms by decreasing autonomy frustration and increasing pay satisfaction levels (positive and negative associations).

MSc graduates might have higher expectations of their occupation since they have invested more years in their education. That may explain the reason why both terms appear in their ill-being. If their expectations are not met, their ill-being increases. On the other hand, BSc graduates are entering the market with lower expectations and therefore, pay dissatisfaction might be less crucial in determining their ill-being.

5.6 Implications for Greek Management and Leadership to enhance well-being and curb ill-being

A considerable body of research suggests that employees who report increased levels of well-being and reduced levels of ill-being perform more effectively in their occupations (see Chapter 1). In addition, a large body of research in SDT proposes that greater intrinsic motivation through the satisfaction of the basic psychological needs (autonomy, competence, and relatedness) is associated with higher well-being and lower ill-being. The current thesis has replicated those results in the Greek labour force. Also, pay satisfaction plays a vital role in the well-being / ill-being of Greek employees. To enhance the well-being of the Greek workforce, Greek managers are prompted to follow the directions outlined below.

1. Management and leadership are advised to gradually transform from an authoritative style to a more autonomy-supportive and participative style (V. Chirkov et al., 2003; Deci, Ryan, et al., 2001; Deci & Ryan, 2000; Gagné & Deci, 2005; Nie et al., 2015). Autonomy-

supportive behaviors include (Black & Deci, 2000; Boufounou & Argyrou, 2022; Deci et al., 2017; Deci & Ryan, 2000; Güntert, 2015; Hardré & Reeve, 2009; Nie et al., 2015):

- Empathy, understanding, and active listening.
- Provision of meaningful choices (e.g., in methods used, sequence of task completion) – less micromanagement and less use of commanding language (such as: have to, should, must, etc.)
- Providing a clear rationale when only one course of action or one single mode of behaviour is to be adopted.
- Support employees' initiative and sense of ownership.

Autonomy support shifts employees towards intrinsic motivation, which enhances well-being (V. Chirkov et al., 2003; Deci, Ryan, et al., 2001; Deci & Ryan, 2000; Gagné & Deci, 2005; Nie et al., 2015).

2. Pay satisfaction should constitute a central pillar of well-being in Greek employees. The best payment systems work when they are fair and transparent (Olafsen et al., 2015). It is very important to consider both distributive and procedural justice (Folger & Konovsky, 1989). Criteria have to be fair, transparent and communicated consistently. In the Greek context, the above practices are crucial, since organizational informality and lack of transparency have been identified as major hurdles in the business environment. Also, using pay-related rewards in a non-controlling manner is an effective indirect way to further increase employee's well-being.

3. Relatedness and competence satisfaction are also significant. However, they usually do not appear in well-being or ill-being equations because they do not explain sufficient unique variance in well-being and ill-being regression equations. For example, autonomy satisfaction has intercorrelation coefficients greater than 0.5 with competence or relatedness satisfaction. Indeed, an individual with high autonomy satisfaction is also more likely to report high competence and relatedness satisfaction. In addition, as has already been discussed, our sample reported quite high values of competence / relatedness satisfaction and low values in competence / relatedness frustration. Therefore, regarding the internal psychological needs, increasing autonomy satisfaction and reducing autonomy frustration is of utmost importance. However, there are specific individuals who would also benefit from the satisfaction of the other SDT needs (e.g. women's ill-being is reduced when

relatedness frustration is lower while employee's well-being in large corporations is greater when relatedness satisfaction is higher) (Deci & Ryan, 2008).

Competence supportive environments:

- Design activities in a specific way to elicit mastery experiences. In other words, provide the optimal challenge: not too easy to elicit apathy, but not too difficult to elicit stress and anxiety.
- Provide a gradual or scaffolding way for skill development.
- Provide feedback in a more informational tone rather than an evaluative and controlling tone. Praise is also an important component of feedback. It should focus on effort or accomplishments, rather than promoting comparisons among colleagues (i.e., elicit ego-involvement).

Relatedness supportive environments:

- Convey respect for each individual. Employees should feel valued and significant.
- Show concern for personal or professional challenges of the individual.
- Create a warm and inclusive atmosphere.

Finally, all the above behaviours overlap with specific leadership styles such as a) Democratic / Participative leadership style and b) Transformational leadership style. Specifically, a democratic / participative leader allows employees to actively participate in organizational matters and use their initiative, while supervision is less restrictive. These are autonomy-supportive behaviours. The transformational leader provides:

- a) Intellectual stimulation: promotes independent thinking, cultivates problem-solving abilities, challenges assumptions → autonomy & competence supportive behaviours.
- b) Individualised consideration: Provides growth through coaching and advice, while treating each employee with respect and care → competence & relatedness supportive behaviours.

To conclude, from an SDT standpoint, a combination of a fair compensation system along with democratic / transformational leadership, seems to be the most effective route for enhancing employee well-being and reducing employee ill-being in the Greek labour market. There is extensive scientific literature highlighting the well-being benefits from the

employment of democratic (autonomy-supportive) / transformational leadership (Baard et al., 2004; Deci et al., 2017; Fernet, Austin, et al., 2012; Gagné & Deci, 2005; Gözükarar & Şimşek, 2015; Hardré & Reeve, 2009; Hetland et al., 2011; Williams et al., 2014).

6. Conclusions, Limitations & Recommendations for future research

6.1 Conclusions

The main conclusions of the current MBA thesis are summarised below:

- Internal need satisfaction is positively connected with subjective well-being at work in the Greek labour market. Among those needs, autonomy plays the most crucial role in the correlation.
- Pay satisfaction appears to have a very strong association with occupational well-being in the Greek labour market as well.
- Competence and relatedness needs are not insignificant; rather, their contribution is less when all SDT are taken into consideration. Their respective terms appeared in the general ill-being equation (i.e., competence term) and also in specific subgroups of our sample (e.g., well-being of large organisations, ill-being of female employees).
- Well-being and ill-being in the Greek labour market are not exclusively correlated with a) internal psychological needs or b) external rewards (pay). It is their combination that maximises the coefficient of determination in all multiple regression models.
- The perception of how external rewards are perceived (controlling vs informational) is correlated with well-being and ill-being. Controlling rewards are associated with a reduction in autonomy and competence satisfaction and an increase in autonomy and competence frustration. This, in turn, is connected with poorer occupational well-being and more severe ill-being. The opposite associations are shown when the perception of external rewards tends to be translated as informational.
- Organisations that desire to promote higher well-being levels will likely achieve their goal if they focus on a) fair & transparent compensation systems (distributive and procedural justice) and b) autonomy supportive environments. The above is well explained by the facts that:
 - i) Greece scored among the last countries in the EU in PPS and;
 - ii) Greece is still struggling to adopt contemporary management practices.

A plausible explanation is that the Greek labour force has been shown to be pay and autonomy-deprived. Need deprivation usually leads to frustration. This is the moment when employees notice and reflect it in the surveys. That might be the reason why autonomy and pay satisfaction stand out as the most important predictors of well-being. As a final reminder, sample mean autonomy and pay satisfaction were the lowest, while sample mean autonomy frustration was relatively high.

This thesis provides its own contribution to the SDT framework as follows:

- Explores the framework in the Greek labour market where a literature gap was identified.
- Reinforces the position that among the psychological needs, autonomy satisfaction correlates the highest with occupational well-being.
- Pay satisfaction does not counteract the application of SDT theory but rather reinforces it. Not only psychological needs, but also external rewards are linked with greater subjective well-being levels.
- It reinforces the position that rewards perceived as informational are more likely to enhance well-being and lessen ill-being, and vice versa for controlling rewards. This is an SDT finding that is still being debated.

6.2 Limitations

The most important limitation of the current thesis is that the research was cross-sectional. Cross-sectional research can show only correlations but not causations. For example, internal need satisfaction and pay satisfaction are strongly associated with well-being, but it cannot be claimed that well-being is caused by internal need and pay satisfaction. To be able to make causality inferences, longitudinal studies are required.

Secondly, the sample employed for the current research is not fully randomised and representative of the Greek labour force. Convenience and snowball sampling ensured a quick collection of questionnaire responses; however, certain groups have been overrepresented (e.g., the questionnaire was publicised on the LinkedIn platform. This means that employees in white-collar professions, with at least a BSc degree and access to online surveys, have been overrepresented in the current survey).

6.3 Recommendations for future research

The author of the current thesis expects that the results analysed above will spark further questions regarding the occupational well-being in the Greek labour market. This chapter outlines potential ideas for further exploration.

1) For an MBA thesis, a sample of $n=174$ might be sufficient; however, a larger and more diverse sample would be required to accurately reflect the Greek labour market. In addition, longitudinal studies might reveal the dynamic process of internalisation as well as provide stronger evidence regarding the directionality of the stated correlations.

2) 64.6% of the variation in well-being is attributed to autonomy and pay satisfaction. This is already a very strong correlation; however, 35.4% of well-being variance remains unexplained. Concepts such as meaning and purpose have been widely discussed in scientific literature regarding work and could be examined if they possess unique explanatory power in well-being. Moreover, well-being at work cannot be separated from well-being outside of work. More comprehensive research should include exercise routines, nutrition, sleep, hobbies, and social connection outside of work, to better understand occupational well-being.

3) 28.1% of the variation in ill-being is attributed to pay satisfaction, autonomy & competence frustration. Although this is a moderate correlation, 71.9% of the variation in occupational ill-being in Greece remains unexplained. Other factors that could be examined include job workload / pressure, job insecurity, and also factors outside of the work environment, such as those mentioned in the previous suggestion.

4) Apart from age, biological sex, education level, and organization size, it would be valuable for HR management to decipher how different personality types affect well-being and ill-being regression equations. To proceed with this type of research, the use of the Big Five (OCEAN) personality model is proposed. OCEAN is an acronym that stands for:

- Openness to experience
- Conscientiousness
- Extraversion

- Agreeableness
- Neuroticism

5) Intervention studies in Greece are needed to validate the findings of the current thesis. Autonomy-supportive or transformational leadership should be implemented in some companies and evaluate the effectiveness of those changes (i.e., before and after the implementation). The greatest well-being improvements are expected to be measured in work settings where the authoritative leadership and culture are prevalent.

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Appendix A: Questionnaire

Demographic Questions

What is your biological sex? *

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

What is your age? *

- ☐ 18-28 (Gen Z)
- ☐ 29-44 (Gen Y or Millennials)
- ☐ 45-60 (Gen X)
- ☐ 61+ (Baby Boomers)

What is your highest level of education completed? *

- ☐ High School
- ☐ Bachelor's Degree (BSc, BA, BBA, BEng, etc.)
- ☐ Master's Degree (MSc, MA, MBA, MEng, etc.)
- ☐ Professional Doctorate or PhD

What is the size of the organisation you are working for? *

- ☐ Small (<50 Employees)
- ☐ Medium (50-250 Employees)
- ☐ Large (>250 Employees)

Intrinsic Need Satisfaction

Possible answers are on a 7-point Likert scale (1: Strongly disagree to 7: Strongly agree).

1. I feel a sense of choice and freedom in the things I undertake.
2. I feel that the people I care about also care about me.
3. I feel confident that I can do things well.
4. Most of the things I do feel like "I have to".
5. I feel excluded from the group I want to belong to.
6. I have serious doubts about whether I can do things well.
7. I feel that my decisions reflect what I really want
8. I feel connected with people who care for me, and for whom I care.
9. I feel capable at what I do.
10. I feel forced to do many things I would not choose to do.
11. I feel that people who are important to me are cold and distant towards me.
12. I feel disappointed with much of my performance.
13. I feel my choices express who I really am
14. I feel close and connected with other people who are important to me.
15. I feel competent to achieve my goals.
16. I feel pressured to do many things.
17. I have the impression that the people I spend time with dislike me.
18. I feel insecure about my abilities.
19. I feel I have been doing what really interests me.
20. I experience a warm feeling with the people I spend time with.
21. I feel I can successfully complete difficult tasks.
22. My daily activities feel like a chain of obligations.
23. I feel the relationships I have are just superficial.
24. I feel like a failure because of the mistakes I make.

Pay Satisfaction

Possible answers are on a 7-point Likert scale (1: Strongly dissatisfied to 7: Strongly satisfied).

1. My current salary
2. The value of my benefits
3. How my raises are determined.
4. Consistency of company's pay policies
5. My overall level of pay
6. The number of benefits I receive
7. My most recent raise
8. Differences in pay among jobs in the company

Perception of External Rewards

Possible answers are on a 5-point Likert scale (1: Strongly disagree to 5: Strongly agree).

1. I feel pressured to work mainly to obtain the financial rewards offered by my job.
2. Financial rewards are provided due to my high work quality.
3. Financial rewards make me feel respected and appreciated.
4. My sense of autonomy is reduced due to the way financial rewards are provided.
5. The possibility of losing financial rewards makes me anxious about my performance.
6. Being financially rewarded at work gives me useful feedback about my competence.
7. The financial rewards I receive demonstrate that my efforts and skills are valued.

Well-Being at Work

Possible answers are on a 7-point Likert scale (1: Strongly disagree to 7: Strongly agree).

1. At my job, I feel strong and vigorous.
2. I am enthusiastic about my job.
3. I get carried away when I am working.
4. How satisfied are you with the nature of the work you perform?
5. How satisfied are you with the pay you receive for your job?
6. How satisfied are you with the opportunities which exist in this organization for advancement (promotion)?
7. I would be very happy to spend the rest of my career with this organization.

8. I feel emotionally attached to this organization.
9. I feel a strong sense of belonging to my organization.

Ill-Being at Work

Possible answers are on a 7-point Likert scale (1: Strongly disagree to 7: Strongly agree).

1. I find myself talking more often about my work in a negative way.
2. After work, I tend to need more time than in the past in order to relax and feel better.
3. I usually do my job almost mechanically, without thinking.
4. During work, there are many times where I feel emotionally drained.
5. Lately, I find myself disconnected from this type of work.
6. Sometimes I feel sickened by my work tasks.
7. After work, I usually find myself worn out and weary.
8. Today, I felt tired before I arrived at work.

Appendix B: Frequency charts for each question

Figure 31

Intrinsic Need Satisfaction - Frequency Charts for each question

Intrinsic Need Satisfaction

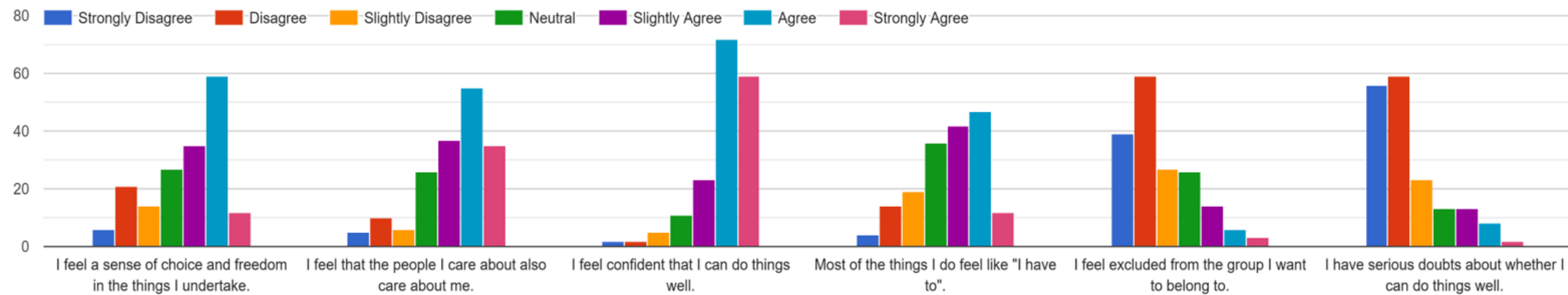


Figure 32

Intrinsic Need Satisfaction - Frequency Charts for each question (2)

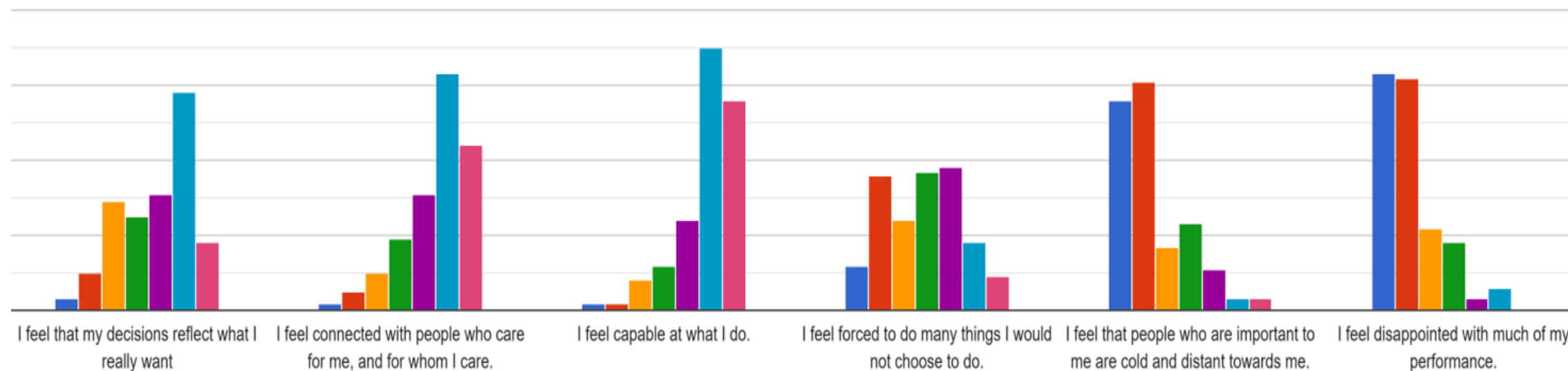


Figure 33

Intrinsic Need Satisfaction - Frequency Charts for each question (3)

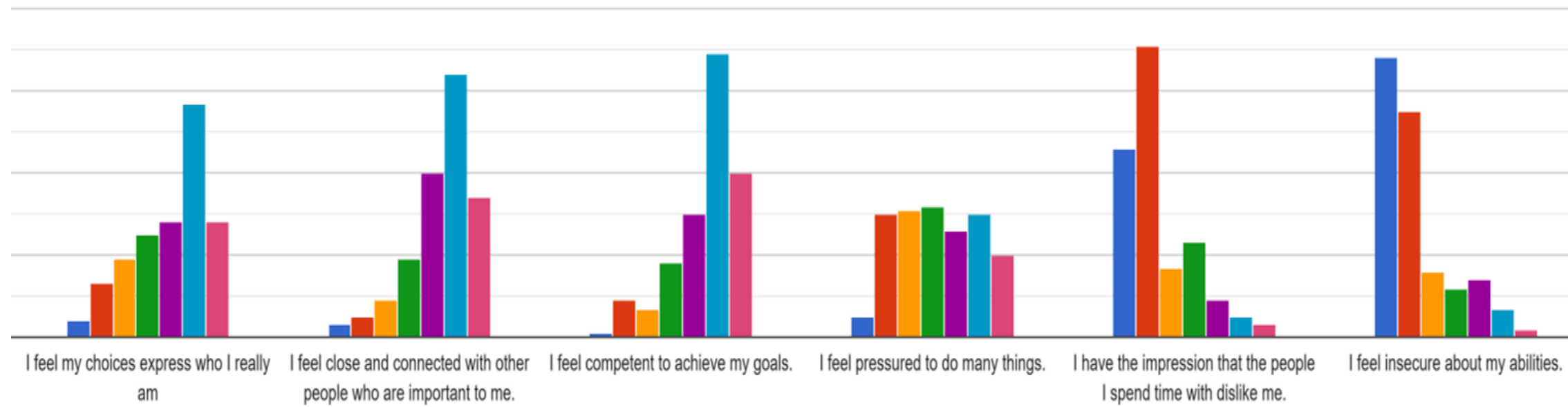


Figure 34

Intrinsic Need Satisfaction - Frequency Charts for each question (4)

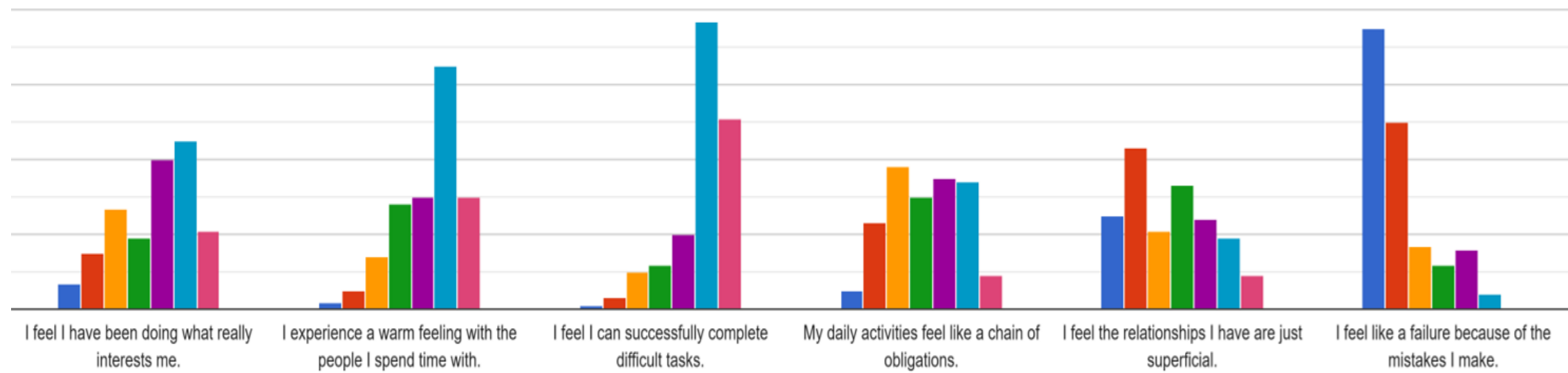


Figure 35

Pay Satisfaction - Frequency Charts for each question

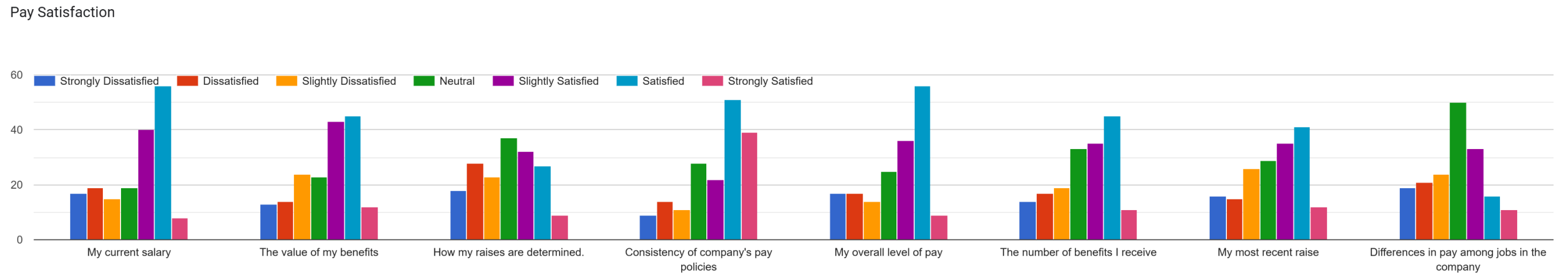


Figure 36

Perception of external rewards - Frequency Charts for each question

Perception of External Rewards

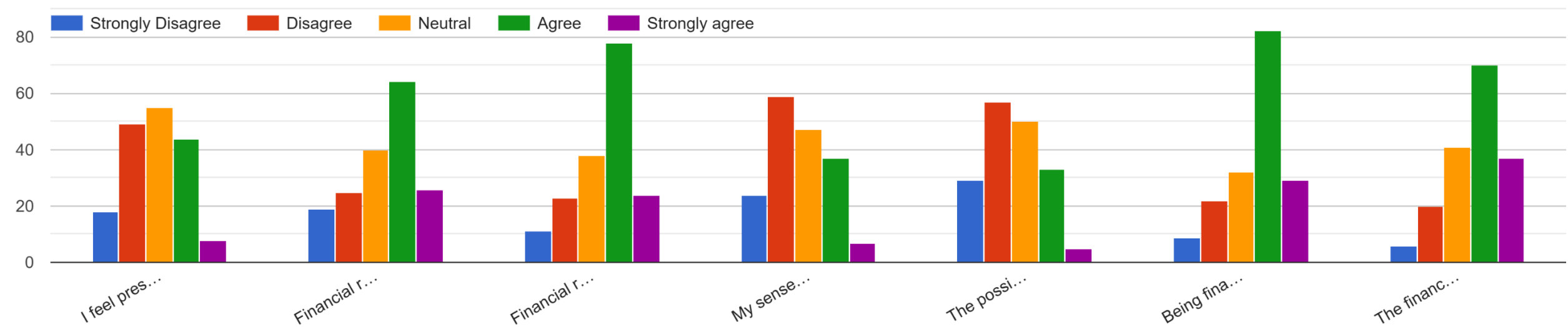


Figure 37

Well-Being at work - Frequency Charts for each question

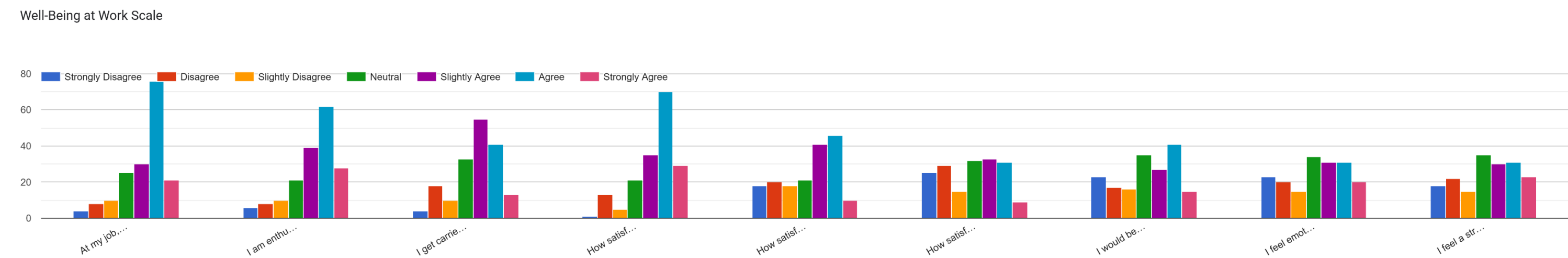
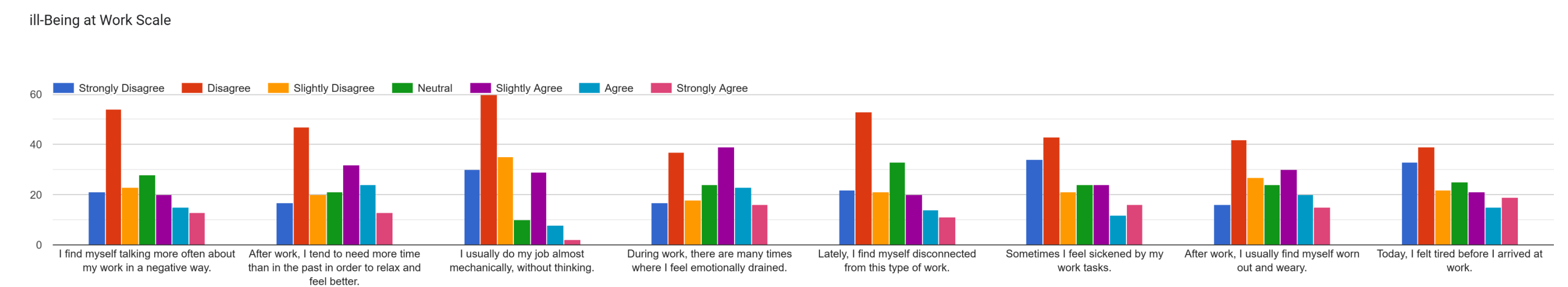


Figure 38

Ill-Being at work - Frequency Charts for each question



Author’s Statement:

I hereby expressly declare that, according to the article 8 of Law 1559/1986, this dissertation is solely the product of my personal work, does not infringe any intellectual property, personality and personal data rights of third parties, does not contain works/contributions from third parties for which the permission of the authors/beneficiaries is required, is not the product of partial or total plagiarism, and that the sources used are limited to the literature references alone and meet the rules of scientific citations.