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“THE PSYCHOBODYNOMIC MANAGEMENT (PBDM) APPROACH”

DOCTORAL THESIS

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To Dora

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“Human behaviour flows from three main sources: desire, emotion, and knowledge.”

Plato – The Republic

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List Of Abbreviations

PBDM	PsychoBioDynamic Management
PBDMm	PsychoBioDynamic Management – managers’ perception
PBDMs	PsychoBioDynamic Management – subordinates’ perception
PBDMm1	PsychoBioDynamic Management (excl. NHL)
EI	Emotional Intelligence
OEA	Others’ Emotions Appraisal
SR	Self-regulation
ESI	Employees Job Satisfaction
ESIm	Employees Job Satisfaction – evaluated by Managers
ESIs	Employees Job Satisfaction – evaluated by Subordinates
NHL	Nutrition, Habits, Lifestyle
DV	Dependent Variable
IV	Independent Variable
DMP	Decision-Making Process
BMI	Body Mass Index
EBS	Emotional Balance Status

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Preface

Business operations, efficiency and performance depend directly on management style (Noe, 1996) (Johnson, 2011) (Becker & Gerhart, 2017). Decision-making and applied policies in every business are a matter of management. Living in a global financial crisis, existing management models seem to be inefficient. Consequently, the current socio-economic situation leads to the necessity of seeking and establishing new management approaches/ styles. Approaches that place the human being as a base (Estifo, et al., 2019) (Mehairi & Binning, 2014) (González-De-la-Rosa , et al., 2023) (Butera, 1995) (Lountzis & Palaskas, 2022).

Researchers in recent decades have concluded that when a decision is made, the person does not make it rationally. As Nobel Prize-winning Psychologist Daniel Kahneman has stated, "Utility Theory makes logical economic logic hypotheses that do not reflect people's real choices and ignore cognitive prejudices" (Kahneman, 2012). This thesis approach and Prof. Palaskas team's PscyhoManagement approach (Tsirimokou, 2021) (Palaskas, et al., 2019) (Tsirimokou, et al., 2019) can lead to the establishment of a new form of management based on the Emotional Intelligence. The purpose of this research is to define and apply to businesses a scheme of management derived from Emotional Intelligence encompassing the effect of management lifestyle in the dynamic working frame by examining whether it can bring a positive or negative sign to personnel's satisfaction.

Abstract

Existing managerial theories, Classical, Neo-classical and Modern Management, have been applied to businesses and organizations aiming to improve personnel's performance in terms of productivity and effectiveness (Kitana, 2016). Literature has shown (Petriglieri, 2020) (Mom, 2018) (Joullié & Gould, 2021) that, while some businesses have benefited from their application, others did not. This doctoral thesis shows the need for the adoption of a new management approach (PsychoBioDynamic Management – PBDM), which, among other concepts, focuses on the role and the factors affecting employees' job satisfaction. The new approach consists of PsychoManagement principles and the managers' lifestyle. This study intends to investigate whether *the PBDM might statistically influence employees' job satisfaction*. To explore the set hypotheses, fieldwork was undertaken with an extensive random sample, from Greek companies/organizations of various sectors and sizes, using an appropriately designed questionnaire to select and statistically analyze related quantitative and qualitative information. The new proposed management approach variable is expected to a-priori influence the subordinates' satisfaction. The findings and results of the statistical testing confirm the set hypothesis and indicate that the employees' job satisfaction is statistically influenced by the PBDM. However, there is an important discrepancy between the perceptions of managers and subordinates for both PBDM and job satisfaction.

Keywords: PsychoManagement; Empathy; Self-regulation; Lifestyle; Job satisfaction; Human Brain; Decision-Making

Introduction

Approaching from the perspective of the science of Psychology in relation to the exercise of administrative "power" may lead to a greater sense of satisfaction for employees that is likely to be interpreted as increasing rates of performance and productivity. Surely, the goal of a business is to reduce the total production costs in order to increase the profit margins at the same time. Applying such an approach will certainly affect every employee – and thus every factor – of the business. However, the main question that arises and should be investigated further is what effect it may have on business figures.

A new proposed way of management that is not only based on administrative capabilities but also on attributes derived from the definition of Emotional Intelligence could very well bring businesses closer to their goals keeping at the same time their human resources satisfied, improving likewise their performance.

Daniel Goleman (Goleman, 1998), in his performance theory which includes a set of guidelines for efficiency and skills for employee development, claims that Emotional Intelligence is the ability to understand and control our emotions, and this ability creates effective and persuasive leaders. This research will try to go one step further by integrating these competences into a new management model. The research field that is being opened is of high importance and very challenging in the field of economics and management requiring the development of models to serve empirically the related hypotheses.

This proposed approach in the field of management may be a possible solution for improving employees' performance and productivity as well as improving human resource management (HRM). When HRM existing approaches fail to improve business performance, the proposed management approach may provide the necessary conditions for mitigating – if not solving – the problems. Businesses are not just machines, as personnel management states. It employs people who think and feel. If a new management approach can be directly addressed to humans by improving them, it could also have an impact on the whole of the business.

Chapter 1 – Why we do need a new management approach

1.1 Are the existing management theories efficient to the organizations?

The Classical, Neo-classical, and Modern Management theories have been applied to many businesses and organizations for the personnel’s performance and productivity to increase as much as possible. All these theories, (see **Table 1**) developed many years ago, stated that organizations should follow specific principles and concepts for increasing employees’ productivity, effectiveness, and efficiency (Kitana, 2016). History has shown that some businesses following these principles managed to increase their productivity and profitability, while others failed (Petriglieri, 2020). The big question arising here is whether these approaches are enough for leading nowadays organizations to success in terms of performance and competition.

One of the most important factors that it must be taken into consideration is the period the existing theories developed and the targets that they aimed to achieve. The Classical Theory (rational economic view), developed in the 1910s by Frederick Taylor, was based on scientific methods that can increase efficiency, “*eliminating additional movements and transfers at the workplace*”. This approach has targeted better employees’ training and the implementation of the scientific management model (Saxena, 2019). These theories were developed to predict and control workers’ behaviour in an organization. They do not include the need for humans’ relations and communication (Pindur, et al., 1995). The Neo-classical theory was the first attempt to get involved the human relations as a factor that can influence the management and leadership. Elton Mayo¹ (Ferdous, 2017) recognized that the appreciation, cooperation, and different societal facets connected to the workplace can be considered as motivators. At the crossroads between classical and modern theory, Peter Drucker publishes the “Concept of the Corporation” that considers businesses as social networks and replaces the terms “Foreman” and “Worker” with “Manager” and “Employee” respectively (Kiechel III, 2012). Douglas McGregor also introduces the Theory X and Y (Lawter, et al., 2015); these theories define the management as autocratic (X) or participative (Y) depending on "nature of man". On the other hand, the Modern Management theory approaches the businesses and organizations as a complex system that includes people with different perspectives, believes and potentials. This theory claims that it cannot be applied one

¹ Many findings from Hawthorne Experiments – conducted by Elton Mayo and Fritz J. Roethlisberger – used for the Neo-Classical Theory

horizontal specific strategy to everyone within the organization. It includes two different approaches: System Approach and Contingency Approach. In the first approach, managers are monitoring the whole organization. This approach provides an overall overview of the effects in various segments of an organization when one segment is affected (Rana, et al., 2016). Managers who choose this approach, “*they decide once they get an overview of the effects of their decisions on an organizational perspective rather than the specific department perspective*” Among supporters of the approach are, Chester Barnard, George Homans, Philip Selznick, and Herbert Simon (Hussain, et al., 2019). Fred Fiedler introduces the the Contingency approach (Fiedler, 1993). According to this theory the managers should find alternatives when an effective solution cannot work for specific issues. The managers are expected to find the optimum methods and techniques that drive to the solution of the problem considering the current conditions and difficulties in order they are able to achieve the business goals posed (Kitana, 2016).

THEORY	APPROACH	MILESTONE EVENTS	TIME
Classical Theory	Procedural Approach - Processes and strict specifications - Standardization of jobs and workers - Division of labour - Specialization of work	1914: Opening of the Panama Canal 1914-18: World War I 1918: Spanish Flu Pandemic 1917: Revolution of Russian Communists 1927: The first airline is founded for commercial international flights 1929-41: The Great Depression commences	~ 1910 ↓
Neo-Classical Theory	Humans Relations Approach - Business is a social system - Focuses not only to techno-economical skills - Economical rewards are not the basic motivators for increased productivity - First attempt for management to see the worker’s uniqueness	1933: Hitler's appointment as Chancellor of Germany 1936-39: Spanish Civil War 1939-45: World War II 1945-89: Cold War 1946: The Baby Boom 1949: Revolution of Chinese Communists	~1930 ↓
Concept of the Corporation	Social Networking Approach - Businesses/Organizations respect everyone’s capacity and potential - Replaced the terms of Foreman” & “Worker” with “Manager” & “Employee”	1950-53: Korean War 1954-75: Vietnam’s War 1955: McDonald’s opens its first franchise 1958: Founding of NASA 1971: China joins the UN 1973: Martin Cooper develops the first handheld cell phone 1979-1981: Iran Hostage Crisis	~1950 ↓
Theory X & Y	Humanistic Psychology Approach - The management depends on “nature of men” - Autocratic/Participative management		

Modern Management Theory	A. System Approach - Businesses are working like “human body” - Sub-components are working and interacting - Subsystems collaboration B. Contingency Approach - No specific technique or method of the business management - The management depends on the organization size, technology used and leadership	1981: IBM releases its own affordable personal computer (PC)	↓ ~1960 ↓ ~1990s
Emotional Intelligence in workplace	Soft Skill Approach - No specific theory for management approach - Implemented by Managers - Developed as skill	1973: Electronic credit card authorization begins 1989: Berlin Wall Falls// Tim Berners-Lee invents the World Wide Web. 1990-91: Gulf War 1997: Electronics companies agree to make Wi-Fi a worldwide standard for wireless Internet	

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 1. Matrix of Management Approaches from 1900

Table 1 shows the basic management milestone theories and reports some of the most important socioeconomic facts that were taken place at the same time. It is obvious, that technology and innovation in the field of telecommunication started to play an important role at the end of the 1990s. Contemporary businesses and organizations are operating within a globalized and multicultural environment. All the existing classical theories have a common bottom line: the control and monitoring of employees’ and workers’ behaviour in the workplace (Pindur , et al., 1995). On the other hand, neo-classical and modern theories attempted to include human’s characteristics into their approach. However, these theories seem to be still rigid with adaptability (Yuksel & Durna, 2015) a feature that modern management must adopt.

Based on the above that existing management theories and approaches are not sufficient to advocate the organizations for achieving the imposed targets. The main points that highlight the inadequacy of these approaches are:

- The classical theories do not include the parameter of employee’s individuality; every worker/ employee is unique; each one is qualified with specific and special

skills. The classical theories – as mentioned above – are based on methods, tasks, and procedures (Saxena, 2019). Thus, this type of approach does not seem to be able to meet the challenges the new working era brings.

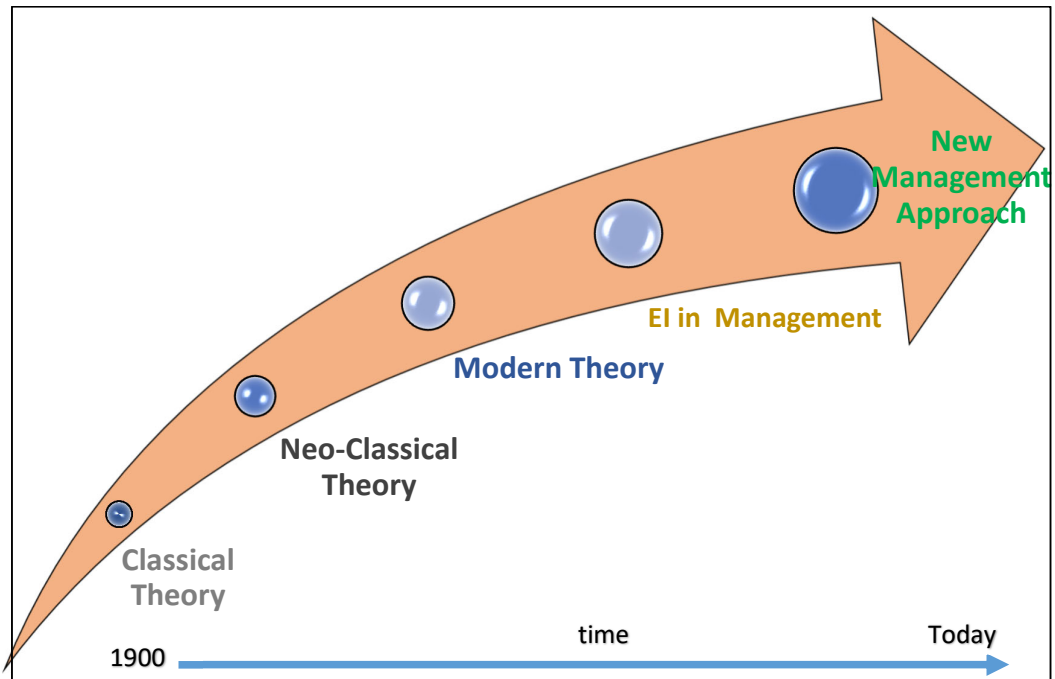
- The Neo-Classical theory was a good start for considering human beings as part of the management and decision-making process. However, this approach focuses on the relationships between the employees and not the humans themselves (Ferdous, 2017). Some points that should be highlighted are:
 - It overemphasized workers’ groups and how they are collaborating. Hence, this focus may cause issues to the management as the group decision-making leads to conflicts.
 - The assumptions that productivity can be increased and that the businesses’ issues resolved through the humans’ relationships are not valid in practice. A well-satisfied employee is not a high-performance employee.
 - The organizational targets are ignored because it focuses on the relationships between the workers and employees.
- In the modern management theory humans are the basic component of the management style. On the other hand, this theory seems to be somewhat rigid and a little bit chaotic because it does not define specific guidelines that should be followed to establish a more humanistic approach (Lawter, et al., 2015). In addition, the System and Contingency approaches (Rana, et al., 2016) do not provide the aspects, areas, and principles that should be improved and capabilities that the Managers and Decision-Makers should have to be able to implement this type of management.
- All existing theories have been developed without any influence from information and communication technology development as well as the globalization of the business world (Petriglieri, 2020). In other words, though all these theories tried to build up policies and strategies – more or less – through a techno-economical prism including, to some extent, human relations, they do not employ the rapid development of science in many fields, such as behavioral economics or neuroscience that are dealing with humans’ psychology and brain functionality in terms of decision making and management (Camerer, 2008). The above shows that the implementation of the past developed approaches seems to be obsolete.

In the last decades, an attempt has been made to investigate whether alternative human resources management models that are oriented to the needs of the employees (Goleman, 1998) can be applied to the organizations. Thus, after the Modern Theory follows the attempt of those approaches which have introduced the Emotional Intelligence in the business world (see **Graph 1**). From that point the contemporary management tries to incorporate a more employees-oriented management approach. Since then, studies have been conducted regarding the implication of Emotional Intelligence in the management models and their schemes as well as the leadership (Rahim, et al., 2002) (Moghadam, et al., 2011) (Edelman & Knippenberg, 2018).

The main element of contacted research work is the study the Emotional Intelligence and its aspects in relation to the managers’ skills, capabilities, and talents. However, the emotions and the humans’ mood are triggered and influenced by endocrine secretions and neurotransmitters (chemical substances) (Elias & Saucier, 2006). The outcome is a behavioral action/ reaction. Therefore, the managers’ emotional status could affect their decision, and hence, their actions to the way of their management approach. In that frame, we will try to investigate if managers’ emotions might be influenced and in which way.

Our research aims to investigate if a new management approach based on the dimensions of Emotional Intelligence might affect employees’ job satisfaction. The following sections will be built up and supported the need and necessity of a New Management Approach (see **Graph 1**) which is based on EI competences and the lifestyle of the Managers, which can influence decision making and therefore the way they manage as they manage.

Lifestyle, as an important factor of the proposed management approach, includes diet (the type and quality of daily diet), exercise as well as habits in relation to the daily routine that one follows. Lifestyle seems to have an important role in the management approach based on Emotional Intelligence because, as pointed out above, hormones have an impact on humans’ emotions. All these factors that consist of the lifestyle and may influence human emotional status are discussed and analyzed in **Chapter 4**.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 1. From Classical to New Management Approach

Chapter 2 – Employees’ satisfaction

2.1 The employees’ job satisfaction and “PsychoManagement”

Job satisfaction is defined as the employee's positive or negative perception of his/her job (Spector & Fox, 2003). Satisfied employees are more efficient in terms of delivery times, are likely to minimize their sick leave and have the intention of lower turnovers (Spector, 1994), as they are also more emotionally committed (Markovits, et al., 2010). In addition, the positive relationship between emotional intelligence and employees’ satisfaction is also demonstrated, as employees with high scores on psychometric emotional intelligence assessments are more likely to have a higher level of job satisfaction due to effective management, evaluation and regulation of personal and other habits (Eslami & Gharakhani, 2012) (Anari, 2012) (Wolfe & Kim, 2013) (Zakieh, et al., 2013) (Kafetsios & Zampetakis, 2008).

There is a plethora of studies (Aziri, 2011) (Bhardwaj, et al., 2021) (Nadinloyi, et al., 2013) (Saeed, et al., 2013) (Schroder, 2008) that investigate the job satisfaction with personal determinants as gender, educational background, age, marital status. Initial surveys found that there are significant differences in job satisfaction due to gender (Murray & Atkison, 1981): males seem to be more satisfied because of remuneration while females seem to feel more satisfied with co-workers (Tang & Talpade, 1999). However, last research shows that the gender is not correlated to the job satisfaction (Oshagbemi, 2000). On the other hand, educational level has been found to have a strong relationship with overall job satisfaction (Metle, 2003). As far as the variable of age, the job satisfaction is correlated with that (Okpara, 2004) with experienced and older workers to be happier than those with less experience and younger employees (Greenberg & Baron, 1995) (Drafke & Kossen, 2002). Moreover, the marital status is correlated with job satisfaction as found in the research of Cimete, Gencalp and Keskin in 2003 (Cimete, et al., 2003).

Recent studies show that the employees’ job satisfaction may be affected by a range of factors such as stress, burnout, working conditions, supervisor or manager, salary, nature of the job itself, organization/ company, opportunities for promotion, organizational culture, EI of management, supervisors’ social skills, and good relations with employees (Bhardwaj, et al., 2021) (Belias, et al., 2014) (Nadinloyi, et al., 2013) (Koustelios & Bagiatis, 1997) (Riggio, et al., 2003) (Darioly & Mast, 2014) (Sy & Tram-Quon, 2006).

The supervision/ management of employees has been found to contribute significantly to the employees' job satisfaction (Koustelios, 2001) (Peterson, et al., 2003) (Smucker, et al., 2003). The capability of managers/ supervisors to provide emotional and technical support as part of the total management is very important for the employees' job satisfaction (Robbins, et al., 2003). The manager's attitude and behaviour may affect the workers' satisfaction (Sherman & Bohlander, 1992), the trust between his/ her direct reports (Wech, 2002) as well as the morale within workplace (Ramsey, 1997). The research of Packard and Kauppi in 1999 shows that the style of democratic management tends to increase the subordinates' job satisfaction compared to those who are managed by autocratic management styles (Packard & Kauppi, 1999). In addition, the management that focuses on the concern of employees may lead to more satisfied employees (Brewer & Hensher, 1998). Supervisors who supervise and manage their team with a more humanistic approach contribute towards increasing the subordinates job satisfaction (Basset , 1994).

As far as the question regarding the relationship of job satisfaction with emotional intelligence and mental health the study conducted in 2013 by Nadinloyi, Sadelghi, and Hajloo (Nadinloyi, et al., 2013) leads to the conclusion that there is a positive relationship between job unsatisfaction and mental health. In 2012 research conducted in Turkey on 147 bank call centre employees confirms the positive association between the EI and job satisfaction and performance (Çekmecelioğlu, et al., 2012). In addition, the manager's EI has a more positive correlation with job satisfaction for workers with low EI (Sy & Tram-Quon, 2006). Moreover, female employees seem to be more satisfied than male ones, while workers that have been working many years under the same employer are more job satisfied. Another factor, the effective communication leadership has been found to contribute to the employees' satisfaction (Riggio, et al., 2003), while verbal and non-verbal behaviour has been established to influence the overall employees' satisfaction and performance (Darioly & Mast, 2014).

The high-performance manager, in terms of efficiency and effectiveness (Ζερβόπουλος & Παλάσκας, 2010) adopts, in order to achieve the financial goals of the company, the strategy of creating a sense of job satisfaction of his/her staff and an emotionally intelligent team. The emotionally intelligent team is a necessary and adequate condition for employee satisfaction (Shukla, et al., 2016) (Hefferman, et al., 2008) (Rahim & Malik, 2010) (Kaura, 2011) (Orhan & Dincer, 2012) (Abi & Jijo , 2012), because they feel they can achieve more as team members than as units. More specifically, EI has a

positive effect both on employees' sense of satisfaction (Papathanasiou & Siati, 2014) and on their performance (Dulewicz, et al., 2003), as well as on the development of sustainable constructive communication practices (Al Ali, et al., 2011).

From the "PsychoManagement" point of view, enhancing the manager's performance is associated with his/her improvement in social skills and empathy, because they are the most interactive features for the bipolar manager – subordinate: empathy helps the managers to deeply understand how their subordinates feel (Gentry, et al., 2007), and social skills are a key tool for conveying messages, thus contributing to improved communication (Spitzberg & Dillard, 2001) (Lountzis & Palaskas, 2022).

Empathy could serve as a "mirror" in which the feelings and attitudes of the individual are reflected (Redmond, 1989), thus allowing him/her to "listen" to his/her own perceptions and emotions that are fuelled. Process, which enhances the possibilities for accurate and complete reflection of the individual's condition (Redmond, 1989). Understanding the feelings of others could lead to a better consolidation of the relationship between managers and subordinates, thereby causing a sense of security, which in turn contributes positively to employee's satisfaction (Gentry, et al., 2007).

Managers with high EI, and especially high index in the field of emotion regulation, develop better communication skills as they are able to understand how they feel during communication and define the context of its regulation. This involves controlling their behavioural response (Riggio, et al., 1989).

Emotions, either personal or social, are a state of feelings that incorporate physiological responses and action sequences that are triggered by stimuli that make sense to individuals (Coget, et al., 2011). Gross (1998) describes emotions as "adaptive behavioral and physiological responses that are directly triggered by evolutionarily important situations" (Chi-Sum & Law, 2002) (Gross, 1998). Hence, recognizing the other's feelings (empathy) (Goleman, 1998) helps the supervisor to understand the context of communication conciliation with his/her subordinates. This ability, combined with the ability to self-regulate emotion, create the right conditions for the implementation of an effective management and communication system (Halford, et al., 1994).

The internal, physical, and mental balance could help managers manage their emotions, understand the feelings of others, and could communicate their ideas and thoughts (Goleman, 1998) (Sinha & Sihna, 2007). Therefore, "PsychoBioDynamicManagement" as a new approach could help to enhance the level of

satisfaction of human resources, which in turn leads, *ceteris paribus*, to high productivity and performance (Singh & Jain, 2013) (Springer, 2011) (Lountzis & Palaskas, 2022).

Chapter 3 – From Intelligence to Emotional Intelligence

3.1 The emotional intelligence and its evolution

Emotional Intelligence will be the basis of the new proposed approach (see **Chapter 5 – The new approach**) in this thesis. In that respect, extensive literature review was conducted about the definition and aspects on the intelligence issue and the developed approaches on Emotional Intelligence.

3.2.1 Intelligence: Definition and approaches

"Intelligence", Oxforddictionaries.com online dictionary, is the ability to acquire and apply knowledge and skills (OxfordDictionaries, 2017).

The psychologist Thorndike stated that there are three types of intelligence (Bagshaw, 2000):

- 1 **Abstract Intelligence:** is measured in IQ test, that is, understanding and manipulating verbal and mathematical concepts.
- 2 **Concrete Intelligence:** is the ability of understanding and manipulating objects and shapes.
- 3 **Social Intelligence:** is the ability to understand and relate to people.

Of course, there are (Guilford, 1967) dozens of aspects of intelligence in the structural framework of human intelligence, which includes 30 different dimensions of social intelligence. Furthermore, he suggested that the ability to interpret facial and body expressions, the ability to perceive human intentions and the ability to follow a series of events in social interaction, are all the subtle dimensions of social or behavioural intelligence.

Much later, late 90's the issue of the definition of intelligence was brought back to discussion by Gardner, (Gardner, 1998) to be closed in 2017. He defines intelligence as "the capacity to solve problems or to fashion products that are valued in one or more cultural settings". Using biological and cultural research, he made a list of seven intelligences. This new perspective of intelligence differs greatly from the traditional view that usually recognizes only two intelligences, verbal and computational.

Gardner initially identified seven intelligences. However, in the mid-1990's, he concluded that an eighth intelligence, natural intelligence, met the criteria for recognition as intelligence too. Naturalistic intelligence allows individuals to identify and distinguish among products of the natural world, such as animals, plants, types of rocks, and weather patterns. Gardner himself has thought that there is an existential intelligence that reflects

a person's ability to look at "big questions" about life, death, love, and existence. People with high levels of this hypothesized intelligence may be probably to be found in philosophy departments or atelier of artists, religious seminaries (Gardner, et al., 2017).

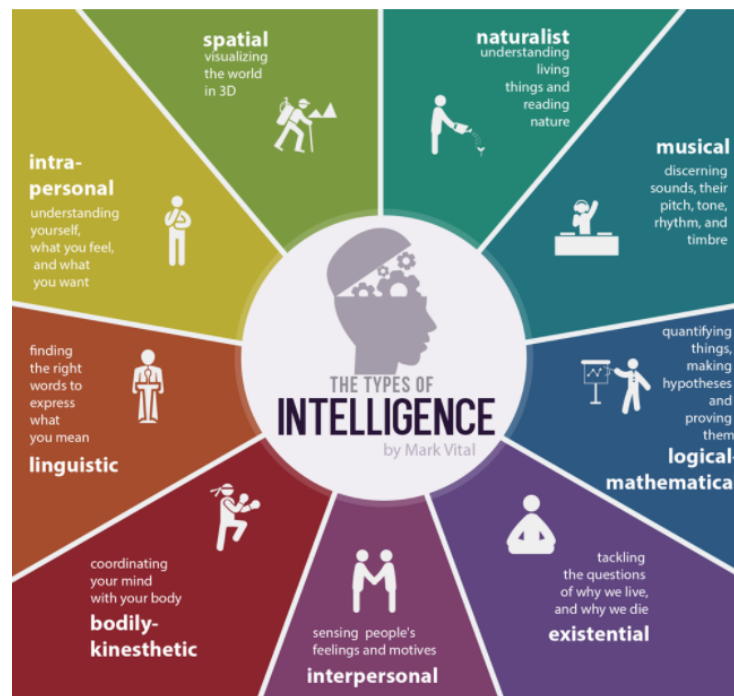


Figure 1. Nine (9) Types of Intelligence (Vital, 2014)

According to Gardner, the nine intelligences (**Figure 1**) are (Armstrong, 2009) categorized based on some specific abilities that distinguish them into different types of “smart”. The human ability to distinguish among living (plants, animals) as well as sensitivity to other features of the natural world (clouds, rock formations) defines the Naturalist Intelligence (“Nature Smart”). This ability was clearly valuable in our evolutionary past as hunters, collectors, and farmers. Musical Intelligence (“Musical Smart”) permits the people to identify, recognize, generate, re-produce and reflect on music. Logical-mathematical intelligence (“Number/Reasoning Smart”) is the ability to compute, quantify, examine propositions and assumptions, and perform mathematical operations. This kind of intelligence provides a profound understanding to relationships and links and how to use abstract, symbolic thinking; successive thinking skills; and inductive and deductive thinking patterns. Sensitivity and ability to deal with deep questions about human existence, such as the meaning of life, why we are dying, and how we have arrived here defines the Existential Intelligence. Interpersonal Intelligence (“People Smart”) is the ability to understand and interact with others and includes effective verbal as well as non-verbal communication, capability to distinguish among

others, sensitivity to the moods and temperament of others, and the ability to entertain multiple perspectives. Bodily kinaesthetic intelligence (“Body Smart”) is the ability to handle objects and use a variety of physical skills as well as includes the sense of timing and the refinement of skills through the mind and body association. Linguistic Intelligence (“Word Smart”) is the ability “to think in words and use language to express and appreciate complex concepts.” Hence, we can understand the order and meaning of words and to apply meta-linguistic skills to consider the use of our language. Intra-personal intelligence (“Self-Smart”) is the capacity to understand oneself and one’s thoughts and feelings, and to use this knowledge in the design and direction of his/her life”. It involves not only the self-esteem, but also the human condition. It is evident in the psychologist, spiritual leaders, and philosophers. These young adults may be shy. They know their feelings well and are self-motivated. Finally, Spatial Intelligence (“Picture Smart”) is the ability to think in three dimensions. Key competences include mental images, spatial logic, image manipulation, graphic and artistic skills, and active imagination. Sailors, pilots, sculptors, painters, and architects exhibit spatial intelligence. Young adults with prime designing or daydreaming.

According to Sternberg (Sternberg, 1997) the triarchic theory of human intelligence embraces that intelligence includes three aspects: *analytical*, *practical*, and *creative*. All three aspects are keys to managerial intelligence. Rather, successfully intelligent people are those who have the dynamic abilities to understand their strengths and weaknesses, benefit from their strengths, and compensate for or remedy their weaknesses. Practical, creative, and analytical intelligence were characterized as the ability to solve everyday problems and adapt to new situations, insight and ability to formulate new ideas, and ability to think critically (Koke & Vernon, 2003).

An intelligence must meet several standard criteria before it can be considered scientifically legitimate and strict criteria to be considered a real intelligence. These criteria can be divided into three different groups: *conceptual*, *correlational*, and *developmental*. According to conceptual criteria, the intelligence must reflect mental performance rather than just a person's preferred behaviour or self-esteem or non-spiritual achievements; moreover, mental performance should plainly measure the concept in question, i.e., emotion-related abilities. The second, correlational criteria, describe empirical standards: namely, that an intelligence should describe a set of closely related abilities that are similar to, but distinct from, mental abilities described by already-

established intelligences. The third, developmental criterion, states that intelligence develops with age and experience (Mayer, et al., 2000).

The possibility of having one or more additional categories of intelligence, other than verbal and performance intelligence, has long been of interest to researchers. However, identifying an intelligence class, such as verbal or performance, does not happen at the same time. Social intelligence was proposed as a third member of the verbal/performance grouping at the beginning of the century; it was defined as *"the ability to understand men and women, boys and girls, to act wisely in human relations."* Cronbach (1960) concluded that social intelligence cannot be distinguished from verbal intelligence.

Emotional intelligence represents an alternative set of tasks to social intelligence. On one hand, emotional intelligence is wider than social intelligence, which includes not only the reasoning about the emotions in social relationships, but also reasoning about internal emotions that are important for personal (as opposed to social) development. On the other hand, emotional intelligence is more focused than social intelligence as it mainly concerns the emotional (but not necessarily verbal) problems involved in personal and social problems (Mayer, et al., 2000).

Emotional Intelligence includes two terms: Emotions and Intelligence. Having discussed the term of intelligence and its related concepts, it is next discussed and analysed the concept of emotions and the causes of them.

3.2.2 Emotions

*“Οἷον καὶ φοβηθῆναι καὶ θαρρῆσαι καὶ ἐπιθυμῆσαι καὶ ὀργισθῆναι
καὶ ἐλεῆσαι καὶ ὅλως ἡσθῆναι καὶ λυπηθῆναι ἔστι καὶ μᾶλλον καὶ ἥττον,
καὶ ἀμφοτέρω οὐκ εὖ· τὸ δ’ ὅτε δεῖ καὶ ἐφ’ οἷς καὶ πρὸς οὓς καὶ οὗ ἔνεκα
καὶ ὡς δεῖ, μέσον τε καὶ ἄριστον, ὅπερ ἐστὶ τῆς ἀρετῆς.
Ἀριστοτέλης, «Ἠθικά Νικομάχεια, Βιβλίο II, Ενότητα 9, 1109a26-29»*

*Anybody can become angry - that is easy,
but to be angry with the right person and
to the right degree and at the right time and
for the right purpose, and in the right way –
that is not within everybody's power and is not easy.”
Aristotle, “Nicomachean Ethics, Book II, Ch. 9, 1109a26-29”
(Kopidakis, et al., 2016)*

Before proceeding to the term emotion and to the concept of Emotional Intelligence (hereafter EI) its definition is discuss.

The emotion is defined as *a strong feeling such as love or anger, or strong feelings in general* (CambridgeDictionary, 2017). However, there is not a general consensus among scholars on the definition of emotion. Sometimes it is defined as a complex state of feeling that results in physical and psychological changes that influence thought and behaviour, which makes sense. It however, does not seems to be technical because it is defined as a state of feeling. Defining emotion in terms of feeling does not provide valuable information about the dynamics and features of the emotion itself. Moreover, some differences between the two terms "feeling" and "emotion" is not considered in it.

The simplest theory of emotions, and, maybe the theory that is more representative of common sense, defines emotions to be a category of feelings, differentiated from sensation and proprioception by their experienced quality (Sousa, 2014).

Another definition for the emotions was given by Gross which defined them as *“adaptive behavioural and physiological response tendencies that are called forth directly by evolutionarily significant situations”* (Chi-Sum & Law, 2002).

Based on those definition, Gross generated a model (**Figure 2**) which shows that emotions can be regulated either by manipulating the input to the system (antecedent-focused emotion regulation) or by manipulating the output (response-focused emotion regulation). Within these two broad classes of emotion regulation, more fine-grained distinctions may be made. For example, antecedent-focused emotion regulation involves *situation selection* in which someone approaches or avoids certain people or situations based on their potential emotional impact; *situation modification*, in which one modifies an environment to alter his emotional impact; *attention deployment*, in which one turns attention to or away from something to influence one’s feelings; and *cognitive change*, in which one re-examines either the state in which one is or his or her ability to manage the situation in order to change one’s feelings/emotions. Response-focused emotion regulation also includes a variety of types, such as strategies that intensify, reduce, prolong, or limit the continuing emotional experience, expression, or physiological responding (Gross, 1998).

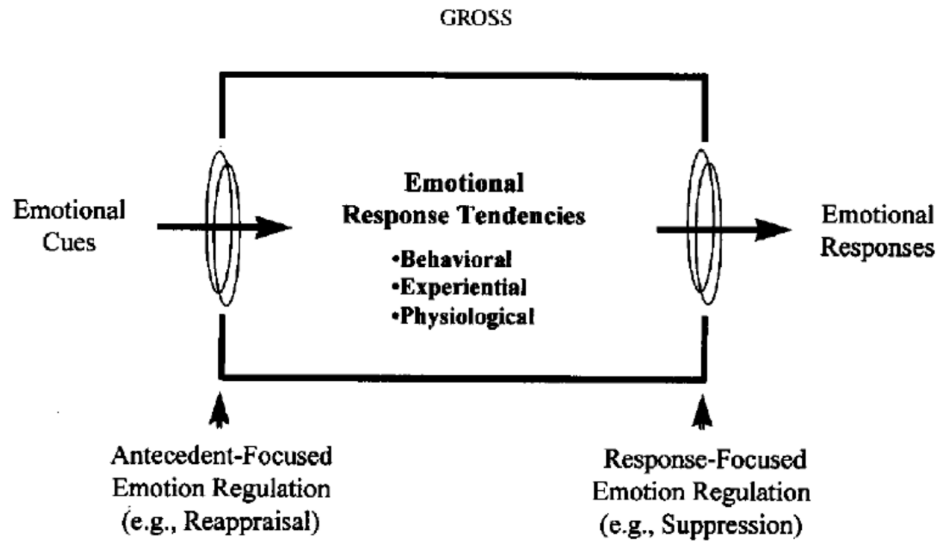


Figure 2. A consensual process model of emotion that highlights two major classes of emotion regulation (Gross, 1998)

Emotions are thought to have evolved through their adaptive value in addressing fundamental life functions. Every emotion has unique characteristics: *signal*, *physiology*, and *antecedent events*. Each emotion also has features in common with other emotions: *rapid onset*, *short duration*, *unbidden occurrence*, *automatic appraisal*, and *coherence among responses*. These common and unique features are the product of our evolution and distinguish feelings from other affective phenomena (Ekman, 1992).

Paul Ekman and Richard Davidson (Ekman 1984, 1992a, b. Ekman, & Davidson, 1994) were led to the summary of four main emotions (i) fear, (ii) anger, (iii) sadness and (iv) delight. According to Ekman “*each emotion prepares the body for a completely different kind of reaction*” (Ekman & Davidson, 1994).

However, in accordance with the Aristotle’s (Enos, 1996) list of emotions (see **Table 2**) encompasses fourteen emotions: anger, mildness, love (or friendship), enmity (or hatred), fear, confidence, shame, shamelessness, benevolence (favour or gratitude), pity, indignation, envy, emulation, and contempt.

Emotion	Description
Anger	is usually rooted in some perceived wrong. You can be angry on your own behalf, or angry on behalf of those you care about. Anger is a natural reaction, but can develop into other worse emotions if not dealt with in a healthy way. Spite, hatred, and malice or a need for revenge are often born of anger, and can cause destructive behaviour.
Mildness	occurs generally as a healthy channelling of anger into a more productive emotion. If anger is yelling and throwing things, mildness is making a point in a moderate voice without letting the burst of anger affect ones overall happiness or state of mind – it's controlled and directed in a productive manner.
Love (or Friendship)	is the wholehearted wish towards the well-being of another person, and the willingness to inconvenience oneself or sacrifice in order to secure their happiness. Love can be manifested in many different ways.
Enmity (or hatred)	is different from anger in that it requires no cause; instead of a perceived affront, the trigger may be as simple as race, colour or creed – and like anger, enmity can swiftly turn to malice, spite or hatred.
Fear	is one of the strongest emotions; it is inextricably linked to the will to survive. However, allowed free rein, fear can effectively cripple any person - leaving them ineffectual and feeling trapped in a box of their own making. Conquering fear can lead to a much healthier psyche, and improve overall life as well.
Confidence	is the reverse of fear – it is often accompanied by a mental picture of an individual's success, and is closely related to hope and even faith. A feeling of security can be born of self-confidence, as if the state of being confident can literally push fears and their causes away.
Shame	is one of the most important in the list of emotions – it reflects how we feel about evils in our lives (whether committed by us or perpetrated on us by others) and is closely linked to self-esteem, self-confidence and self-worth. We often fear that the things we are ashamed of will discredit us in the eyes of those around us.
Shamelessness	Describes the state of a person who seems uncaring about evil they may do or a total disregard of what other people may think of them. In the one case, you have a dangerous person not bound by moral code; in the other, a 'free spirit'.
Benevolence (favour or gratitude)	is comprised of a feeling of obligation – the individual will perform acts of kindness, but without real feeling or connection to the recipients of their help. Benevolence is simply an act deemed kind, although the person acting may not feel kind.
Pity	is a strong emotion, and is often mistakenly confused with love. One feels pity for those wrongly taken advantage of, or injured through no fault of their own. Pity often results in action taken to relieve pain.
Indignation	is usually an affronted feeling – it is not as strong as anger, although it can blossom into anger. Indignation usually results from instances in which an individual feels they have been unfairly treated, taken advantage of, or lied to.
Envy	is yet stronger than indignation, and can turn into enmity if not handled correctly. Envy is the feeling of irritation that someone else has something which you do not; even if you would not desire it in any other circumstance.
Emulation	is the final emotion. It is the opposite of contempt and envy, and encompasses the desire to improve oneself and gain that which others have already achieved.
Contempt	is the feeling one who perceives themselves as superior has towards 'lesser' people around him or her. They may view anyone with less intellect, good looks, or possessions as beneath them.

Table 2. Aristotle's List of Emotion (*selfesteem2go.com*, 2017)

Emotions can create states of euphoria or distress, and affective schemas arising from internal processes refer to emotions that interact with cognitive processes to influence mind and behavior (Kohn & Keller, 2015). Emotions and their alternation lead to the influence of human choices at the socio-economic level (Shott, 1979) (Fairchild, 2014). Therefore, the recognition of the emotions that we ourselves experience but also the recognition and understanding of the emotions of the people with whom we are called

to communicate is an important factor for better and orderly communication and cooperation. Emotional intelligence - as will be discussed in the next chapter - is the tool that can help us understand and regulate our emotions.

3.2.3 Emotional Intelligence

Following Chapter's 1 discussion, the existing management approaches/theories seem to be outdated and the need for a new management approach and managing human resources has emerged. In this context, and having the first attempts by Goleman to bring the term emotional intelligence to the workplace (as a skill and not in a management model) (Goleman, 1998), this study proposes for the first time a new management approach that has as a pillar the dimensions of emotional intelligence: Perceiving Emotion, Using Emotions to Facilitate Thought, Understanding Emotions, Managing Emotions (Mayer, 2004).

Emotional intelligence can be a means for more effective communication as part of it is empathy and self-regulation of emotion (Goleman, 1998) (Goleman, et al., 2002) (Lountzis & Palaskas, 2022). Therefore, it is important to review all relevant theories and models that have been studied to date.

Having discussed the two terms, Intelligence and Emotions, Emotional Intelligence could be defined, though there are many varying of them, as *the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships* (Goleman, 1998), which is well summarised in the definition of (CambridgeDictionary, 2017), the EI is defined as “*the ability to understand the way people feel and react and to use this skill to make good judgments and to avoid or solve problems*”.

Without getting into a detail presentation/discussion the section quotes the most well-known rather complimentary (Cherniss, 2010) definitions of such a multifaceted issue such as EI for the completeness of research. Worth stating that most researchers analyse emotional intelligence in the following four thematic areas: the perception, the understanding, the control, and the use of emotion (Kanesan & Fauzan, 2019). (I would rather try to discuss them more comprehensively than quoting them)

Martinez (1997) offered a more concise definition which refers to emotional intelligence as being an array of non-cognitive skills, capabilities and competencies that influence a person's ability to cope with environmental demands and pressures. Salovey and Mayer (1990) define EI as a kind of social intelligence that includes the ability of

someone to monitor the emotions of himself/herself and others and use this information in order to plan his/her actions before implementation. (Chi-Sum & Law, 2002). Same researchers, in 1995, define emotional intelligence as the ability to process emotional information accurately and efficiently, including those related to the *recognition, construction, and regulation of emotion in oneself and others* (Quebbeman & Rozell, 2002). In 1997, Salovey and Mayer define the emotional intelligence in more detail providing clear dimensions of EI: perceiving, evaluating, and expressing emotions, generating emotions when this facilitates thinking, self-awareness, and self-regulation of emotions. (Fatt, 2002). Three years later, in collaboration with Caruso, they updated the definition for EI – which is the most common – as the ability of someone to recognize, assess, distinguish, and understand own’s and others’ emotions and be able to regulate own’s feelings (Wolff, et al., 2002).

Goleman provided a useful definition of the construct of emotional intelligence, which is about (Dulewicz & Higgs, 2000):

- *Knowing what you are feeling and being able to handle those feelings without having them swamp you;*
- *Being able to motivate yourself to get jobs done, be creative and perform at your peak; and*
- *Sensing what others are feeling, and handling relationships effectively.*

From Bar-On’s point of view emotional intelligence is a combination of emotional and social capabilities, skills and facilitators that designate how we recognize, understand and express ourselves and we are capable to understand the others that we relate to them and deal with the daily demands (Fernández-Berrocal & Extremera, 2006).

Cooper and Sawaf (1997) give a different definition as include apart from the ability to feel and understand, the ability to implement effectively the power of emotions as “source of human energy, information, connection and influence” (Cooper & Sawaf, 1997).

Weisinger (1998) defines emotional intelligence as the intelligent use of emotions, which means that you use your feelings as part of your personal results improvement (Weisinger, 2006) while Singh (2003) proposes three (3) psychological dimensions of Emotional Intelligence. He defines EI as emotional competency, emotional maturity, and emotional sensitivity. These dimensions can motivate someone to recognize, understand, and manage the dynamics of human behaviour (Singh, 2003).

EI has been defined by Lames (2004) as *“the ability of a person to use emotions as a guiding tool for interpersonal effectiveness in his or her social environment”*. According to Murthy (2004), EI is the ability to choose the right feelings that are appropriate for a given situation and the ability to effectively communicate these feelings. It is the emotional ability that involves the awareness of our own emotions, the ability to identify and to become aware of the feelings of others, to understand the impact of one's emotions on others and the sensitivity to cultural sanctions for the expression of emotions that constitutes EI (Mohanadasan, 2014).

Although the literature has shown that there are many different definitions of emotional intelligence, ultimately it appears that they all share 3 basic pillars:

1. Recognizing and understanding our own emotions.
2. Recognizing and understanding the emotions of others
3. The ability to assess and regulate our emotions.

3.2.4 Emotional Intelligence – Theories/Models

It is understandable from the previous section that, though the term Emotional Intelligence has been researched extensively over the last decades, no common theory and model has been accepted by the Scientific Community. For this reason, the present section considers, bearing in mind the main aim and goals of this thesis, to discuss briefly the most dominant of them.

The EI was tried to be measured in terms of well-being (Bar-On's 1988). He was the first researcher who used the term EQ until its replacement with EI by Salovey and Mayer. In 2000, Bar-On defined the EI as a set of emotional, social knowledge, and skills that affect the overall ability to effectively address environmental demands. This set consist of the ability to be aware of, to understand, and to express oneself, and to relate to others. In addition, it includes the ability to deal with strong emotions and control one's impulses and adapt to change and to solve problems of a personal or a social nature. The proposed model was based on five (5) domains: Intrapersonal skills, Interpersonal skills, Adaptability, Stress management, and General mood (Cherniss & Goleman, 2001).

Salovey and Mayer's original model, in 1990, identified emotional intelligence as the *“ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action”*. Referring to the need to distinguish emotional intelligence, competencies from social characteristics or talents, Salovey and Mayer developed a model with cognitive emphasis. It focuses on

specific mental abilities to identify and distribute emotions (for example, knowing what one feels is a mental ability while being outgoing and warm in behaviour). A comprehensive EI model, they argued, must include some measure of “thinking about feeling”, a lack of skills from models that focus on simple perception and regulation of emotions. Their current model is particularly cognitive in focus. In this model, emotional intelligence comprises four (4) tiers of abilities (**Figure 3**) that range from basic psychological processes to more complex processes incorporating cognition and emotion. In the first tier of this “mental ability model” is the set of skills that allow an individual to perceive, evaluate and express feelings. Abilities include the recognition of one’s own and other’s emotions, the expression of the individual’s feelings and the distinguishing the expressions of feelings in others. The second-tier abilities include “the use of emotions” to facilitate and prioritize thinking: employing the emotions to aid in judgment, recognizing that mood swings can lead to a consideration of alternative viewpoints, and understanding that a shift in emotional state and perspective can encourage different kinds of problem solving. In the third tier are skills such as labelling and distinguishing between emotions (for example, differentiating liking and loving), understanding complex emotions and feelings (such as love and hate), and formulating rules about feelings: for example, that anger often gives way to shame, and that loss is usually accompanied by sadness. The fourth tier of the model is the general capacity to arrange the emotions in support of some social goal. In this more complex level of emotional intelligence are the skills that allow individuals to selectively engage or detach from emotions and to monitor and manage emotions in themselves and others. (Cherniss & Goleman, 2001).

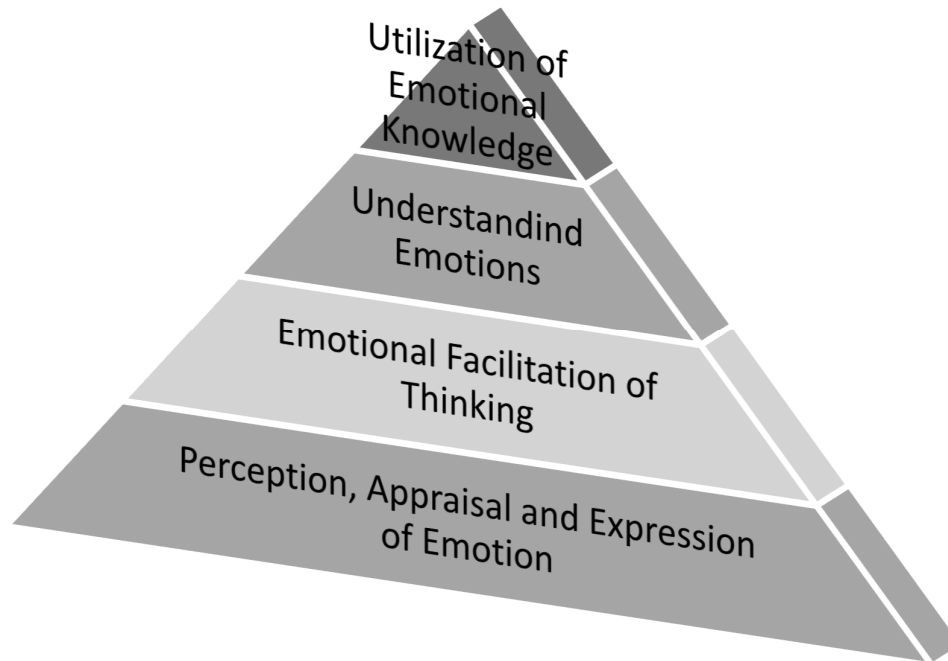


Figure 3. Emotional abilities in accordance with Salovey & Mayer's model

(Quebbeman & Rozell, 2002)

Daniel Goleman supports that EI refers to the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships. Relationship management provides inspiration, potential to influence, and the ability to help leaders grow in managing conflict, and emotional competency (Goleman, 1998). Goleman identified four (4) EI concepts that are related to relationship management: self-awareness, self-management, social awareness, and relationship management. In 1998, he developed an EI-based theory of performance containing a group of guidelines for effectiveness and competencies for individual worker development. He identified five (5) EI domains, which include: Self-awareness, Self-regulation, Motivation, Social skills, and Empathy. The five (5) domains include twenty-five (25) aptitudes and consist of personal and social competence. Self-awareness is the ability to recognize and understand our moods and emotions and the effect of these emotions on others. Self-management is the ability to control your feelings and reactions. Motivation is the ability to cope with challenges and be optimistic. Social skills are the capability to sustain good relationships, develop and establish a network. Empathy (as a verbal loanword from the Greek word *empathia*), is a term originally used by aesthetic theorists to describe the ability to apprehend the subjective experience of another person.

Emotional competence is a cognitive learning ability that leads to effective performance in the workplace. (Namrata, et al., 2015).

	<i>Self</i> (<i>Personal Competence</i>)	<i>Other</i> (<i>Social Competence</i>)
	Self-Awareness	Social Awareness
<i>Recognition</i>	• Emotional self-awareness • Accurate self-assessment • Self-confidence	• Empathy • Service orientation • Organizational awareness
	Self-Management	Relationship Management
<i>Regulation</i>	• Emotional self-control • Trustworthiness • Conscientiousness • Adaptability • Achievement drive • Initiative	• Developing others • Influence • Communication • Conflict management • Visionary leadership • Catalyzing change • Building bonds • Teamwork and collaboration

Table 3. A Framework of Emotional Competencies

Table 3 presents the current version of EI framework. Twenty (20) competencies are grouped in four clusters of general EI competences. The framework illustrates, for example, that we are not able to demonstrate the competencies of Trustworthiness and Conscientiousness without possessing the fundamental capability of Self-Management or the competencies of Influence, Communication, Conflict Management, and so on without a handle on Managing Relationships. This model is a refinement of model in 1998 as described above. As it was mentioned that earlier framework identified five (5) dimensions (domains) of emotional intelligence that accommodated twenty-five aptitudes. Three dimensions – Self-Awareness, Self-Regulation, and Motivation – described personal competencies, that is, knowing and managing emotions in oneself. Two dimensions – Empathy and Social Skills – described social competencies, that is, knowing and managing emotions in others. The current model reflects recent statistical analyses by Richard Boyatzis that claimed collapsing the twenty-five aptitudes into twenty, and the five domains into the four seen here: *Self-Awareness*, *Self-Management*, *Social Awareness*, and *Relationship Management* (Cherniss & Goleman, 2001).

Mike Bagsaw (Bagshaw, 2000) defines five of competencies having given the mnemonic abbreviation CARES: C for Creative tension, A for Active choice, R for Resilience under pressure, E for Empathic relationships, and S for Self-awareness and self-control. **Table 4** describes each competence.

Creative tension	This involves managing the tension between the present and creating the future. It involves being able to defer immediate rewards for future goal achievement, and investing time not to create future.
Active choice	This involves making decisions to act when faced with actually viable options, and living with the decisions you have made. It involves working with your feelings to make choices. It is being proactive and being overly anxious about the risks you have taken.
Resilience under pressure	This involves managing your own stress reactions and destructive feelings and dealing with upsets. It means reframing how you view adversity, and giving yourself time to relax and renew your energy stores.
Empathic relationships	This involves investing in understanding before being understood, communicating authentically and assertively, and being able to develop relationships of trust and credibility quickly.
Self-awareness and self-control	This involves being aware of your inner feelings, being honest with yourself. It is recognizing when your reactions are exaggerated and non-productive and exercising self-control. It also involves feeling good about yourself and appreciating your personal qualities

Table 4. The CARES framework for EI (*Bagshaw, 2000*)

Cooper and Sawaf, in 1997, put forth the four (4) cornerstones of emotional intelligence at the executive level (Quebbeman & Rozell, 2002): emotional literacy which involves the knowledge and understanding of one’s own emotions and how they function; emotional fitness which involves trustworthiness and emotional hardiness and flexibility; emotional depth which involves emotional growth and intensity, and emotional alchemy which involves using emotions to discover creative opportunities.

Lane et al. (1990) proposes five (5) levels of emotional awareness. Each level represents a hierarchical increase in differentiation and integration from the previous level. Level 1 refers to awareness of bodily sensations, level 2 to awareness of relatively undifferentiated emotional states, level 3, individual emotions, level 4, emotional blends,

and level 5, blends in both self and others, and in an ability to clearly differentiate feelings in oneself from those in another (Ciarrochi, et al., 2003).

Theories Comparison

A similarity pattern that is observed is that most of the theories refer to emotional skills of the person belonging to the categories of emotional abilities associated with the recognition of emotions in themselves and others. There is also a link between the theories of Gardner and Goleman, observing that the fields of self-awareness and self-management of the Goleman’s theory are part of what Gardner calls intrapersonal intelligence, while the fields of social awareness and management of interpersonal relationships are part of the interpersonal intelligence.

While there are similarities and continuities between Salovey and Mayer’s (1990, 1994) and the work of other authors on emotional intelligence (Bar-On, Goleman), there are some important differences: For example, Goleman’s construct of emotional intelligence includes motivation and empathy, factors that Mayer, Salovey, & Caruso, in 2000, consider extending beyond the limits of emotional intelligence. Similarly, Bar-On includes a wide range of factors encompassing assertiveness, self-esteem, and independence. These factors, however, clearly go beyond the scope of Mayer and Salovey’s emotional intelligence definition (Jordan, et al., 2002).

Another difference that should be looked upon is Bar-On’s theory, in contrast with other researchers, which communicates separately about emotional intelligence and social intelligence, considering the first as a set of personal skills related to one's own self, while the second as a set of skills related to interpersonal relationships.

To sum up this Chapter’s discussion, in parallel with that of Chapter’s 2, internal, physical, and mental balance could be taken to determine human beings’ management of emotions, understanding of others feelings, and communication of their thoughts. It was also established that self-regulation and empathy are the two main pillars of EI. The importance of biological balance – which is the third dimension of the new management approach – and how it can be disturbed is described in the next chapter.

Chapter 4 – Passing from emotional intelligence to neuroscience perspective

The trend that IQ is the basis for the hiring process has changed since the early 1990s when the EI started to be studied within the workplace (Gardner, 1998) (Goleman, 1998). The IQ tests are solely related to “pure” intelligence while job performance is related to skills and abilities which are connected with the quality (accuracy and thoroughness) and quantity (time management) of work, technical knowledge, and relationships with others (Hunter & Schmidt, 1996) (Hunter, 1986) (Aydin, et al., 2005) (UWHR, 2023) . In addition, research shows that life or work success depends on EI 80% and 20% of intellect (Cotrus, et al., 2012) (Riemer, 2001).

One of the most important parameters for the success story scenario of achieving the optimum employees' job performance is the Emotional Intelligence (EI), which enhances the employees to do their job avoiding any distraction due to their emotional imbalances that may be incurred and managing possible conflicts that may arise during their working life (Munir & Azam, 2017) (Goleman, et al., 2002). Since the end of the 20th century, has become a trend in the workplace, being applied by managers aiming at higher performance within the company (Goleman, 1998) (George, 2000) (Mayer, 2004).

The tendency of the human factor appears to be more important for some companies/organizations and EI growth is a contemporary and new trend for employees' improvement closely related to their emotional skills development. It is known (Jaksic & Jaksic, 2013) (Smith, 2011) that the companies are not only interested in keeping good quality for their products and services but also for their personnel. A company is not competitive for its product only. It has an added value to its sustainability profile, effectiveness and competitiveness , when it creates the conditions to keep its personnel satisfied (Yeung & Berman, 1997) (Voordt & Jensen, 2023) (Anne & Grønholdt, 2001).

4.1 General Psychological Human Features

Though the EI defines features, in terms of abilities, skill and capabilities that are common among human beings, there are obvious variations in all areas of evolution, which makes each individual unique and unrepeatable. People differ in their dimensions, muscle strength, pace and tone of movement, perception, reaction, cognitive functions, intensity of emotions, motivation of actions, hierarchy of values, etc. Conversely, there are some common characteristics as personality, sociability, morality, intelligence and, therefore, the emotional intelligence. However, the science of psychology that researches

all of those considers that characteristics differentiate people according to the intensity of which they appear in individuals’ life (Paraskevopoulou I.N., 1985).

In a research published by Zi-Juan Cheng (Cheng & Hau, 2003) where it is examined the students’ subjective belief whether intelligence is changeable, it was found that the quoted common characteristics are susceptible to being modified, to be cultivated – or not – to be cultured through the environment. Indeed, the external environment influences human’s mentality who in turn react to those external stimuli. The set of reactions is called behaviour, which bearing in mind the aim of this thesis is analysed in the following section, and it is significantly important in the interaction of the individual with the environment (Papageorgiou, 1975).

4.1.1 Human Behaviour

Behaviour can be defined as a self-propelled movement that produces a functional interaction between an animal and its environment, such as finding a mate or escaping from a predator (CambridgeDictionary, 2023). Some organisms living in rapidly changing environments found it to their advantage to develop a mechanism that allowed their behavioural responses to be dependent on changing circumstances. Brains are selected to produce behaviour adapted to the circumstances of an animal, because mechanisms that ensure the production of such responses would have been favoured by choice. The result is neat structures in animals that produce stable adaptive behaviour, called these ‘behaviour production units’ (BPUs), see **Figure 4** (Aunger & Curtis, 2008).

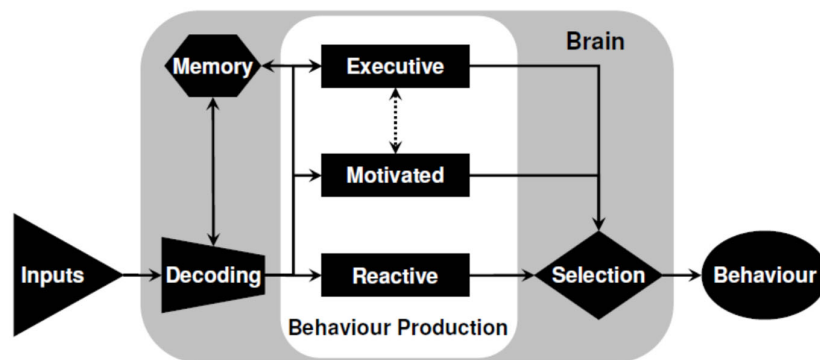


Figure 4. Behaviour Production Model (Aunger & Curtis, 2008)

In higher organisms, such as humans, behaviour involves developing behavioural suggestions from BPUs, choosing a proposal from a mechanism, and executing it from the peripheral nervous system. We believe that perceptions are inputs to BPUs, while motor commands are their output (Aunger & Curtis, 2008)

The human behaviour encompasses both verbal and non-verbal messages. Verbal behaviour involves searching, compiling, creating, proclaiming, explaining, and supporting ideas. Non-verbal behaviour refers to facial expressions, eyes, movements of the hands and feet, and the general appearance and "positioning" of the individual. The combination of both behaviours is essential. (Tsetsoni, 2003)

The types of behaviour can be categorized as below:

- **Parental behaviour:** when someone behaves based on what is right or wrong. Behaviour is distinguished by affection, sympathy, protection, discipline or dogmatism and control.
- **Adult behaviour:** when someone collects information and uses them to draw conclusions and make decisions. This behaviour is mainly based on thought, through emotion.
- **Child behaviour:** behaviour that is only affected by emotion and it is predominantly spontaneous.

The human behaviour can be mild and dialectical, and sometimes aggressive and intransigent, depending on the condition the individual is facing and the goal he wants to achieve. Achieving this goal is the operation of certain competences that man acquires in his interdependence with the social environment. In this case, it refers to skills, discussed in the following section, that are important for personal progress and well-being (Stewart, 1992)

4.1.2 Human Skills

“We cannot choose how many years we live, but we can choose how much life those years will have.

We cannot control the beauty of our face, but we can control the expression on it.

We cannot control life’s difficult moments, but we can choose to make life less difficult.

We cannot control the negative atmosphere of the world, but we can control the atmosphere of our minds.

Too often, we try to choose to control things we cannot.

Too seldom, we choose to control what we can...our attitude.”

(Maxwell, 1993)

People's skills, one of the core characteristics of Emotional Intelligence, are behavioural patterns and behavioural interactions among people; it is a terminology for

specialization in three related skill groups: *personal effectiveness, interaction skills and post-training* (Thompson, 2002). Behaviour is influenced by motivations, emotions, experience, and individual’s environment.

The fundamental “human skills” are:

- Situation Analysis
- Defining and setting a realistic goal
- Selection of appropriate behaviour
- Behavioural regulation
- Shaping the behaviour of others
- Tracking and monitoring ours and others behaviour

Human skills are shaped as a result of personal situations, that is, through social contact and communication. This leads people to learn more about human behaviour and to better understand their own role and others in the society they belong to. The above learning is achieved through the activation of a biopsychic process that is common to every human being and is called intelligence (Stewart, 1992).

4.2 Understanding management through neurobiology & EI capacity

As mentioned in the previous Chapter, internal emotional balance also depends on the biology of the human brain (Neumann & Landgraf, 2012) (Cooper, 2013). The human body secretes biochemical substances that are able to affect the functioning of the brain. This in turn can affect the brain areas responsible for emotions and their management (Bora, 2012). The question that arises – and whose answer constitutes the third pillar of the new proposed management approach – is whether humans can influence biochemical secretions in order to maintain an emotional balance. Neuroscience gives us the directions to answer the above question (Healey, et al., 2018) (Rose & Abi-Rached, 2013).

4.2.1 Neuroeconomics and EI

“Human behaviour, in general, and presumably, therefor, also in the marketplace, is not under the constant and detailed guidance of careful and accurate hedonic calculations, but is the product of an unstable and irrational complex of reflex actions, impulses, instincts, habits, customs, fashions, and mob hysteria.”

(Viner, 1925)

Neuroeconomics is a combination of mathematical frameworks, experimental paradigms, and laboratory and field behavioural data about "people's choices" (from economics) and neural activity measurements (from neuroscience). Neuroeconomics aims to relate mathematical theories of choice to neural measures, generate hypotheses that constrain competing economic theories, predict the effects of cognitive and affective factors on individual choices, and suggest when people do not always choose what is best for them (Camerer, 2008).

A wider area of "experimental economics" was generated integrating neuroeconomics that essentially bridged neurobiology with economic theory and human behaviour, trying to give a picture of brain functions based on decisions taken from quantified descriptions of economic behaviour and the ability of neuroscientists to model economic phenomena (Rangel, et al., 2008). The basis for the development of this new approach was made by Kahneman D. and Vernon S, the Nobel Prize winner in 2002, to the integration of psychological research into the economic sciences, especially regarding human crisis and decision-making with uncertainty and the introduction of laboratory experiments in economic empirical research, respectively (Kahneman & Smith, 2002).

The classical economic theory of "limited utility maximization" is most naturally interpreted as a model of careful deliberation – balancing the costs and benefits of different options- that can characterize complex decisions such as life savings planning and delicate contract design (Camerer, et al., 2005). While economists can recognize that actual "flesh-and-blood" human beings often choose without much thought, the economic models as written always represent decisions in a 'deliberative equilibrium,' i.e., a stage where further discussion, computation, reflection, etc. they would not by itself change the agent's choice. Although not denying that deliberation is always a decision-making option for humans, neuroscience points out two inadequacies of this approach: First, much of the brain is built to support "automatic" processes, which are faster than conscious thoughts and occurring with little or no awareness or sense of effort. Because the individual has little or no introvertive access to or voluntary control over them, the behaviour generated by these processes need not comply to regulative principles of inference and choice – and therefore cannot be sufficiently represented by typical maximization models) (Bargh, et al., 1996) (Bargh & Chartrand, 1999) (Shiffrin & Schneider, 1977). Second, humans behaviour is under the pervasive and often unrecognized influence of finely tuned emotional systems located in specific areas of the brain and whose basic blueprint humans

share with many other animals (Phillips, 1999) (Panksepp, 2004). These systems are very important and vital to day-to-day functioning (Camerer, et al., 2005).

4.3 Explaining human behaviour through neurobiological factors

According to **Figure 4**, human behavior is a result of the processes that take place after some stimulus. In the context of these processes, the person is asked to make a choice (“Selection” in **Figure 4**), i.e. to make a decision on how he/ she will finally respond and behave towards this stimulus (Aunger & Curtis, 2008). The process of choice can be affected by the emotional state of the one called upon to make the decision (Martino, et al., 2006). So, how can the person making the choice maintain an emotional balance so that it does not affect his/ her choice? The answer is given in the following paragraphs where mention is made of the mechanisms that affect brain function and emotional balance.

4.3.1 Human Brain: Neuroscience Perspective

Emotional Intelligence as bio – psychological function of human being presupposes a healthy background for its expression. Human beings as psychosomatic units are expressed as one system which motivates physical and mental mechanism complexes that are related to each other. In this chapter, reference is made to the structure and functioning of the brain in relation to the emotion, so that it is understood, from the brain the feelings that emerge and how they affect the biological and psychic world of the individual, so that their desire to lead objectively to the mental balance that is the ultimate goal of an emotionally intelligent individual.

4.3.2 The Brain

The brain, the core of Neurosciences and one of the “variables” of our model’s behaviour, making chain, see **Figure 7**, deserves to be discussed here to some length. The brain is the seat of consciousness, of memory and hence also our feeling of “self” on top of our sensory and cognitive interaction with our environment, the world (Churchland & Sejnowski, 1988). The brain is what we are. Its importance in the organism itself can also be seen by the amount of power and energy it uses.

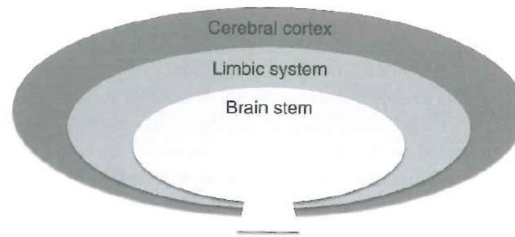


Figure 5. Three-layer model of the brain (Ghadiri, 2011)

The brain is a complex organ with 100 billion neurons. Brain cells are connected in different regions and formations. “Like a country with millions of people living in different households and in different villages and towns connected in different ways with paths, roads, and highways. So, it is with our brain.” (Ghadiri, 2011).

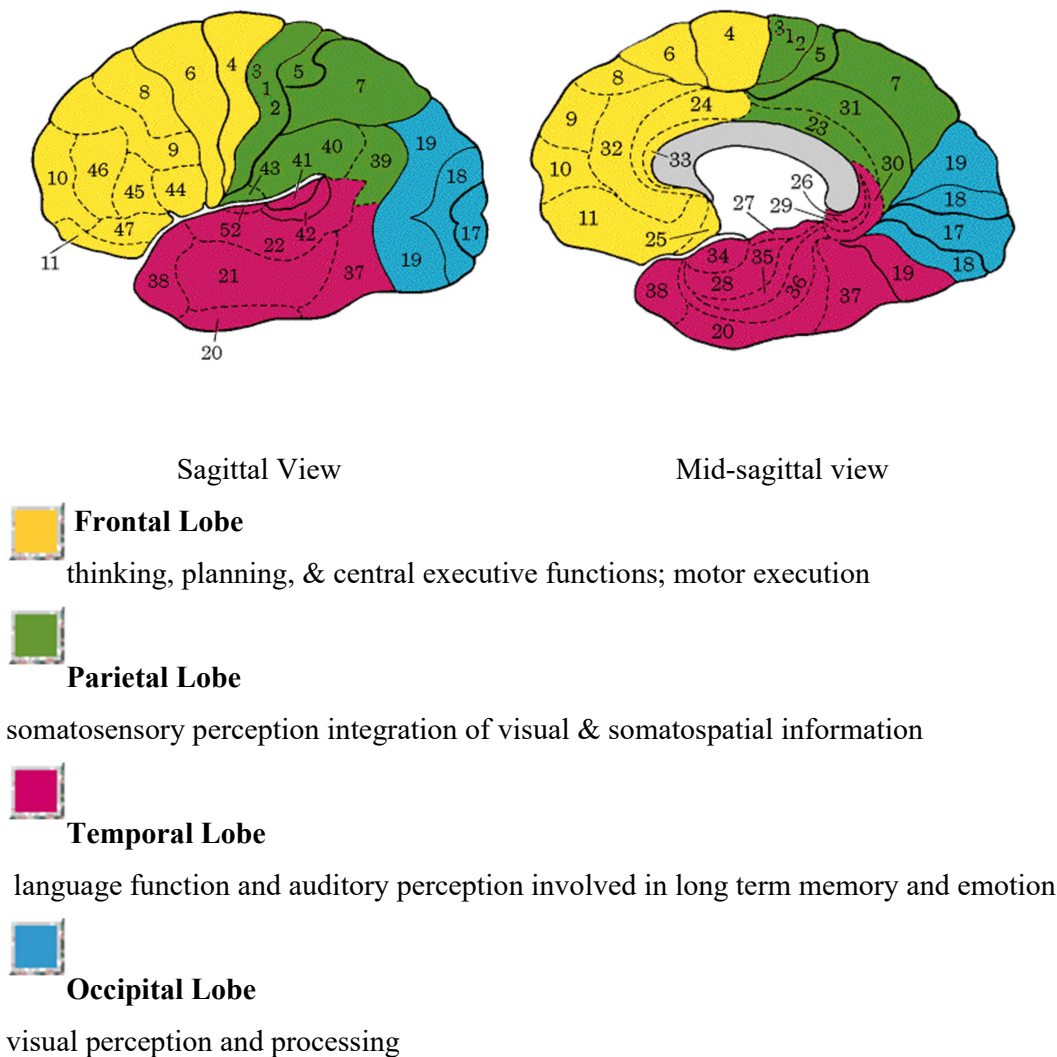


Figure 6. Human Brain Brodmann's map (<http://umich.edu>, n.d.)

Neurobiologists are talking about five areas, the three-layer model by the American brain researcher MacLean (see **Figure 5**) is one that is simple and generally closely related to reality. Though, we note, in the literature there is some discrepancy as to what structures belong to each, we can think of the brain in terms of:

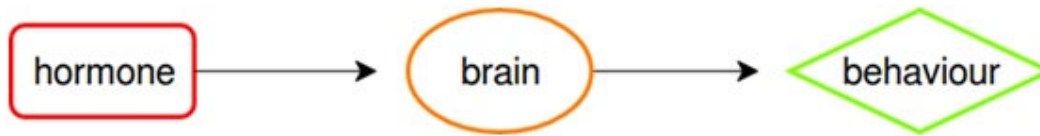
- The brain stem
- The limbic system
- The cerebral cortex

The human brain is divided into four sections, each of which performs many specialized functions: the *frontal*, the *occipital*, the *parietal*, and the *temporal* (**Figure 6**). These lobes are linked-communicating with each other through links called projections. The most well-known mapping of the brain regions is given by the Brodmann map, named after Korbinian Brodmann (1909), which divided the regions based on their cellular and laminar structure. (Brodmann & Garey, 2006)

4.3.3 How neurobiology influences the human brain

The functioning of the human body is based on carrying messages from one place to another. This takes place in two different ways: through the endocrine and nervous system (Bear, et al., 2007). The nervous system is made up of neurons, electrically excitable cells that carry information to and from the entire human body through electrical and chemical signals. Neurons connect to each other creating synapses. In contrast to endocrine secretion, where hormones are transferred, in a synapse communication, a stimulated neuron releases a chemical substance called a neurotransmitter. Neurotransmitters (i.e., dopamine) are completely different from hormones (i.e., insulin). Although both are chemicals and require receptors, they have important differences. Hormones are released directly into the bloodstream by an endocrine gland and their transmission speed is low. Hormones are spread throughout the body, and it is picked up by corresponding receptors. On the other hand, neurotransmitters are released from a nerve terminal by an electrical impulse into other neurons. Their signal is transferred rapidly through fixed networks to precise destinations (Elias & Saucier, 2006). Therefore, the symptoms that can be caused by high or low levels of hormones (van Poppel & Brown, 2008) (Randolph, et al., 2005) – due to the low speed – can last longer than the effect of neurotransmitters. For this reason, our research was based on the effect of hormones and how they can affect brain function, and thus human behaviour (**Figure 7**). In addition, the

levels of hormones might be maintained at healthy levels with adopting a healthy nutrition and habits (McEwen, 2008) (Begg & Woods, 2013).



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 7. Hormone-Brain-Behavior

Some of the human hormones can influence the emotions. This fact should be taken into account in case an Emotional Intelligent person is in a position that he/she cannot control them. The hormones can be classified into three (3) categories based on their chemical structure: 1. Lipid-derived, 2. Amino acid-derived, and 3. Peptide hormones. Steroid hormones are the primary class of the lipid-derived category. In this category belongs the alcohols or ketones. Estradiol (estrogen) or testosterone, and aldosterone as well as cortisol are basic examples. Steroid hormones are insoluble in water, and they are transported by transport proteins in blood. As a result, they remain in circulation longer than peptide hormones. For example, cortisol has a half-life of 60 to 90 minutes, while epinephrine, an amino acid derived hormone, has a half-life of approximately one minute. In the amino acid-derived hormones are derived from the amino acids tyrosine and tryptophan. In this category the hormones of epinephrine and norepinephrine, and thyroxine. In addition, the pineal gland in the brain makes and secretes melatonin which regulates sleep cycles. The last category (peptide and proteins hormones) includes hormones such as ADH (antidiuretic hormone) and oxytocin produced in the brain and released into the blood in the posterior pituitary gland. This category also includes small proteins, like growth hormones produced by the pituitary, and large glycoproteins such as follicle-stimulating hormone produced by the pituitary. Also, it includes insulin (secreted peptides). Amino acid-derived and polypeptide hormones are water-soluble and insoluble in lipids. These hormones cannot pass through plasma membranes of cells; therefore, their receptors are found on the surface of the target cells. Some of the basic hormones, discussed here, that can affect the human emotional status are cortisol, oxytocin, testosterone, vasopressin (ADH – Antidiuretic Hormone), progesterone, insulin (Molnar & Gair, 2013).

Cortisol, a steroid hormone, one of the glucocorticoids, produced in the adrenal cortex and then released into the bloodstream, which carries it throughout the body, has been found to influences humans’ mood and behavior (Kaimal, et al., 2016). Almost every

cell contains cortisol receptors which can have many different actions depending on the type of cells in which it acts. These effects include controlling the body's blood sugar levels and regulating likewise metabolism, acting as an anti-inflammatory, affecting memory formation, controlling salt and water balance, influencing blood pressure, and aiding fetal development. The high concentration of cortisol may lead to high blood pressure, osteoporosis, depression, mood fluctuation, anxiety, weight gain, muscle weakness, and increase thirst as well as urination frequency (Fraser, et al., 1999) (Grynderup, et al., 2013) (Björntorp & Rosmond, 2000) (Singh, et al., 2012). On the other hand, the decreased levels of cortisol in blood can cause symptoms as fatigue, weight loss, muscle weakness, dizziness, mood swings and the darkening of regions of the skin. Foods with high concentration of carbohydrates and fat triggers the secretion of cortisol (Andrews, et al., 2002) (Epel, et al., 2000) (Sher, 2005) (Kudielka, et al., 2009). It becomes obvious that the balance of cortisol plays a very important role to emotional status regulation (see **Figure 8**).

Oxytocin is quoted the “hormone of love”, because it is responsible for the lactation promotion by moving the milk into the woman breast. Studies have found that it is an important chemical messenger that controls some human behaviors and social interaction. It is oxytocin that may also play a role in recognition, sexual arousal, trust, and anxiety. Some research shows that the hormone may affect addiction and stress as well. The secretion of this hormone increases when hug someone, dance, laugh, read your favorite book and listen to the music you like (Avvívov, 2021) (Holt-Lunstad, et al., 2008).

Testosterone: the most common hormone to males. However, testosterone plays an important role to females too. Issues associated with abnormally high testosterone levels in men include: Low sperm counts, shrinking of the testicles and impotence, heart muscle damage and increased risk of heart attack, prostate enlargement with difficulty urinating, liver disease, acne, fluid retention with swelling of the legs and feet, weight gain (partially related to increased appetite), high blood pressure and cholesterol, insomnia, headaches, increased muscle mass, increased risk of blood clots, stunted growth in adolescents, uncharacteristically aggressive behavior (although not well studied or clearly proven), mood swings, euphoria, irritability, impaired judgment, delusions. Regarding the impact on women, the most common cause of a high testosterone level is polycystic ovary syndrome (PCOS), a common disease that affects 6% to 10% of premenopausal women. Low levels of testosterone to men may cause the following: reduced body and facial hair, loss of muscle mass, low libido, impotence, small testicles,

reduced sperm count and infertility, increased breast size, hot flashes, irritability, poor concentration and depression, loss of body hair, brittle bones and an increased risk of fracture. As far as women impact, they may experience low libido, reduced bone strength, poor concentration, or depression (Harvard Medical School, 2015) (Lee, et al., 2012) (Wehr, et al., 2010) (Cherney, 2020).

Vasopressin (ADH): This hormone “regulates the normative social behavior in mammals” (Carson, et al., 2015). It is one of the main determinants of body's osmotic balance, blood pressure regulation, sodium homeostasis, and kidney functioning. AVP (Arginine Vasopressin) regulates the level of water in the body by controlling the amount of urine one’s kidneys produce. Low levels of vasopressin in human blood may be caused by compulsive water drinking or low blood serum osmolality. The associated symptoms are “excessive urination, which is called polyuria, followed by extreme thirst, which is called polydipsia”. On the other hand, the high levels of ADH caused by very serious diseases and illnesses (leukemia, cancer in pancreas, multiple sclerosis, epilepsy, cystic fibrosis, emphysema etc.) (Newsome, 1979). The vasopressin focuses on maintaining the balance of water in the human body and is released in response to changes in blood pressure levels. Dehydration triggers ADH secretion and causes the kidneys to hold excess water which in turn increases blood pressure and volume (Caldwell & Young, 2006). In addition, it is responsible for pair-bonding in voles (Lim & Young, 2004), aggressive behaviour (Carter, 2007), and is associated with social memory and kin protection (Ferguson, et al., 2002). The structure of oxytocin is very similar to that of vasopressin. This similarity can cause some cross-reactions: oxytocin has a slight antidiuretic function, and high levels of AVP can cause uterine contractions (Li, et al., 2008) (Joo , et al., 2004). ADH is the hormone which regulates the levels of the water in the body. Caffeine, alcohol, and salty foods tend to decrease the secretion of this hormone (Armstrong, 2002) (Armstrong, et al., 2005) (Grandjean, et al., 2000) (Parlesak, et al., 2004).

Progesterone: exists in humans and has a dominant role in women because is essential for the reproduction and pregnancy maintenance (Di Renzo, et al., 2016). High progesterone symptoms are also accompanied by slight dizziness, water retention, drowsiness, a feeling of spinning sensation, and tenderness in the breasts (for women). It also regulates mood and weight. On the other hand, low levels of progesterone cause symptoms such as anxiety, mood changes, depression, sleep disturbances, headaches, low blood sugar (Gotter , 2018) (Targonskaya, 2022). Zinc, Vitamin C, B6, E as well as Fibers,

L-arginine, Magnesium are basic resources that boost the progesterone (Mayo, 1997) (Egwurugwu, et al., 2013) (Brighten, 2016).

Insulin: A peptide hormone, produced by pancreatic islets. An anabolic hormone that regulates the metabolism of the carbohydrates, proteins as well as fats by promoting the absorption of glucose from the blood into liver, fat and skeletal muscle cells (Voet & Voet, 2010) (Berg & Tymoczko, 2002). If a situation causes more insulin levels than required (e.g., more energy consumed or less food consuming), cells take too much glucose from the blood which drives to the low blood glucose levels (hypoglycemia). In that condition, liver releases the stored glucose to balance the relevant levels in the blood. The low glucose levels make a person feel ill. As humans' body tries to react to such abnormal condition via sympathetic nervous system, the human body experiences sweating, hunger, anxiety, tremor, palpitations, and pale complexion, symptoms of individuals with low blood glucose level. If the levels are too low for some time and no prompt action is taken, then will impact the brain too, causing confusion, dizziness, fits, or coma. Indicative symptoms of hypoglycemia during sleep may be nightmares, or crying out, feeling tired, irritable, or confused after waking up (NIDDK, 2008). On the other hand, the high levels of glucose in blood can be caused due to some diseases (e.g., diabetes). Consumption of high sugar products can cause the high glucose levels in the blood causing tensivity, angriness, sadness, faintness, thirstiness, tiredness, nervousness, lethargic, blurredness vision, headaches (Galan, 2019).

Recent research in Neuroscience have led to the fact that the genetic control of intelligence is correlated with the structure of brain regions (Gray & Thompson, 2004). This may explain how humans' behaviours differentiate from person to person. People have born under different conditions (environmental, prenatal conditions) which possible have affected the brain structure and the relevant functionality. In that respect, the behavior outcome seems to be shaped based on the genetic frame and factors that it could be influenced.

In more detail, the above differences could be explained further taking into consideration, firstly, that the general neurobiological systems² have a different sensitivity to the classes of stimulus for each person and, secondly, these differences are obvious as feature variation both in subjective emotional experience and in apparent patterns of emotional expression (Depue, 1995).

² Behavioral activation or facilitation system and behavioral inhibition system

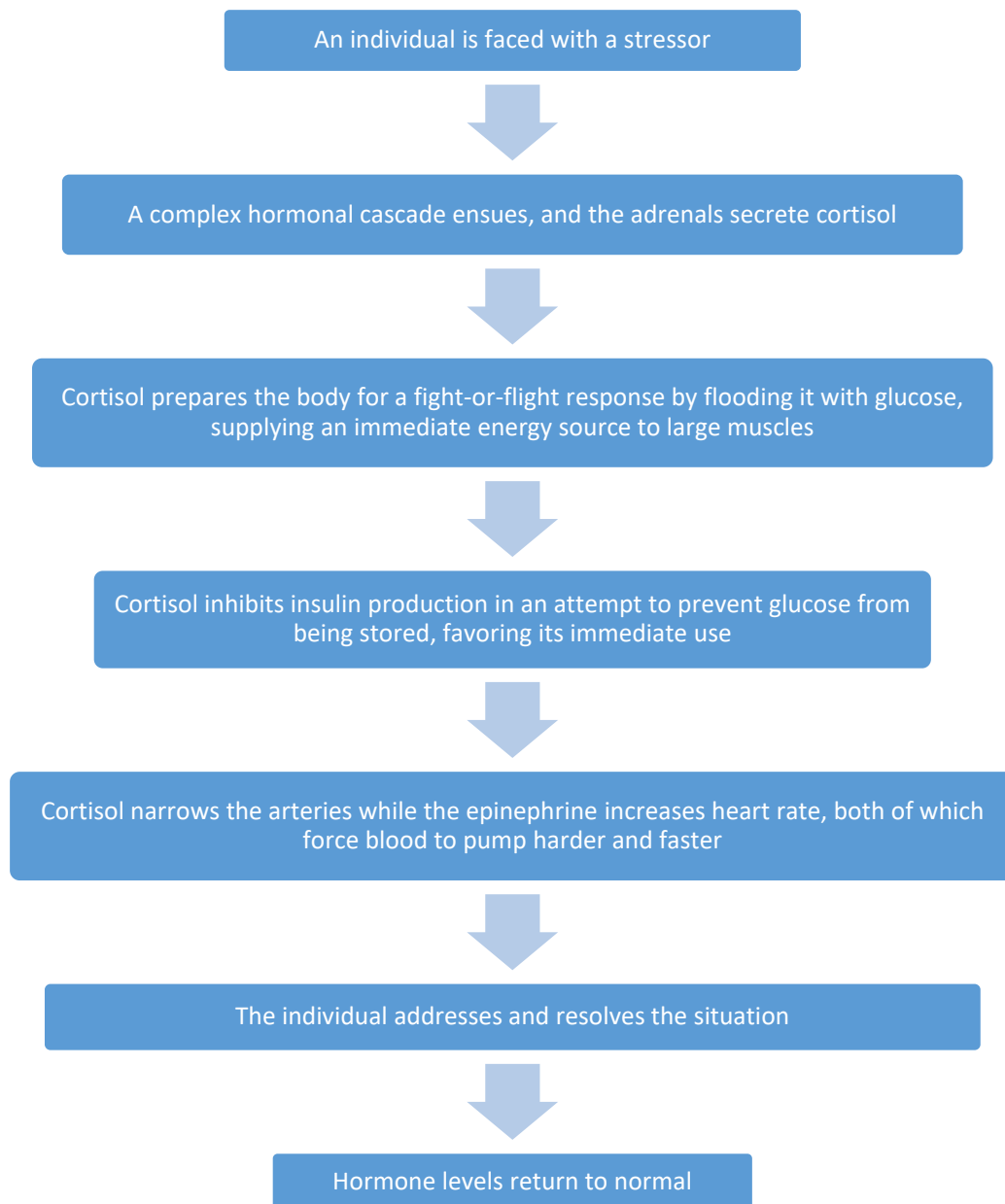


Figure 8. Example of cortisol secretion (*Aronson, 2009*)

Chapter 5 – The new approach

5.1 The PsychoBioDynamic Management (PBDM) approach

The new management approach seems to be unavoidable. As mentioned in Chapter 1, the existing management theories/approaches are not sufficient to serve and meet the organizations’ expectations and targets. In that respect, the new proposed approach includes basic aspects of Emotional Intelligence and the lifestyle that someone follows. The New Management Approach incorporates the ability of self-regulation, empathy, and lifestyle to fill the gaps that the existing management approaches (Classical, Neo-Classical, Modern) have. Particularly,

- this approach is characterized by humans’ individuality and reacts to each employee based on her/ his uniqueness. Empathy, as one of the major parameters of this approach, could meet and cover the employees’ needs.
- In addition, this model does not focus only on humans’ relations, but also on the ability of the manager to handle his/ her emotions during the communication process. In that respect, relationships are more vital and dynamics.
- This approach provides specific guidelines and factors that are applicable and could be taught, increased, and exercised. Thus, there is plasticity on that implementation which favors adaptability.
- This new management approach has been created by different scientific fields using new developments and knowledge to its advantage. In this way, any new change or knowledge about the aspects of this new approach can be adopted and adapted to this model accordingly.

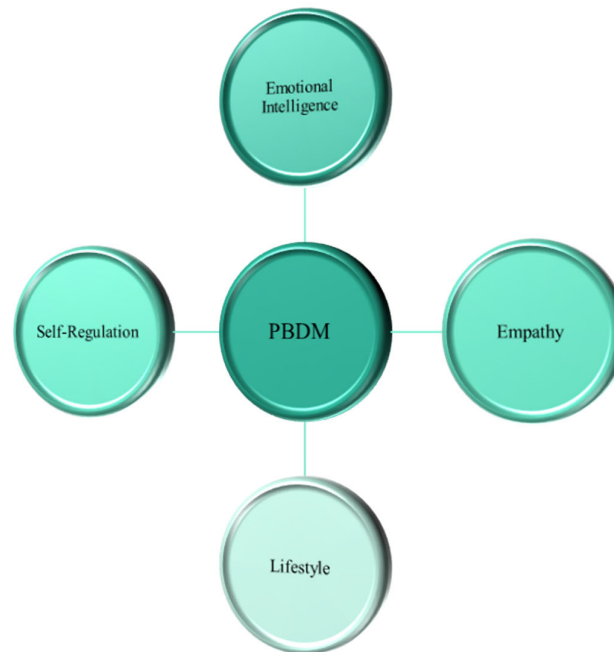
Thus, having taken into consideration all the above, it is generated a new management approach/model (**Figure 9**) which consists of:

- ✓ Emotional Intelligence, with emphasis to
 - Empathy &
 - Self-Regulation,
- ✓ Lifestyle

Based on the five (5) domains of EI defined by D. Goleman, a high EI Manager may include some -or all- from the following characteristics: Self-awareness, Social Skills, Motivation, Self-regulation, and Empathy. The Psycho-Management Manager should have improved and established the last two characteristics as they are the most interactive features for the bipolar Supervisor – Subordinate (Somogyi, et al., 2013)

(Gentry, et al., 2007) (Mora-Pelegri, et al., 2021) (Ramdass & Zimmerman, 2011) (Grewal, et al., 2006) (Lord, et al., 2010) (Zeidner, et al., 2000):

- **Empathy** leads the Manager to understand deeply how his/ her subordinates feel.
- **Self-Regulation (or Self-Management)** is important as it's a basic tool for messages transferring and communication improvement.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 9. New Management Approach (Lountzis & Palaskas, 2022)

According to R. Riggio (Riggio, et al., 1989) basic social skills are of three types: skill in encoding (labelled expressive skills), skill in decoding (called skills in sensitivity) and ability to regulate, or control communication. These three basic skills operate in two domains: the nonverbal domain (dominated by skill in **emotional** communication) and the social domain (dealing primarily with the verbal/ social aspects of communication skill).

The **healthy lifestyle** results in keeping our body and its endocrinology system in good condition and so all the hormones – that can influence humans' emotions – are controllable. In accordance with the research of An. Kafatos (Kafatos, et al., 1999), among the most important behavioural factors affecting the health is smoking, food and stress. Further to M. Krawczynski and H. Olszewski research (Krawczynski & Olszewski, 2000) the attempt of implementation of a physical activity program for people over 60 (sixty)

years of age, led them to the results that the participants showed a significant improvement in their psychology and mental health during the program.

The proposed approach includes the factor “Bio”. Home-made food is a basic factor for a balanced diet from the early age of humans’ life. The consumption of fast food can lead to obesity that may cause many important health and mental issues (Ζέρβα & Ζερδύλα, 2009). Hence, it is especially important for the food that someone consumes to be of high quality.

Regular exercise can help manage physical and mental stress. Exercise increases concentrations of norepinephrine, a chemical that mediates the brain's response to stress. Exercise also releases endorphins, which create feelings of happiness and euphoria. Studies have shown that exercise can even improve symptoms among the clinically depressed. For this reason, exercise is recommended as a treatment for people suffering from depression or anxiety. In some cases, exercise may be just as effective as antidepressants in treating depression (Wegner, et al., 2015).

Figure 10 shows why the circuit nutrition, hormones, emotions are correlated and how the each of these components affect each other. The impact of the neural and endocrine complexity on eating, includes a variety of factors. These factors encompass the homeostatic factors – related to the energy the human beings need – and nonhomeostatic factors – related to emotions, feelings, biologic rhythms, social situation etc (Begg & Woods, 2013). The correlation of all these factors with the nutrition habits and lifestyle is showed in the **Figure 11**. The size of the meal consumed by someone is controlled by the homeostatic factors. "The homeostatic controls are based on the satiation signals (cholecystokinin and glucagon-like peptide-1), adiposity signals (leptin, insulin), and local nutrient levels reaching the ARC and other hypothalamic areas from the blood, including glucose and some fatty acids and amino acids. The motor areas in hindbrain receive those signals and determine the activity of gastrointestinal, satiation, and the regulation of glucose. The nonhomeostatic factors controls the meals occurrence as well as the quantity consumed. Both systems have a common direction to the hindbrain motor areas to define the actual eating and relevant response to eating. Emotions, stress, time of the day are components of those factors. Although it seems that these two systems functions separately, they communicate via the neuroaxis of the brain (Begg & Woods, 2013).

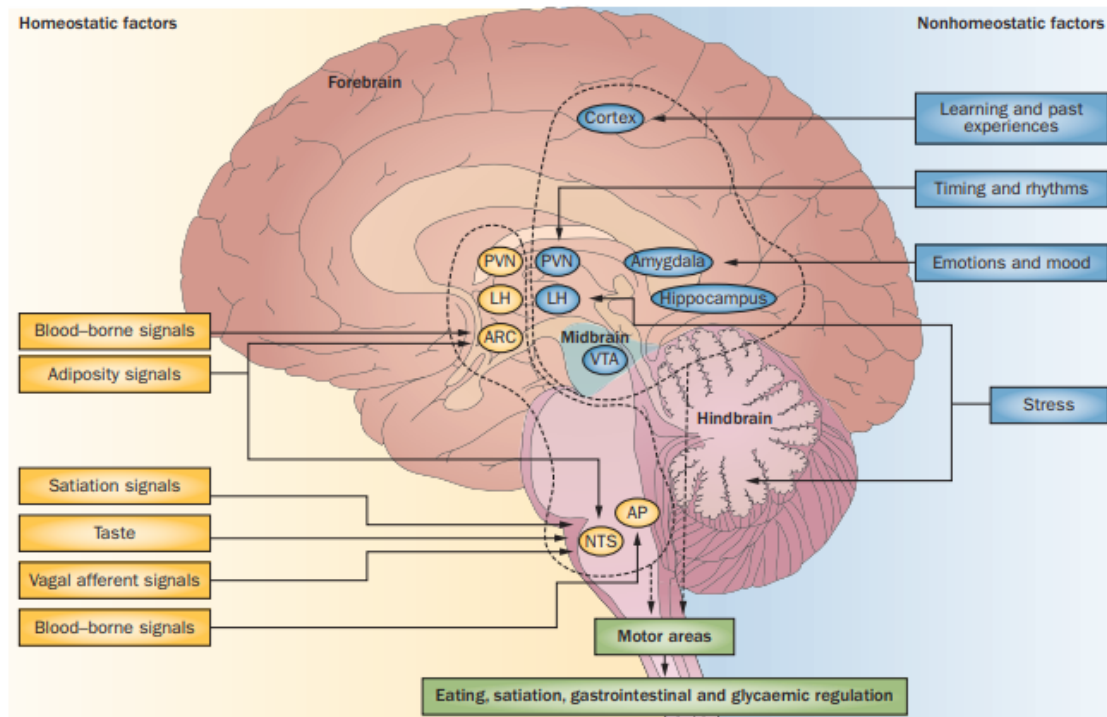


Figure 10. Homeostatic and Nonhomeostatic factors (Begg & Woods, 2013)³

The internal – physical and mental – balance could help (but not limited to) managers handling their emotions and really understanding the emotions of others and having the ability to communicate their ideas and thoughts.

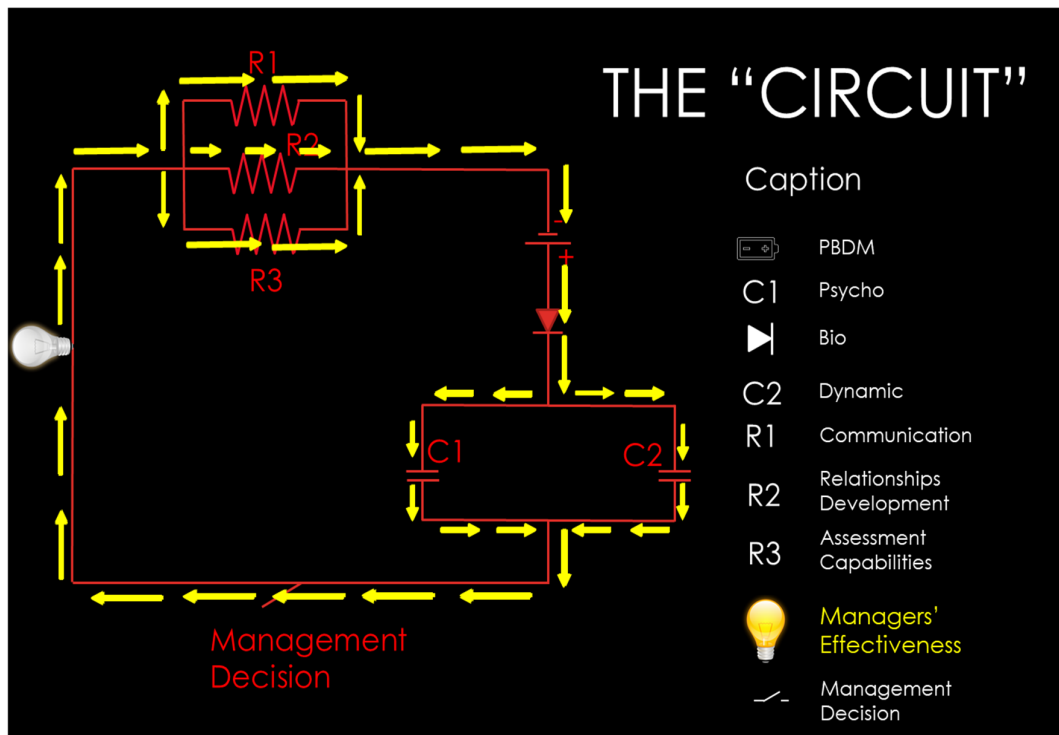
The PBDManagement approach may become the company’s or organization’s mean for the smooth implementation of new corporate policies, keeping the employees satisfied and leading them to high productivity and profitability. Furthermore, as a new trend, this style of management should be investigated further as there are many parameters that can affect its application.

The “Circuit”

The PBDM approach is a circuit (**Figure 11**) that encompasses components from various sciences. The implementation of this approach is under management decision. If the decision-maker proceeds and closes the circuit all the relevant components will work together for the same goals. The managers’ effectiveness can be enlightened in case the “business current” is available for every circuit’s component.

³ Abbreviations: ARC, arcuate nucleus; AP, area postrema; LH, lateral hypothalamus; NTS, nucleus of the solitary tract; PVN, paraventricular nuclei; VTA, ventral tegmental area.

PBDM is working effectively when all factors collaborate properly. PBDM is a continuous process. The maintenance and the life span of the circuit depend on the management's willingness to keep it alive.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 11. PBDM and Management Effectiveness

Chapter 6 – Research methodology and tools

This section presents and discusses the adopted methodology to examine the set hypothesis. It consists of the developed questionnaire, its calibration, its distribution to random sample of departments employees (Managers and Subordinates) of Greek companies and organizations.

The questionnaire includes, among other, sections regarding the managers' empathy, self-regulation, and lifestyle. Subordinates responded to questions for their direct managers' empathy and self-regulation capability, and the job satisfaction due to management was measured.

6.1 Research Field

The literature review on Management, Emotional Intelligence and Neuroscience/Endocrinology, identified a number of questions related to our thesis requiring further empirical research to tackle them.

Starting from Goleman's seminal work – model (§3.2.4), that the Emotional Intelligence could lead us to new knowledge about the applied Management approaches. We opt to use, forming the basis of our approach, the following features:

- ✓ self-awareness,
- ✓ self-management,
- ✓ social awareness, and
- ✓ relationship management.

Those four features used to formation of the Wong and Law questionnaire, which is used into this research because of its proved validity reliability and well-defined weights (Kafetsios & Zampetakis, 2008).

As mentioned in Chapter 2/ §2.1, the employees' job satisfaction is connected with their performance (Dulewicz, et al., 2003). Therefore, given the new challenges of management and the lack of discussion in the existing approaches, see Chapters 1 and 5 where existing management theories and approaches, of the necessary tools to meet those challenges becomes obvious the need to investigate the set hypothesis of our thesis, which overall aims to explore whether the new proposed management approach (PBDM), core of our research, may affect the employees' job satisfaction.

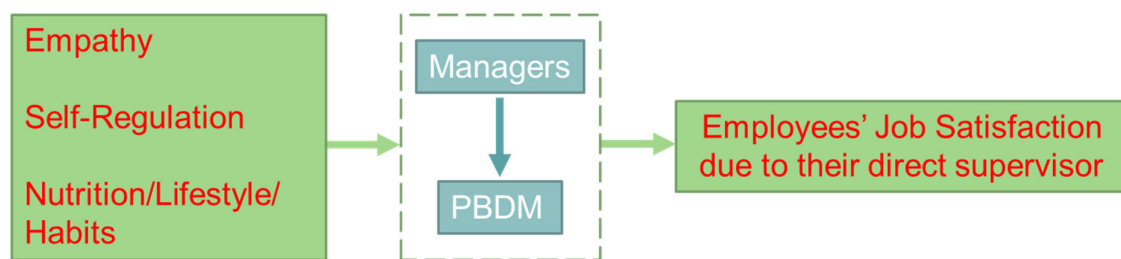
The new tendency of management adopts a more management emotion-oriented approach as the managers should address their emotional status as well as that of their subordinates (Ashkanasy & Dorris, 2017) (Miller & Koesten, 2008).

Emotional Intelligence competencies and aspects have been discussed and analyzed in paragraph 3.2.4. The two (2) domains of EI, Empathy, and Self-Regulation, have been selected as the basis of the new proposed management approach because they are crucial components of effective communication (Gompertz, 1960) (Cairns, et al., 2021) (Mellon, 2016) (Riggio, 2014). Of course, the lifestyle – in terms of nutrition and habits – may affect the emotional status of someone (in our study: of managers), and hence, the total management approach (PBDM) is affected in total and influences the subordinates’ satisfaction.

Existing studies (Eslami & Gharakhani, 2012) (Anari, 2012) (Kafetsios & Zampetakis, 2008) have confirmed statistically the positive relationship between the exogenous overall EI score with employees’ satisfaction endogenous variable. Taking into consideration that applied management, as well as the emotional support of the employees are able to influence the subordinates’ job satisfaction (Koustelios, 2001) (Peterson, et al., 2003) (Robbins, et al., 2003), our study focuses on the bipolar between applied PBDM and Subordinates’ Satisfaction.

Our new approach consists, see Chapter 5, of the two (2) dimensions of the EI and managers’ lifestyle. Thus, each of the three (3) PBDM pillars – Empathy, Self-Regulation, and Lifestyle – were quantified and measured. The reasoning of our PBDM approach is examined in line to the central hypothesis expressed in **Figure 12**.

Main Hypothesis (H0): The PBDMm approach has a positive impact on the Employees’ Job Satisfaction (ESIs).



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 12. Main Hypothesis

For the scope of this research, the new management approach (PBDM) is by an equally weighted index of the three exogenous variables, empathy (OEA), ability to self-regulate emotion (SR), and lifestyle (NHL), of our sample data. The index provides

information on the applicability of the new approach (i.e., how capable someone is to implement the PBDM). Further analysis and details are presented in paragraphs 6.6 & 7.1.1.

In addition to the core hypothesis, auxiliary sub hypotheses were investigated based on the three (3) PBDM components:

For Empathy:

Hypothesis A (HA): Managers' Empathy has a positive impact on the Employees' Job Satisfaction?

For Self-Regulation:

Hypothesis B (HB): Managers who Regulate their Emotions have a positive impact on the Employees' Job Satisfaction?

Based on what was described above, the PBDM includes the variable of lifestyle. Hence, another sub hypotheses are created:

Hypothesis C (HC): Managers' Lifestyle and Habits have a positive impact on the Employees' Job Satisfaction?

Hypothesis D (HD): Managers' ability to regulate their emotions has a positive impact on their nutrition, habits, and lifestyle?

Hypothesis E (HE): Managers' empathy has a positive impact on their nutrition, habits, and lifestyle?

It is worth mentioning that for the purpose of this study, we had to develop a new psychometric tool that would be able to quantify the Emotional Balance Status of someone based on the lifestyle that follows. Thus, within this context, we conducted additional research regarding how the emotional balance status may affect the decision-making process. In that context, the following hypothesis was examined and analyzed in the **Addendum - Managers' decision-making:**

Hypothesis AD (HAD): Managers' Lifestyle and Habits may influence their Decision-Making Process?

6.2 Design of research

Research is defined as a scientific and systematic search for pertinent information on a specific topic. In fact, research is an art of scientific investigation. The Advanced Learner's Dictionary of Current English lays down the meaning of research as a “careful

investigation or inquiry, especially through research for new facts in any branch of knowledge” (Kothari, 2005). According to Dawson (Dawson, 2009), there are two types of background research: Primary and Secondary. Primary research involves the study of a subject through first-hand observation and investigation. Secondary research involves the collection of information from studies that other researchers have made on a subject. Primary research is used for this thesis, as the study was carried out through questionnaires. The scope of this study is to be led in those findings that could support the statements/ hypotheses defined in the thesis.

6.3 Qualitative vs quantitative data

Further to the literature review and based on the scope of this thesis, it was chosen quantitative data analysis for this research, which required the collection of appropriate data from a suitable sample of managers and subordinates, through questionnaires, in order to highlight their tendencies in relation to the subject.

6.4 Sample

The sample includes Greek companies/ organizations of various sectors and sizes. Particularly, it was asked managers/ supervisors and their direct subordinates/ employees to fill out a questionnaire with sincerity and spontaneity.

6.4.1 Sampling method

The simple random sampling method opted for the present empirical research. The simple random sampling has several advantages due to the simple way in its design and consequently also in the application. Units in the population are all equally likely to be included in the survey and this is also an advantage because equal weight is given to all units. In addition, simple random sampling is considered to be an unbiased approach to collecting responses from a large group. At the same time, despite its simplicity, simple random sampling also has disadvantages. One of them is that the members of the population cannot be identified and recorded one by one. Also, if the population spans a large geographic area, selecting sample members according to simple random sampling may result in population members for the sample that are scattered throughout the population (Παπαγεωργίου, 2015).

The questionnaires distribution was conducted from the 30th of January until the 17th of March 2022. The number of responses collected was 458: 228 are managers/supervisors and 230 subordinates.

6.5 Questionnaires

To collect the required information from a large number of respondents, it was necessary to use a standard questionnaire, which will then be codified and analyzed through the statistical processing of the data. In order to produce valid results relevant to the subject being investigated, appropriate questions were stated in the designed sections of the questionnaire.

Our questionnaire is the result of picking cherries from other published questionnaires and our own specified questions.

The questionnaires that were used for this thesis research were identified during the literature review. Having taken into consideration that the research would be applied to Greek companies, we were looking for a *reliable* and *valid* questionnaire in Greek. The book “Τα ψυχομετρικά εργαλεία στην Ελλάδα” (“The Psychometric Tools in Greece”) includes reliable and valid questionnaires ready for use (Stalikas, et al., 2012).

The related used questionnaires referred to the measurement of EI (empathy, self-regulation) and Employee Satisfaction. Regarding the issues of empathy and self-regulation, it was used the questionnaire suggested by Wong and Law – Wong & Law Emotional Intelligence Scale/ WLEIS (Wong & Law, 2002) and adjusted by Pr. K. Kafetsios (Kafetsios & Zampetakis, 2008). As far as the Employee satisfaction variable it was used the Employee Satisfaction Inventory – ESI as it was provided by Professor Athanasios Koustelios (University of Thessaly) for our research purposes. The respondents had to indicate their answers using the Likert scale.

The Likert scale is the simplest in the creation and the most widespread. Its goal is to measure the attitudes or opinions of subjects who are asked to choose one of the possible fixed-form responses in a set of questions that represent the object of the study. The Likert scale allows an overall score to be attributed to the answers of each subject (for example, a higher score means a more positive attitude; a lower score means a more negative attitude). But it is quite difficult to interpret whether two subjects measure the difference between the grades of this scale and therefore we cannot be sure that choosing the same answer to a question means finally the same degree of acceptance.

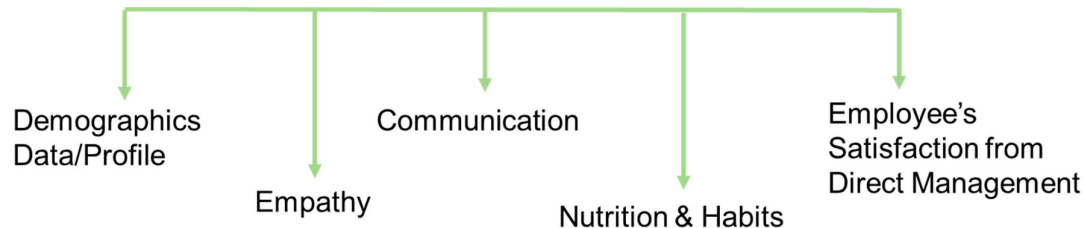
Furthermore, we needed to collect information to measure the emotional balance status of the respondents. For this reason, a new was developed to categorize the participants into four (4) classes regarding the Emotional Balance Status (EBS): 1. High Emotional Balance Status, 2. Mid-High Emotional Balance Status, 3. Mid-Low Emotional Balance Status, and 4. Low Emotional Balance Status. More details about this new tool are described in paragraph 6.6.

6.6 Research instrument

The questionnaire distributed to the Greek companies was based on a 180-degree concept. The managers answered self-report questions (for empathy and self-regulation) and employees/ subordinates answered the same questions for their direct manager. Using this method, we can compare the managers’ self-assessment matches the subordinates’ assessment.

In addition, there was a sub-scale for the lifestyle answered only by those who hold a managerial position. On the other hand, subordinates responded to statements related to their job satisfaction in relation to how their direct supervisor manages them.

The structure of the questionnaire is shown in the below scheme:



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 13. Structure of Questionnaire

The first part (demographics) was filled out by all participants. Empathy and Self-regulation were measured using the subscales of the Wong & Law questionnaire and the employees’ job satisfaction related to their manager/ supervisor was measured using the relevant subscale of ESI questionnaire.

Wong and Law Emotional Intelligence Scale (WLEIS)

The subscales of the questionnaire WLEIS include:

- Self-Emotion Appraisal (SEA) – Q1 to 4
- Others' Emotion Appraisal (OEA) – Q5 to 8
- Use Of Emotion (UOE) – Q9 to 12
- Regulation Of Emotion (ROE) – Q13 to 16

The OEA measures empathy and the ROE the self-regulation. The questionnaire can be found free in the literature. The Greek version is adjusted by Pr. K. Kafetsios (Kafetsios & Zampetakis, 2008).

Employee Satisfaction Inventory (ESI)

The questionnaire ESI consists of the following subscales:

- Working Conditions – Q1 to 5
- Salary – Q6 to 9
- Promotions – Q10 to 12
- Work – Q13 to 16
- Supervisor – Q17 to 20
- Organization – Q21 to 24

The subscale of Supervisor can measure the employee’s satisfaction due to the direct management. This instrument cannot be found for free. However, Professor Koustelios has offered us the full questionnaire and the scoring method (Koustelios & Bagiatis, 1997).

Emotional Balance Status (EBS)

The questionnaire consists of five (5) parts and includes sixty-nine (69) statements and questions. In the first part (A – 10 statements), the respondent is called to fill out demographic information like gender, age, marital status, etc. The second part (B – 20 statements) is related to the business/workplace’s frame, the third part (C – 5 statements) refers to the colleagues/teams’ habits, the fourth part (D – 10 statements) includes statements about nutrition and habits, and the fifth part (E – 25 statements) is related to the internal impact. More particularly, for part D, each statement describes a habit (dietary, or exercise). A detailed analysis of each statement can be found in the **Addendum - Managers’ decision-making**.

The subscale of NHL (Part D) indicates the EBS score, and this subscale was used for our core hypothesis study.

The scale of the PBDM index provides important information on the managers to apply the new proposed approach. The higher the score one achieves, the more able the manager is to apply the new approach.

6.7 Data Collection

The questionnaires were distributed to Greek companies and organizations through Google Forms platforms in electronic form. The primary research was conducted

by forwarding the forms to a random sample of companies that were approached by email and telephone communication to make sure that a representative sample of at least 300 respondents would participate in the survey. The contact details for the companies were found in the ICAP guide 2021 (edition: 56th, Volume 1 & 2).

Social media (Facebook, LinkedIn, and Instagram) were used for the distribution of the questionnaires. The participation was voluntary and anonymous. In addition, there was a clear statement of confidentiality as well as clarification that there are no wrong or right answers except honest personal opinions. The use of the Google Forms platform as the main means of completing and collecting the data was evaluated as the most effective because it facilitated both the dissemination of the questionnaires and the collection of the data. Also, the automated registry of the data in a spreadsheet provided by the platform minimized the marginal errors.

6.8 Data Analysis Tools

The data was extracted from the questionnaires and processed using Microsoft Excel 2016 and IBM SPSS (Statistical Package for Social Science) 28.0, which was used for frequency f and percentages calculations.

The descriptive statistics used for this research are the frequencies, averages, and standard deviations. Appropriate tests were performed for investigating the relationships between demographic factors and examined variables. The IBM SPSS 28.0 was used for testing the main research hypothesis, described in §6.1. Additional tests were performed to examine the sub-hypotheses (hypotheses A, B, C, D).

6.9 Psychometric properties of measurement tools

6.2.1 Internal Reliability and Validity

The used questionnaires were tested for their internal reliability and validity. Reliability, the ability to reproduce a result consistently in time and space and validity, the property of an instrument to measure exactly what it is supposed to measure, are, important for research.

As mentioned in paragraph 6.6, the final format of the questionnaire consists of two (2) subscales extracted from the existing instruments of WLEIS and ESI. Thus, the reliability and validity of those parts have already been tested. The third subscale that measured the emotional balance status has been tested and further details included in the

relevant addendum (**Addendum - Managers’ decision-making**). However, as we use these tools for our needs, we proceeded with the required testing.

The already tested (subscales) questionnaire was tested again for its internal reliability (see **Table 5**). We distributed the NHL part of the instrument to ten (10) people with different educational and experience background for ensuring the content validity⁴.

The reliability of the instrument was tested using Cronbach’s Alpha coefficient in the IBM SPSS 28 (**Table 5**).

Variable	Cronbach's Alpha	N of items	Reliability ⁵
PBDM_Total Score	0.596	18	Satisfactory
OEA_Mng	0.702	4	Relatively high
SR_Mng	0.858	4	Reliable
NHL_Score	0.484*	10	Acceptable
ESI_Employees	0.847	4	Reliable
OEA_EmplMng	0.92	4	Strong
SR_EmplMng	0.935	4	Excellent
ESI_MngEmpl	0.719	4	Good
*The Cronbach a increases if item 6 deleted (0.540)			

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 5. Cronbach's Alpha reliability

The statistical tests confirm the reliability of each part of the instrument used for this research is acceptable. More specifically, the scale measuring the new approach to management (“PBDM_Total Score”) is satisfactory, while the sub-scales of empathy (“OEA_Mng”) and communication (“SR_Mng”), show high reliability. On the other hand, the sub-scale measuring the possibility of emotional balance through lifestyle and nutrition (“NHL_Score”) indicate an acceptable probability reliability. Regarding the measurement of employees' satisfaction (“ESI_Employees”) with the applied management of their supervisors, it presents a high Cronbach Alpha coefficient, verifying the sub-scale’s reliability. Turning to the scales of measuring and evaluating the empathy of managers and supervisors (“OEA_EmplMng”) and communication (“SR_EmplMng”) as indicated by subordinates, the tests confirm their extremely high reliability. The sub-

⁴ See Annex I

⁵ (Taber, 2018)

scale measuring job satisfaction for their subordinates as perceived by managers and supervisors (“ESI_MngEmpl”) shows good reliability.

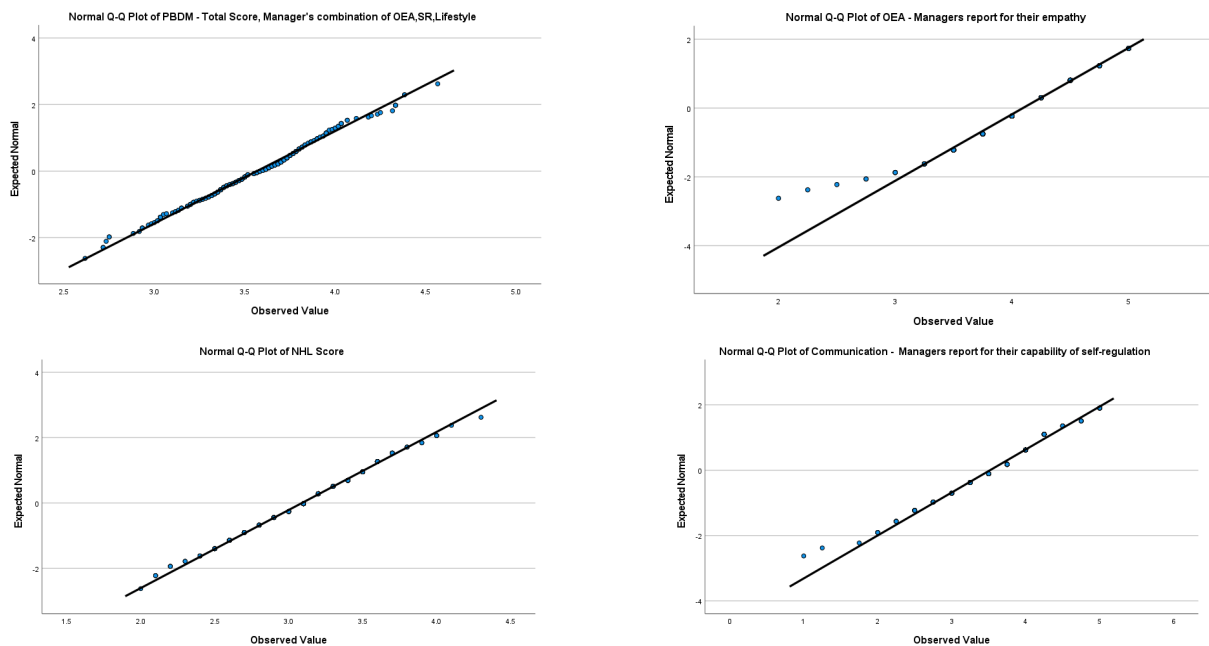
6.9.2 Distribution of the data

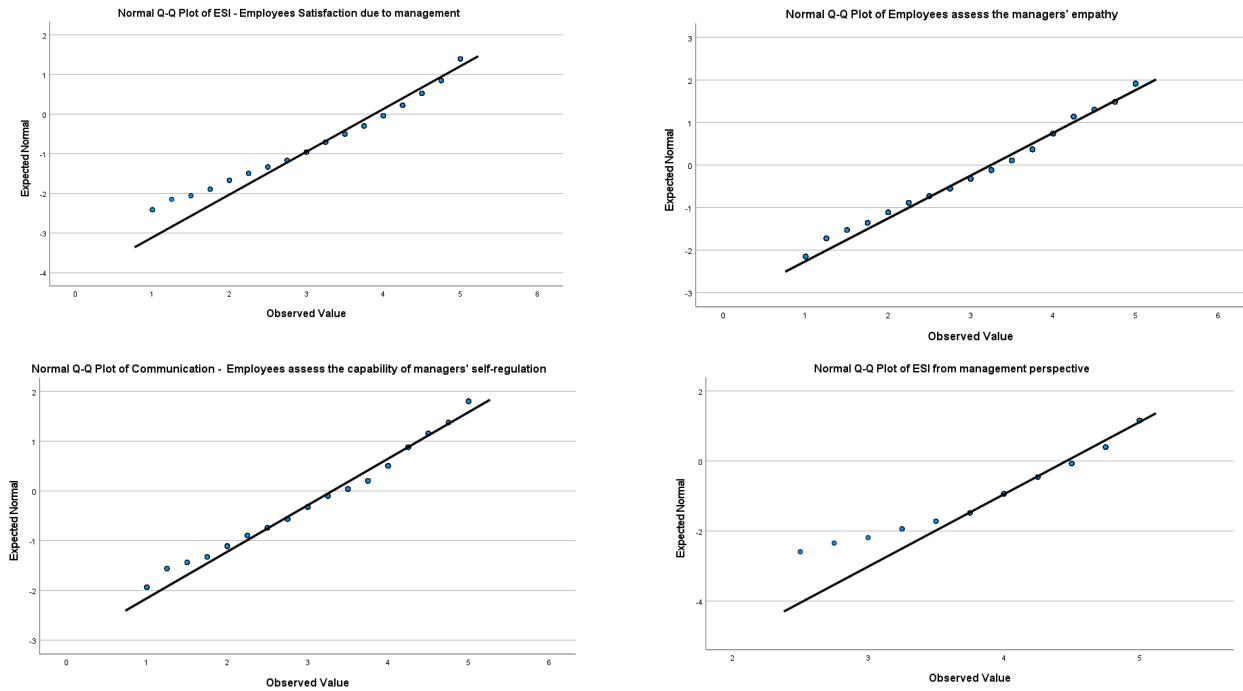
Our samples’ normality of distribution was tested using (Kolmogorov – Smirnov, Shapiro – Wilk), which, see **Table 6**, indicate that the null hypothesis of the sample being normally distributed is not rejected ($p > 0.005$) for the PBDM_Total and NHL scores. The Q-Q plots of all variables are shown in **Figure 14**.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PBDM_Total Score	0.052	228	0.2	0.994	228	0.467
OEA_Mng	0.129	228	<0.001	0.949	228	<0.001
SR_Mng	0.116	228	<0.001	0.973	228	<0.001
NHL_Score	0.084	228	<0.001	0.992	228	0.233
ESI_Employees	0.124	377	<0.001	0.922	377	<0.001
OEA_EmplMng	0.116	377	<0.001	0.966	377	<0.001
SR_EmplMng	0.124	377	<0.001	0.957	377	<0.001
ESI_MngEmpl	0.169	209	<0.001	0.889	209	<0.001

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 6. Normality tests results





Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure 14. Q-Q Plots for normality tests

Chapter 7 – Empirical research on the new managerial approach: PBDM

The survey findings of the primary research are presented and analysed in the present chapter. The descriptive statistics of sociodemographic data, scores of managers’ empathy, managers’ self-regulation, employees’ satisfaction, NHL, PBDMm as well as the scores calculated for managers’ empathy and self-regulation according to subordinates’ perception are presented and discussed.

The primary research was carried out from the 30th of January until the 17th of March 2022. The number of responses collected was 458, almost split between 228 managers/ supervisors and 230 subordinates.

Sample Descriptive statistics					
Gender		Marital Status		Employment Sector	
Male	37.80%	Married	54.60%	Private	86.90%
Female	61.80%	Single	27.30%	Public	9.60%
Other	0.40%	Cohabit	9.60%	Private & Public	3.50%
Age		Divorced			
18-25	4.10%	Widower/Widow	0.90%	Position	
26-34	19.20%			Principal (Manager)	28.60%
35-44	41.70%	Number of Children		Supervisor (Manager)	21.20%
45-54	24.90%	0	41.70%	Employee	50.20%
55-64	8.50%	1	16.20%	Years of Employment	
65+	1.50%	2	35.20%	<5	36.00%
		3	6.30%	6-10	17.00%
Education		4+	0.70%	11-15	17.00%
Gymnasio	0.40%	Family Monthly Net Income (EUR)		16-20	13.80%
High Sch.	7.20%	<1000	16.80%	21-25	6.60%
AEI (Bachelor)	31.00%	1001-2000	43.20%	26-30	5.50%
TEI	10.00%	2001-3000	19.90%	>30	4.10%
IEK	7.20%	>3000	20.10%	Employment	
MSc/MD/Meng	41.30%			Employee	80.30%
PhD	1.70%	Employee	80.30%	Freelancer	19.70%
Other	1.10%	Freelancer	19.70%		

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 7. Sample description

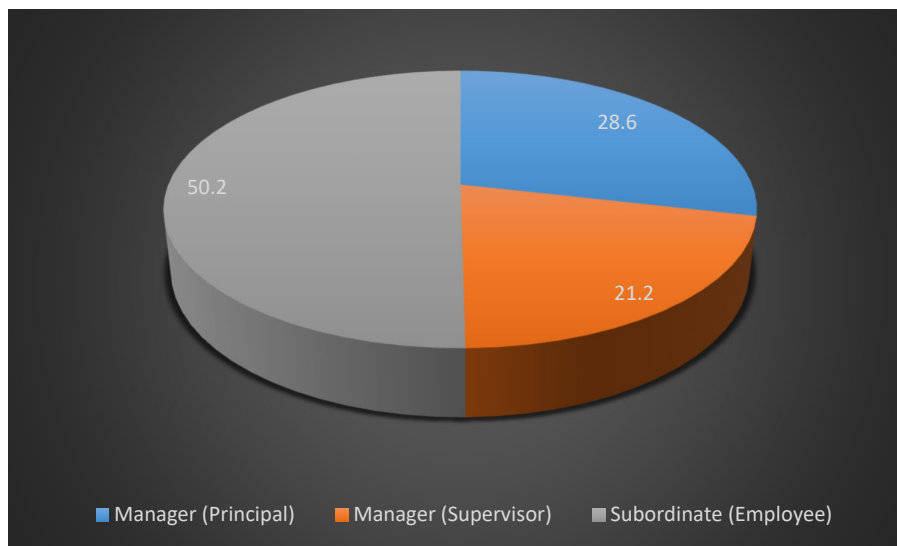
The descriptive statistics on the profile of the two groups, managers and subordinates, **Table 7**, suggest that the majority of the responders (61.80%) are women confirming other researchers finding and explained by the fact that working women (managers / supervisors / subordinates) are more willing to take part in a survey (Curtin, et al., 2000) (Singer, et al., 2000) and their intention to help to others is higher (Mestre, et al., 2009).

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	173	37.8	37.8	37.8
Female	283	61.8	61.8	99.6
Other	2	0.4	0.4	100.0
Total	458	100.0	100.0	

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 8. Gender

As far as the age of the responders, the majority of them, around 70%, are between 34 and 54, employed mainly in the private sector, with less than 10 % in the public sector, while 64% of the participants stated that they have been working for the same company or organization for more than six (6) years. Interesting to be mentioned that our sample is characterized by pluralism in the position held by the responders, see **Graph 2**, which very well serves the purpose of the thesis hypothesis to be examined, because we will have answers to our questions from a range of managers and subordinates.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 2. Position of the respondents in Company/Organization (%)

Having got a general picture of the sample’s profile we turn to presenting the profile of each of the two under consideration groups, i.e., managers and subordinates.

7.1 Research findings: managers

The number of sample responders holding managerial position are 228. Their Sociodemographic information, see **Table 9**, – gender, age, educational background,

years of experience in the same company, position, marital status, the sector of employment, the number of children, the net family income, the weight, and height – was extracted from items 1 to 12 of the final questionnaire.

The vast majority, 91.7%, of the sample managers work in the private sector with the gender been almost split between men managers 52.20% and women 46.9%. The majority of the managers belong to the age group of 35-44 and 45-54 (70.60%), with forty-four percent (44.30%) of them holding a degree in post-secondary education, while 68.40% been married and 73.20% parents.

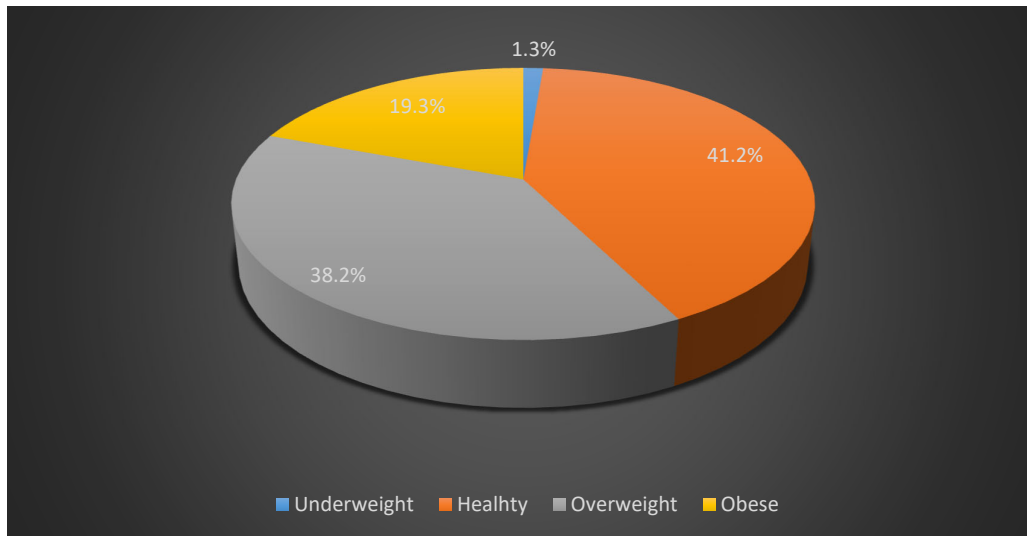
		Frequency	Percentage
Gender	Male	119	52.20%
	Female	107	46.90%
	Other	2	0.90%
Age	18-25	1	0.40%
	26-34	26	11.40%
	35-44	88	38.60%
	45-54	73	32.00%
	55-64	33	14.50%
	65+	7	3.10%
Marital Status	Married	156	68.40%
	Single	36	15.80%
	Cohabit	15	6.60%
	Divorced	18	7.90%
	Widower/Widow	3	1.30%
Number of Children	0	61	26.80%
	1	40	17.50%
	2	102	44.70%
	3	24	10.50%
	4+	1	0.40%
Years of Employment	<5	51	22.40%
	6-10	47	20.60%
	11-15	29	12.70%
	16-20	38	16.70%
	21-25	26	11.40%
	26-30	18	7.90%
	>30	19	8.30%

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 9. Managers' Sociodemographic

Bearing in mind the main aim of the at hands thesis, i.e. to investigate if the lifestyle may contribute to the new management approach, see **Figure 12**, affecting the job satisfaction of their direct subordinates, items 7 and 8 of the final questionnaires asked

the respondents to fill out their weight and height to collect information on the body mass index (BMI) of the managers because this could give a general picture of the nutrition and habits that one follows. The sample’s related outcome is summarised in **Graph 3**.

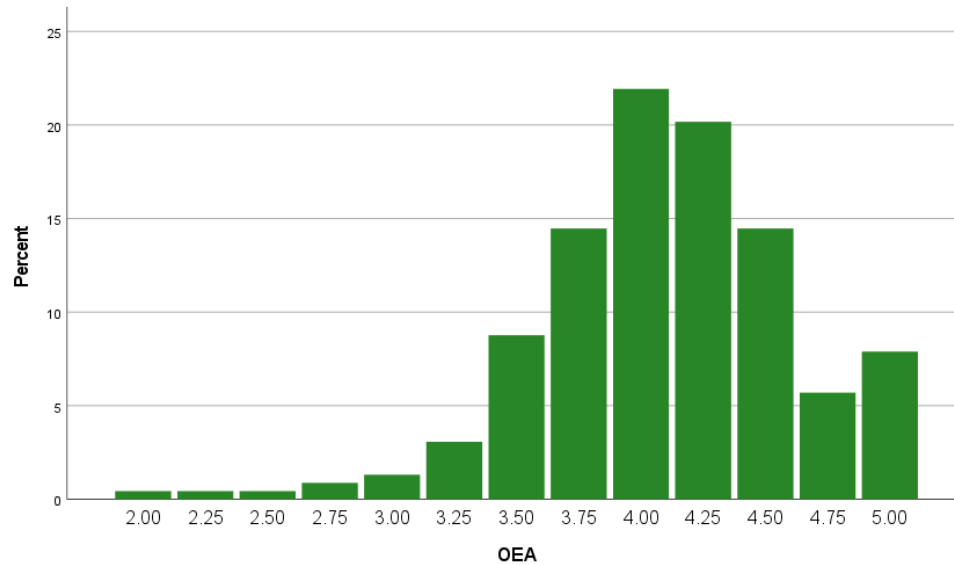


Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 3. Managers' BMI

The graphs below capture the responses of people who participated in the survey and held a management position in relation to the three (3) variables – empathy (OEA), self-regulation (SR), lifestyle (NHL) – that constitute the new management approach, the PBDM.

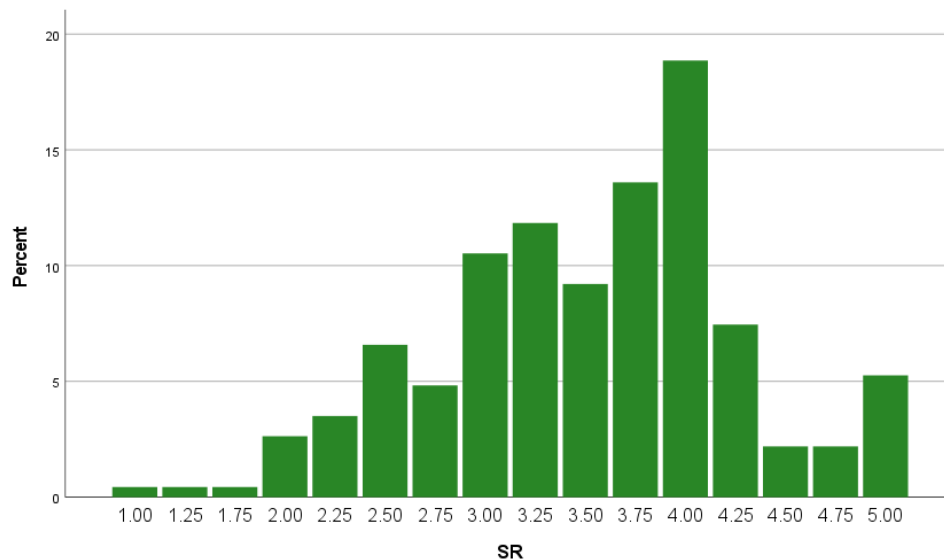
The skewness statistic of $SK(OEA) = -0.60$ indicates a tendency for a left-skewed distribution and the kurtosis statistic of $K(OEA) = 1.37 > +1$ suggests a concentration of observations on the peak (**leptokurtic**) – **Graph 4**. The analysis shows that most of **the participants managers self-evaluate that they possess the ability to understand and appraise the emotions of others.**



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 4. OEA - Managers report for their empathy

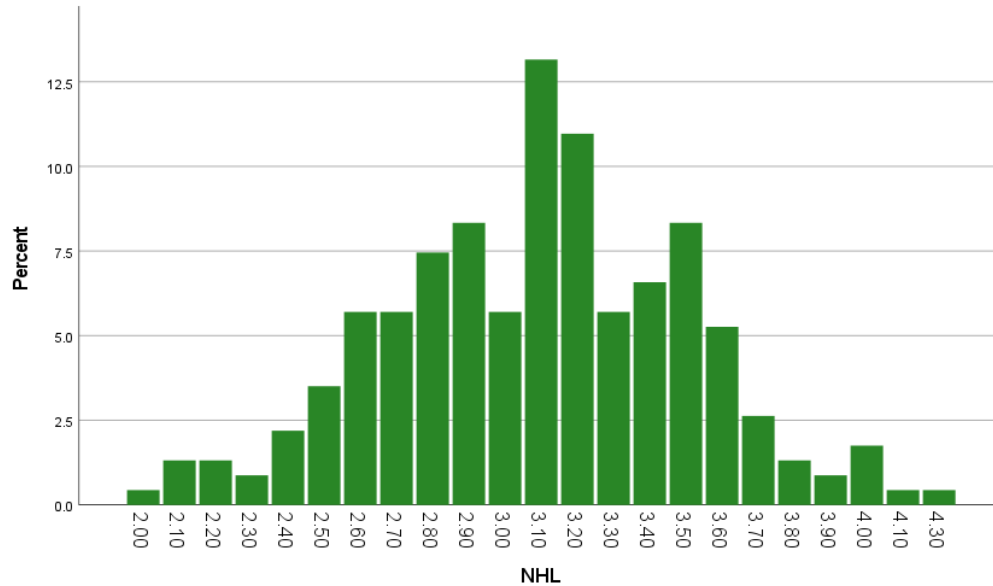
Turning to the Communication – Managers report for their capability of self-regulation (SR) variable, see **Graph 5**, the skewness statistic of $SK(SR) = -0.30$ indicates a tendency for a left-skewed distribution, while the kurtosis statistic of $K(SR) = 0.1 < +1$, shows, alike in the case of the variable OEA, a tendency of observations to concentrate on the peak (**leptokurtic**). The analysis of the SR variable suggests that most of the participants managers evaluate that they possess the ability to regulate their emotions.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 5. SR - Managers report on their capability of self-regulation.

In the case of the NHL variable, see **Graph 6**, bearing in mind the skewness statistic of $SK(NHL) = -0.04$ and the kurtosis statistic of $K(NHL) = -0.06 > -1$, where both resemble the distribution of the other two (2) exogenous variables, i.e. OEA and SR, becomes clear that most of the participants follow a healthy lifestyle that supports a medium emotional balance.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 6. NHL

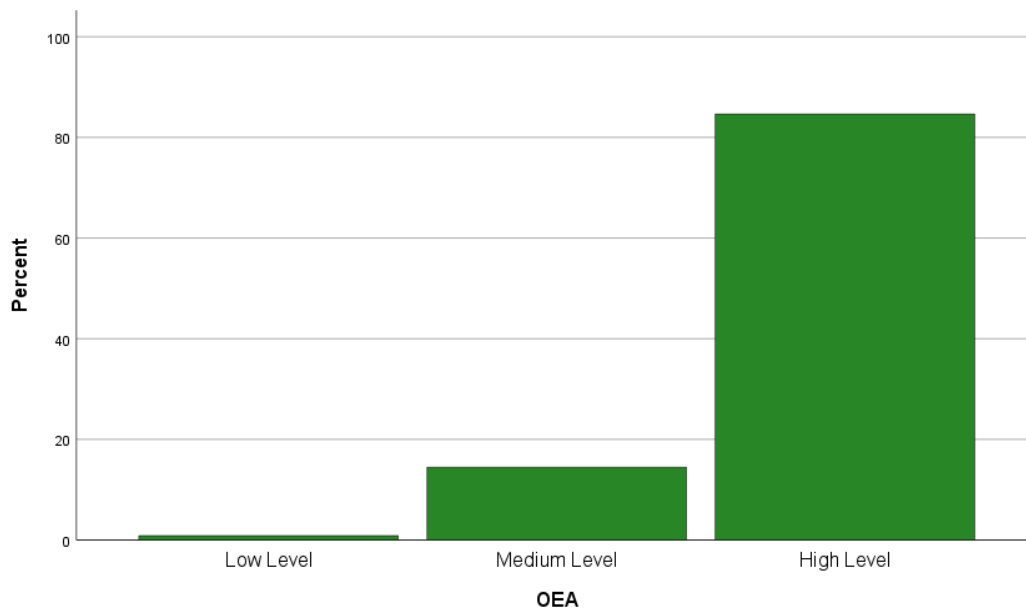
Overall, in all three variables/components, i.e., empathy (OEA), the ability to self-regulate emotion (SR), and lifestyle (NHL), of the PBDMm Index, the sample managers evaluate that they possess the ability to understand and evaluate the emotions of others and to regulate their emotions, while at the same time they appear to follow a healthy lifestyle. In other words, they appear to evaluate highly all three (3) exogenous variable/components of the **PBDMm index**.

Next, the managers' self-evaluation of empathy (OEA) and self-regulation (SR) were rated in three (3) classes based on the score: Low (1.00 to 2.33), Medium (2.34 to 3.67), and High (3.68 to 5.00) Level⁶ (see **Graph 7** & **Graph 8**).

It becomes obvious from **Graph 7** and **Graph 8** respectively that over 80% of the survey managers exhibit a high level of empathy and that more than 90% of the participants belong to the medium and high level of ability of self-regulation of the emotion. These sample finding together with the related discussion of our new management approach, which sets as a precondition managers' empathy and self-

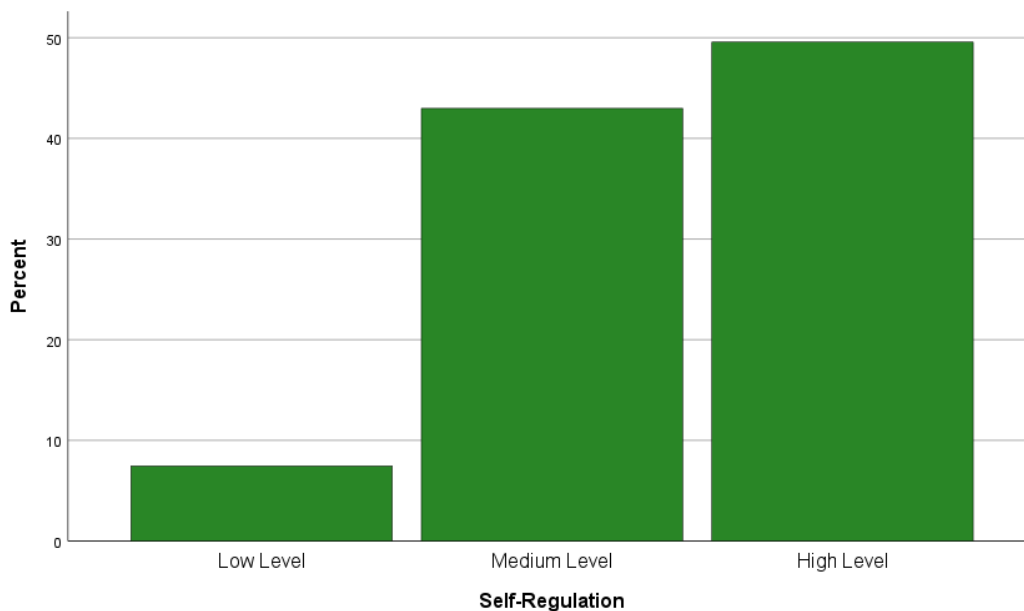
⁶ (Dawson, Jr., et al., 1992)

regulation of emotion to be high, the discussion and analysis of the third variable, lifestyle, follows, is a very encouraging finding to proceed with the further analysis of our sample qualitative and quantitative information.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 7. Managers' empathy



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 8. Managers' Self-Regulation

7.2 Research findings: subordinates

Participants, according to our sample, having a subordinate position are 377. Their sociodemographic information, see **Table 10**, – gender, age, marital status, number of children, years of employment – was extracted from items 1 to 12 of the final questionnaire. Most of the subordinates’ work in the private sector with a frequency of 322 and a percentage of 85.40%. Regarding the gender, women managers are 68.70% and men 30.80%.

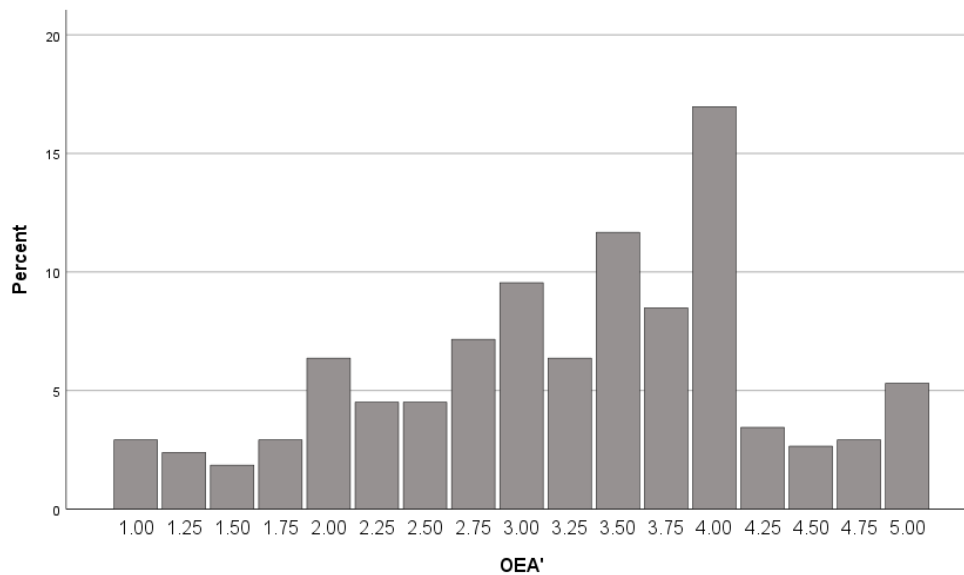
Most of the subordinates belong to the age group of 35-44 (44.30%). Forty-three per cent (43.80%) hold a degree in post-secondary education, with 53.60% been married and 43.50% parents.

		Frequency	Percentage
Gender	Male	116	30.80%
	Female	259	68.70 %
	Other	2	0.50%
Age	18-25	19	5.00%
	26-34	83	22.00%
	35-44	167	44.30%
	45-54	82	21.80%
	55-64	23	6.10%
	65+	3	0.80%
Marital Status	Married	192	50.90%
	Single	114	30.20%
	Cohabit	39	10.30%
	Divorced	29	7.70%
	Widower/Widow	3	0.80%
Number of Children	0	175	46.40%
	1	65	17.20%
	2	113	30.00%
	3	22	5.80%
	4+	2	0.50%
Years of Employment	<5	156	41.40%
	6-10	59	15.60%
	11-15	67	17.80%
	16-20	49	13.00%
	21-25	21	5.60%
	26-30	16	4.20%
	>30	9	2.40%

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 10. Subordinates' Sociodemographic

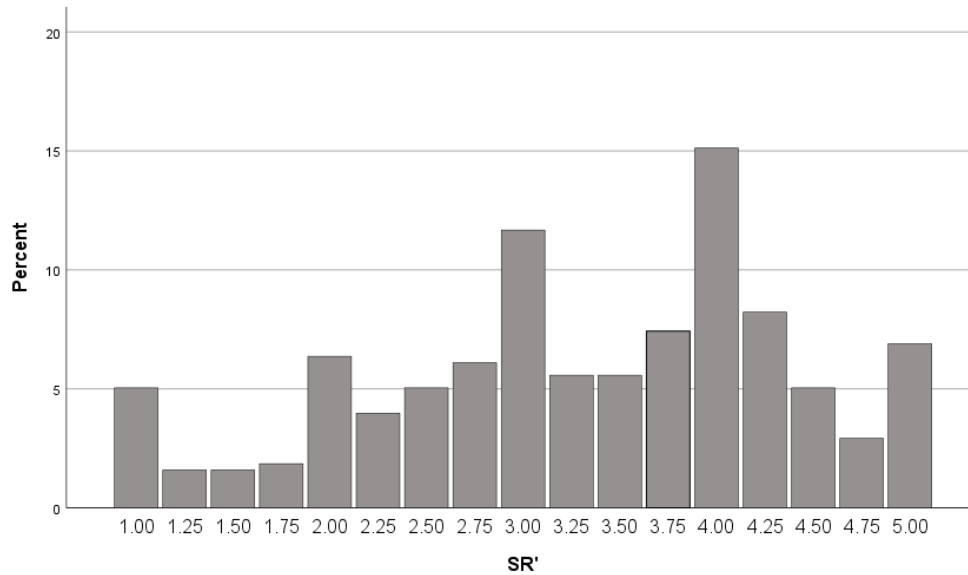
Examining the ability of managers' empathy from subordinates' perception (OEA'), the skewness statistic of $SK(OEA') = -0.361$ indicates a tendency for a left-skewed distribution and the kurtosis statistic of $K(OEA') = -0.459 > -1$ suggests a concentration of observations on the tails of the distribution (**platykurtic**). The analysis shows that most of **the samples subordinates appraise that their managers possess the ability to understand and appraise the emotions of others** (see **Graph 9**) which is in line with the finding of the OEA variable, i.e. the self-evaluation of managers about their empathy.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 9. Employees assess the managers' empathy

Regarding the Communication – self-regulation (SR') – of managers capability as appraised by their subordinates, see **Graph 10**, the skewness statistic of $SK(SR') = -0.424$ indicates a tendency for a left-skewed distribution, while the kurtosis statistic of $K(SR') = -0.572 > -1$ shows a tendency of observations to concentrate on the tails of the distribution (**platykurtic**). The analysis of the SR' suggests that the majority of our samples **subordinates appraise that their managers possess, in line with managers self-evaluation on the ability to regulate their emotions.**



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 10. Employees assess the capability of managers' self-regulation.

7.3 The new approach – PBDM indices

Following up from our under consideration main hypothesis , it is required the three (3) variables, (OEA) , (SR) and lifestyle (NHL) to be used to an equally weighted index, the **PBDMm index**, defined as the self-perception of our samples managers about each of the three components of the index, which a -priori is expected to determine the subordinates satisfaction defined by the sample subordinates, their common statistics are quoted in **Table 12**.

PBDMm	Descriptive Analysis	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
	OEA	228	2.00	5.00	4.094	0.518	0.268	-0.598	0.161	1.370	0.321
	SR	228	1.00	5.00	3.516	0.760	0.578	-0.298	0.161	0.098	0.321
	NHL	228	2.00	4.30	3.090	0.418	0.175	-0.038	0.161	-0.064	0.321

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 11. PBDM - Descriptive Statistics

Worth noticing that the minimum of the variable SR is half of the other two and the distinctive high mean of the variable OEA together within the large variance of the variable SR suggesting a wide range in the answers around the calculated mean value.

The fact that each of the three components of the PBDMm are weakly correlated, see **Table 12**, reflects the richness of our index encompassed information and variation in explaining the employees’ job satisfaction.

Correlations of managers self-perception of:				
		OEA	SR	NHL
OEA - Managers report for their empathy	Pearson Correlation	1	0.031	0.066
	Sig. (2-tailed)		0.641	0.318
	N	228	228	228
SR – Communication - Managers report for their capability of self-regulation	Pearson Correlation	0.031	1	.147*
	Sig. (2-tailed)	0.641		0.027
	N	228	228	228
NHL	Pearson Correlation	0.066	.147*	1
	Sig. (2-tailed)	0.318	0.027	
	N	228	228	228
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

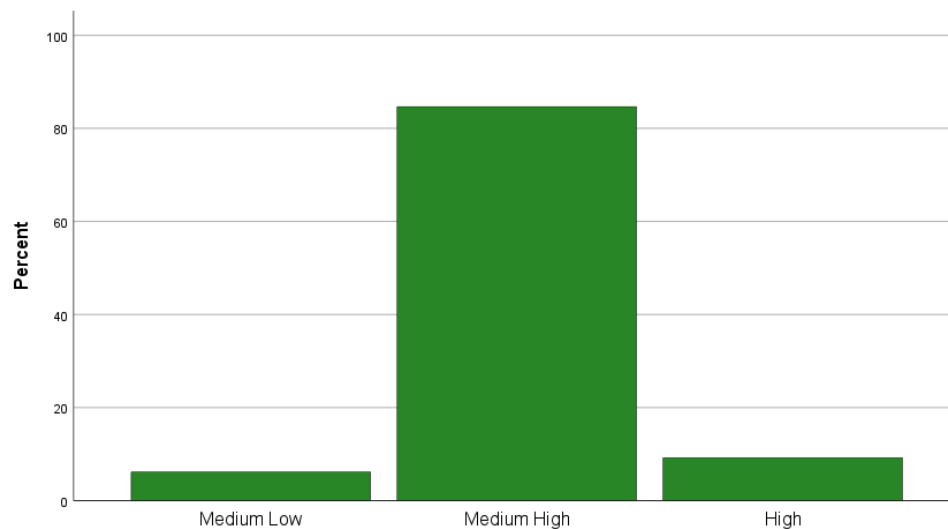
Table 12. Correlations - OEA, SR, NHL

To further enlighten the hidden info of the created PBDMm Index, its three components OEA, SR and NHL, deserve a little bit more of analysis, see **Table 13**. More specifically, the managers’ average empathy score (i.e., others’ emotions appraisal – OEA) is 4.094 with a standard deviation of 0.518. The ability of the managers to self-regulate their emotions, the average score is 3.516 with a standard deviation of 0.760. As far as the NHL score (i.e., indication of a healthy lifestyle), the average score is 3.090 with a standard deviation of 0.418. Therefore, the mean score of the managers’ empathy is considered to have a satisfactory level. Small differences can be focused on the mean scores for self-regulation and NHL.

In the frame of our study, we asked subordinates to appraise their managers’ empathy as well as self-regulation. As already mentioned, managers’ lifestyle was excluded as it was very difficult to be evaluated and measured by employees. In that respect, a new index is generated, the **PBDMs**, based on these two (2) variables: OEA’ and SR’. PBDMs is referred to the subordinate’s perception of the managers ability to PBDM and consequently to affect the subordinates job satisfaction. Further statistical analysis is presented in following paragraphs.

It would be very interesting a comparison between the indices **PBDMm** and **PBDMs**. However, the **PBDMm** index consists of three (3) variables. For this reason, we created a new index, the **PBDMm1**, in order for the correlations of the job satisfaction with both indices to be compared.

The PBDM index was categorized into four (4) classes/levels based on the score ranges suggested by (Aisyah Bt Ramli, et al., 2013) : Low (1.00 to 2.00), Medium Low (2.01 to 3.00), Medium High (3.01 to 4.00), and High (3.68 —to 5.00)⁷ Level of applicability. Each of the four classes corresponds directly to manager’s ability to apply the new management approach. The sample data show that more than 80% of the managers belong to medium-high levels, while the rest percentage is split into medium-low and high levels. The calculated **PBDMm index** as a whole and by classes is expected to, according to our main hypothesis, see (Graph 11), to influence the degree of employee satisfaction, see § 7.4.1 The tested hypotheses .



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 11. PBDMm Applicability Level

	Mean	Std. Deviation
Empathy	4.094	0.518
Self-regulation	3.516	0.760
NHL	3.090	0.418

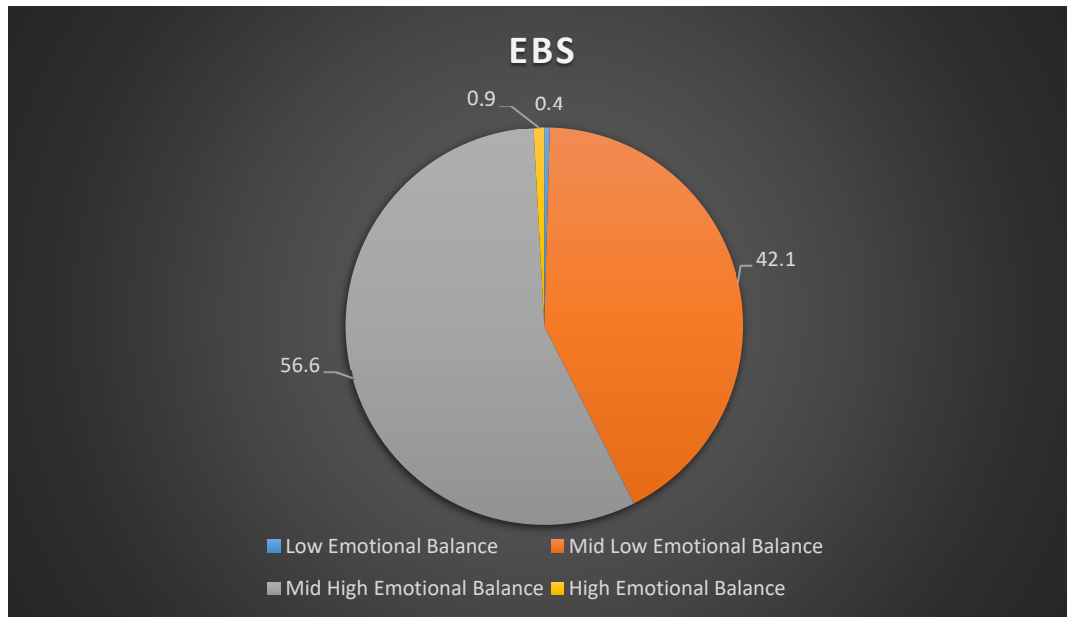
Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 13. Subscales mean scores of the participants who hold managerial position

⁷ (Dawson, Jr., et al., 1992)

NHL Scores and the Emotional Balance Status (EBS) of Managers

The third component of the PBDMm index is NHL (see Addendum § A3.2 **Emotional Balance Status (EBS) – Questionnaire Design** NHL was developed for measuring the degree of a healthy lifestyle that a manager follows. The score of NHL corresponds to a category of emotional balance status (EBS) – **Graph 12**. Focusing on this, the following graph shows the distribution of the emotional balance status of the managers who participated in the research:



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 12. Emotional Balance Status of Managers based on the NHL Scores

The majority of the managers belong to Mid-High (56.6%) and to Mid-Low Emotional Balance category (42.1%). Almost 1% (0.9%) belongs to High EBS and 0.4% to the lowest category.

Employees' evaluation of their managers PBDM

Bearing in mind the main hypothesis of the thesis, see **Figure 12**, the developed test was filled by the subordinates were asked to fill in an inverted questionnaire aiming to collect information about the supervisors/managers ability to regulate the emotions and empathy. In other words, the subordinates were asked to appraise their managers' empathy (OEA') and their ability to emotional self-regulation (SR')⁸. In this way, we can check if the answers given by the managers are reflected in the answers given by their

⁸ OEA': Employees assess the managers' empathy, SR': Employees assess the capability of managers' self-regulation.

subordinates. In other words, if the managers perception about the three components of PBDMm coincides or is close to the PBDMs Index which reflect the subordinate’s perception about, here the two components, OEA’ and SR’, (subordinates are not able to have knowledge on managers NHL) of their managers. To make the two perceptions, managers and subordinates, on the PBDM index comparable, we have to compare the PBDMm1, managers self-perception about OEA and SR and the PBDMs index, subordinates’ perception, subordinates’ perception about, OEA’ and SR’, their managers PBDM.

The main statistical characteristics of the two variables, based on subordinates’ information, empathy (OEA’) and their ability to emotional self-regulation (SR’) are quoted in **Table 14**.

Descriptive Analysis	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OEA'	377	1.00	5.00	3.245	0.995	0.990	-0.361	0.126	-0.459	0.251
SR'	377	1.00	5.00	3.306	1.069	1.144	-0.424	0.126	-0.572	0.251

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 14. Employees assess managers' OEA & SR - Descriptive Statistics

Worth noticing that both variables, OEA’ and SR’, have the same minimum and maximum scores and their mean values are very close (3.245 and 3.306 respectively). At the same time comparing those two means to the corresponding means of OEA and SR variables, which were calculated using the questionnaires filled by the managers, 4.094 and 3.515, we noticed that the managers evaluate their empathy much higher than their subordinates, while their self-regulation ability is somewhat lower.

The sample managers may indicate higher scores for their empathy and capability of self-regulation and exaggerate their answers due to their intention and willingness to be more empathetic and able to communicate with regulating their emotions. Although self-reported questionnaires are valid and reliable, they are correlated substantially with numerous personality dimensions (O'Connor Jr. & Little, 2003) (MacCann, et al., 2003). On the other hand, the subordinates may indicate lower scores because they evaluate their managers with a biased perspective (i.e., reward those who give less work and punish the managers who give more work). However, subordinates’ appraisal is essential, necessary, and beneficial as the management can use this for feedback and decisions (Bernardin, 1986). In any case, the difference in values indicates that either managers overestimate

their empathic behavior and ability to regulate their emotions, or subordinates underestimate these managerial abilities.

Employees' Job Satisfaction from subordinates' perspective

The Employees' Job Satisfaction index, (ESI) was estimated using the managers evaluation about their subordinates' job satisfaction, defined ESI_m, and second by taking into consideration the subordinates' self-evaluation of their job satisfaction, defined ESI_s.

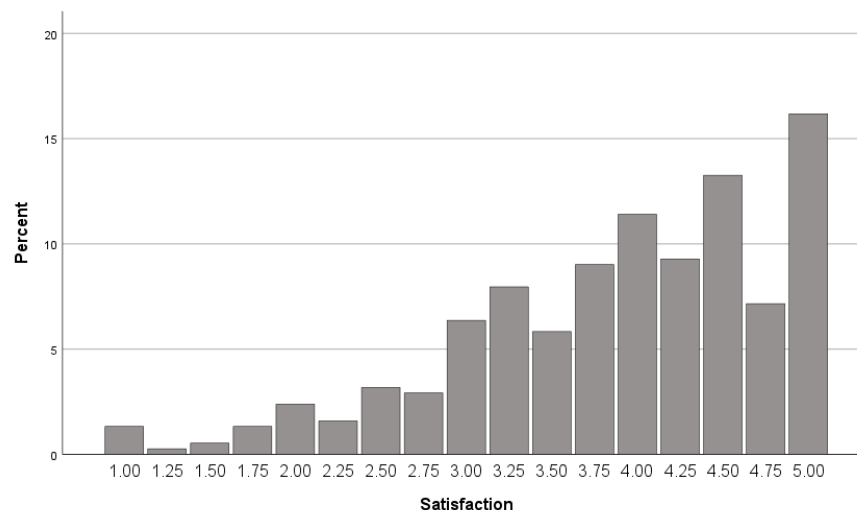
Paragraph **Research Field** defines the main hypothesis of the thesis research, where the job satisfaction of the subordinates is defined the dependent variable being determined by the management approach adopted by their supervisors. The relevant information was selected by the corresponding section of our questionnaire, where the subordinates are asked to define on a range their job satisfaction according to the applied management of their direct managers.

Descriptive Analysis	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ESIs	377	1.00	5.00	3.880	0.927	0.859	-0.853	0.126	0.251	0.251

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 15. Employees' Job Satisfaction due to their managers - Descriptive Statistics

The skewness statistic of $SK(ESIs) = -0.853$ indicates a tendency for a left-skewed distribution and the kurtosis statistic of $K(ESIs) = 0.251 < +1$ suggests a concentration of observations on the peak (**leptokurtic**), showing that that most of the participants are satisfied by the applied management by their direct supervisors (see Graph 13).

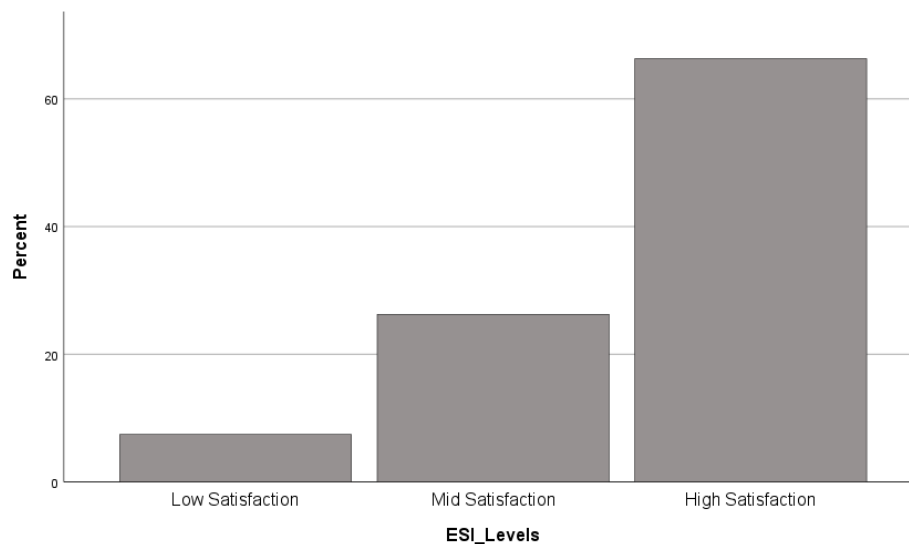


Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 13. Employees satisfaction due to their direct managers

The subordinates’ job satisfaction as indicated by the sample employees was tested whether it is correlated first with first the PBDMm (**Table 18**) index which reflects the self-evaluation of the managers on its three components, second with the PBDMm₁ index which reflects the self-evaluation of the managers, excluding the NHL component to be comparable the PBDMm₁ index to the PBDM_s index, which reflects the subordinates perception about their managers two abilities, i.e. OEA’ and SR’(Table 21) – as defined previously in paragraph. The results confirm the positive correlation between the ESI and the three PBDM indices (§7.4 **Testing the** .

The Employees Satisfaction Index, ESIs, was categorized into three (3) classes based on the score ranges suggested by (Aisyah Bt Ramli, et al., 2013): Low (1.00 – 2.33), Mid (2.34 – 3.67), and High (3.68 – 5.00) Level of satisfaction. Almost 65% of the subordinates, **Graph 14** **Graph 14. Levels of employees' satisfaction**, who participate in our sample declared high level of satisfaction, with the stating a very low satisfaction level.

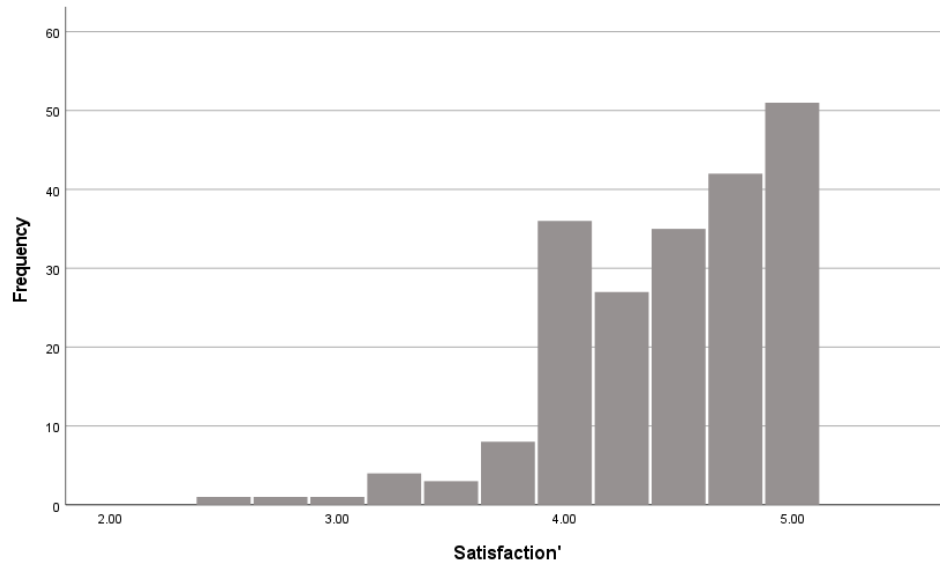


Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 14. Levels of employees' satisfaction

Employees’ Job Satisfaction from management perspective

The managers/ supervisors were asked to fill in an inverted questionnaire regarding their direct subordinates due to the applied management. That is, the managers should answer to the inverted statements of how they evaluate their employees’ job satisfaction (ESIm) because of the management, i.e., PBDMm. In this way, we will be able to check if the answers given by the subordinates much or are close or not to the answers given by their managers.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Graph 15. Employees satisfaction from managers perspective

Descriptive Analysis	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ESIm	209	2.50	5.00	4.462	0.484	0.235	-0.990	0.168	1.220	0.335

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 16. Employees' Job Satisfaction form managers perspective - Descriptive Statistics

The skewness statistic of $SK(ESIm) = -0.990$ indicates a tendency for a left-skewed distribution, while the kurtosis statistic of $K(ESIm) = 1.220 > +1$ shows a tendency of observations to concentrate on the peak (**leptokurtic**). In other words, becomes clear that most of **the managers participants appraise that their direct subordinates are satisfied due to the applied management by their direct management** (see **Graph 15**).

Based on the above, it seems that there is a difference between the ESIs and ESIm. It is noticed that these variables have different minimum and same maximum scores. It is very interesting that the minimum grade for satisfaction from the managers' perspective was double than one indicated by the employees. The mean values of ESIs and ESIm are 3.880 and 4.462 respectively. Hence, the managers evaluate their ability to keep their subordinates satisfied much higher than what subordinates indicate. In addition, these variables are uncorrelated ($r=0.065$, $p>0.05$) according to **Table 17**.

Our study will examine the PBDM indices in correlation with satisfaction as reported by both managers and subordinates (ESIm and ESIs), focusing on the ESIs because this is the real and experienced satisfaction that concerns our research. Pls analyze the finding.

		ESI	ESI'
ESI	Pearson Correlation	1	0.065
	Sig. (2-tailed)		0.447
	N	377	138
ESI'	Pearson Correlation	0.065	1
	Sig. (2-tailed)	0.447	
	N	138	209

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 17. Correlation between ESIs and ESIm

7.4 Testing the hypotheses of the PBDM approach

The main hypothesis – as well as the sub-hypotheses – of this research have been tested to investigate the correlation and the statistical significance of the variables.

7.4.1 The tested hypotheses

The hypotheses that are going to be tested are (see paragraph **Research Field**):

Main Hypothesis (H0): The PBDMm approach has a positive impact on the Employees' Job Satisfaction (ESIs).

For Empathy:

Hypothesis A (HA): Managers' Empathy has a positive impact on the Employees' Job Satisfaction.

For Social Skills:

Hypothesis B (HB): Managers who Regulate their Emotions have a positive impact on the Employees' Job Satisfaction.

Hypothesis C (HC): Managers' Lifestyle and Habits have a positive impact on the Employees' Job Satisfaction.

In frame of this research, it has been investigated the following sub-hypotheses:

Hypothesis D (HD): Managers' ability to regulate their emotions has a positive impact on their nutrition, habits, and lifestyle.

Hypothesis E (HE): Managers' empathy has a positive impact on their nutrition, habits, and lifestyle.

Next was examined whether a degree of statistically correlation existed between the employees’ satisfaction due to the management and the total score of PsychoBioDynamic Management - PBDMm (see **Table 18**). The Pearson correlation findings confirm statistically that there is a strong positive relationship, ($r=0.173$) at 95% level of significance, between the variables ESIs and PBDM, which is in line with our a-priori **main hypothesis** (H0), i.e., that *the PsychoBioDynamic Management (PBDMm) approach has a positive impact on the employees’ job satisfaction (ESIs)*.

		PBDMm	ESIs	ESIm
PBDMm	Pearson Correlation	1	0.173*	0.433**
	Sig. (2-tailed)		0.037	0.000
	N	228	147	209
ESIs	Pearson Correlation	0.173*	1	0.065
	Sig. (2-tailed)	0.037		0.447
	N	147	377	138
ESIm	Pearson Correlation	0.433**	0.065	1
	Sig. (2-tailed)	0.000	0.447	
	N	209	138	209
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Lountzis G., (2023), *The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study*, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 18. Correlation between ESIs, ESIm and PBDMm

The effect of the emotional intelligence domains related to the employees’ job satisfaction has been examined and resulted in a positive association between them (Sy, et al., 2006). The new management approach consists of two (2) basic dimensions of emotional intelligence: empathy, and self-regulation (Goleman, 1998) (Mayer, et al., 2000). The third element of the PBDMm is the managers’ lifestyle. The way someone lives (e.g., habits, nutrition) may affect the emotional status balance (see §6.6). In that frame, the acceptance of the main hypothesis (H0) corresponds to what is reported in the literature (Carmeli, 2003) (Yue, et al., 2022) (Belias, et al., 2014) (Nadinloyi, et al., 2013) (Negoro & Wibowo, 2021).

In addition, it was performed the Kruskal-Wallis H (K-W H) test for investigating the correlation between the employees’ satisfaction and levels of PBDMm applicability. The K-W H test was performed because it is a rank-based nonparametric test. Using this

test, it is determined whether there are statistically significant differences between two or more groups of an independent variable on a continuous ordinal dependent variable. All the assumptions are tested/verified prior to the application of the K-W H test. All the observations are independent. The dependent variable (ESIs – Employees’ Satisfaction) has been measured at an ordinal/continuous level. The independent variable (PBDM Applicability level) consists of four (4) diverse groups (Low, Medium Low, Medium High, and High). Based on the above, the K-W H test can be performed.

Ranks			
	PBDMm Applicability Level	N	Mean Rank
Employees' Satisfaciton - ESIs	Medium Low	7	48.79
	Medium High	126	72.63
	High	14	98.93
	Total	147	

Test Statistics^{a,b}

	Employees Satisfaction
Kruskal-Wallis H	7.490
df	2
Asymp. Sig.	0.024
a. Kruskal Wallis Test	

b. Grouping Variable: PBDMm Applicability Level

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 19. Kruskal-Wallis H test results

A Kruskal-Wallis H test showed that there was a statistically significant difference in employees’ satisfaction between the different PBDM applicability levels, $\chi^2(2) = 7.490$, $p = 0.024$, with a mean rank pain score of 48.79 for the Medium Low level, 72.63 for Medium High level and 98.93 for the High level. Therefore, the degree to which one applies the new management approach (PBDMm) has a differential and statistically significant effect on employees' job satisfaction.

In addition, we examined whether a degree of statistical correlation existed between the employees’ satisfaction and components of the PBDMm: OEA, SR, and NHL. The managers’ empathy and employees’ satisfaction ($r=0.079$) are positively correlated – although it is near to zero. However, the correlation is not statistically significant ($p=0.340>0.05$) which means that the **hypothesis** that *mmanagers’ Empathy has a positive impact on the Employees’ Job Satisfaction (HA)* is not statistically confirmed (**Table 20**). The significant effect of empathetic management on subordinates’ job satisfaction does not correspond to what resulted in the present research (Negoro &

Wibowo, 2021). According to recent research, the managers’ ability of empathy shows a positive – statistically significant – impact on the employees’ satisfaction (Lountzis & Palaskas, 2022).

	ESI	OEA	SR	NHL
ESIs	1			
OEA	0.079	1		
SR	0.143	0.031	1	
NHL	0.084	0.066	0.147*	1
*. Correlation is significant at the 0.05 level (2-tailed).				

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 20. Pearson's correlation matrix of ESIs, OEA, SR, and NHL

The managers’ ability to regulate their emotions and employees’ satisfaction ($r=0.143$) are positively correlated, but it is not statistically significant ($p=0.084 > 0.05$), and hence, the **hypothesis** that *managers who Regulate their Emotions have a positive impact on the Employees’ Job Satisfaction (HB)* is not statistically confirmed. This result is controversial compared to similar studies that examine the same correlation (Côté & Morgan, 2002). The use of adequate mechanisms of emotion regulation has a positive effect on employees’ well-being (i.e., satisfaction) (Côté & Morgan, 2002) (Marqueze & Moreno, 2005) (Kammeyer-Mueller, et al., 2013) (Schlett & Ziegler, 2014). This study, although it confirms the positive association of managers’ self-regulation ability with the employees’ job satisfaction, it does not present that it is statistically significant.

The last element of the new management approach, managers’ lifestyle, nutrition, and habits, and employees’ satisfaction ($r=0.084$) are positively correlated, but it is not statistically significant ($p=0.311 > 0.05$). Therefore, **the hypothesis** that *managers’ Lifestyle and Habits have a positive impact on the Employees’ Job Satisfaction (HC)* is **rejected**. Although there are numerous studies regarding the relationship between leadership style, managerial behavior, and employees satisfaction (Dobbins & Zaccaro, 2016) (Kushell & Newton, 1986) (Schriesheim & Murphy, 1976) (Decker, 1987) (Osborn & Vicars, 2017), the lifestyle (nutrition, habits) of managers in correlation with the subordinates’ job satisfaction has not examined in the literature, and hence, there are no any findings that could be compared to.

The managers’ empathy, ability to regulate their emotions, and lifestyle are positively correlated (**Table 20**). However, only the NHL and SR ($r=0.147$) present a statistically significant correlation ($p=0.027 < 0.05$). In that respect, the hypothesis (HD)

that the ability of the managers' self-regulation has a positive impact on their nutrition, habits, and lifestyle, is **accepted**. This result corresponds to the recent research that supports a greater number of healthy habits was associated with higher self-regulation (Lopez-Gil, et al., 2020) (Teixeira, et al., 2015) (Barak, et al., 2021). The ability of self-regulation seems to be the basis of someone to maintain a healthy lifestyle (Baker, et al., 2019). In any case, this dimension of emotional intelligence might be the key component of better and healthier dietary habits and lifestyles (Cameron & Chan, 2008) (Snichotta, et al., 2005) (Pfeffer, et al., 2022) (Anderson, et al., 2007).

Regarding the **hypothesis** that *managers' empathy has a positive impact on their nutrition, habits, and lifestyle* (HE), which is **rejected** ($p=0.318>0.05$), there is not any specific research that could confirm (or not) whether the ability of someone to appraise and understand others' emotions might be a factor that affects the general lifestyle. However, there are studies that examine the ability of empathy and empathic approaches related to how someone may increase her/ his performance (Goodchild, et al., 2005) (Gentry, et al., 2016) (Anaza, et al., 2018) or affect her/ his dietary decisions (Watson, et al., 2019).

At this point, it is essential we investigate and examine the different dynamics and correlations that the PBDM indices may have with job satisfaction. Based on the above, the new approach is based on three independent variables: empathy (OEA), self-regulation (SR), and lifestyle (NHL). The sample subordinates were asked to assess their managers for their empathy (OEA') and self-regulation (SR'). Hence, we will examine the relationship and impact of the different PBDM indices with the subordinates' job satisfaction from both managers and subordinates' perspective.

7.5 The Regression analysis

Our testing of the main hypothesis is extended using regression analysis. To this extend, see §7.3 **The new approach – PBDM ind**, the following PBDM indices were calculated using our sample information.

- PBDMm1 which consists of the variables of empathy (OEA) and self-regulation (SR) reported by the managers themselves.
- PBDMs which consists of empathy (OEA') and self-regulation (SR') assessed by the subordinates.

Before proceeding to the regression analysis, the correlations of each of the three indices – PBDMm, PBDMm1, PBDMs – with employees' job satisfaction (ESI) indices

were examined. The correlations confirm the strong statistically relationship between the PBDMm1 and PBDMs with job satisfaction (see **Table 21**). In addition, the results show that the different PBDM indices are correlated. The stronger correlation is noticed between PBDMs and subordinates job satisfaction ($r=0.779$, $p<0.01$) from subordinates’ perspective. On the other hand, the PBDMm1 is correlated with subordinates’ satisfaction from managers’ perception and uncorrelated with the job satisfaction as reported by subordinates. Hence, the appraisal of managers’ empathy and self-regulation by subordinates provides a very strong and positive association between these variables (ESIs – PBDMs).

		PBDMm1	PBDMs	ESIs	ESIm
PBDMm1	Pearson Correlation	1	0.218**	0.163*	0.427**
	Sig. (2-tailed)		0.008	0.048	0.000
	N	228	147	147	209
PBDMs	Pearson Correlation	0.218**	1	0.779**	0.006
	Sig. (2-tailed)	0.008		0.000	0.945
	N	147	377	377	138
ESIs	Pearson Correlation	0.163*	0.779**	1	0.065
	Sig. (2-tailed)	0.048	0.000		0.447
	N	147	377	377	138
ESIm	Pearson Correlation	0.427**	0.006	0.065	1
	Sig. (2-tailed)	0.000	0.945	0.447	
	N	209	138	138	209
** . Correlation is significant at the 0.01 level (2-tailed).					
* . Correlation is significant at the 0.05 level (2-tailed).					

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 21. Correlations between PBDMs, PBDMm1 indices and ESI indices

The strong positive correlation between the PBDMs and ESIs confirms the basic principles on which our PsychoManagement approach is based. It is very important for employees and their managers to be able to empathize with and understand the position of their subordinates. In addition, it is essential the managers understand deeply how their subordinates may experience the applied management that they have chosen to implement. That is, to be able to understand whether the selected management approach can create the conditions for the employee to be satisfied.

Following the above, we examine which of the curves can interpret better the dependent variables ESIm and ESIs for each of the independent variables (PBDMm,

PBDMm1, PBDMs, OEA, SR, NHL, OEA', SR'). Therefore, after testing the best curve fitting, linear regression for each independent variable has been selected (**Table 22**).

Dependent variable	Independent variable	Curve	Sign.	Rsquare	F
ESIm	PBDMm	Linear	<0.001	0.187	41.741
	PBDMm1	Linear	<0.001	0.182	46.155
	PBDMs	N/A	>0.005		
	OEA	Linear	<0.001	0.165	40.946
	SR	Linear	<0.001	0.061	13.560
	NHL	Linear	0.025	0.024	5.070
	OEA'	N/A	>0.005		
	SR'	N/A	>0.005		
ESIs	PBDMm	Linear	0.037	0.030	4.452
	PBDMm1	Linear	0.048	0.027	3.962
	PBDMs	Linear	<0.001	0.607	578.677
	OEA	N/A	>0.005		
	SR	N/A	>0.005		
	NHL	N/A	>0.005		
	OEA'	Linear	<0.001	0.527	418.474
	SR'	Linear	<0.001	0.488	357.064

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 22. Curve estimation for each independent variable

7.5.1 Does PBDM affect subordinates’ job satisfaction using managers’ evaluation/perception?

To examine the set question the relationships between the ESI_m and PBDM indices and its relevant components through (Multi-) Linear regression (**Table 22**).

Dependent Variable	Independent Variable		Coefficient	t-statistic	Sign.	Rsquare	F (p-Value)
ESI _m	PBDM _m , PBDM _s	constant	2.540	6.176	<0.001	0.157	12.553 (<0.001)
		PBDM	2.540	5.010	<0.001		
		PBDM _s	-0.025	-0.607	>0.005		
	OEA, SR, NHL, OEA', SR'	constant	2.130	4.630	<0.001	0.201	6.656 (<0.001)
		OEA	0.359	4.754	<0.001		
		SR	0.115	2.120	0.036		
		NHL	0.159	1.622	>0.005		
		OEA'	0.000	0.005	>0.005		
		SR'	-0.018	-0.357	>0.005		
	OEA, SR, NHL	constant	2.036	6.037	<0.001	0.231	20.486 (<0.001)
		OEA	0.372	6.388	<0.001		
		SR	0.144	3.576	<0.001		
		NHL	0.125	1.736	0.084		
	PBDM _{m1} , PBDM _s	constant	2.966	8.624	<0.001	0.147	11.617 (<0.001)
		PBDM ₁	0.425	4.820	<0.001		
		PBDM _s	-0.036	-0.857	>0.005		
	OEA, SR, OEA', SR'	constant	2.567	6.834	<0.001	0.185	7.596 (<0.001)
		OEA	0.365	4.811	<0.001		
		SR	0.133	2.488	>0.005		
		OEA'	-0.007	-0.127	>0.005		
		SR'	-0.019	-0.382	>0.005		
	OEA, SR,	constant	2.376	8.613	<0.001	0.219	28.939 (<0.001)
		OEA	0.377	6.454	<0.001		
		SR	0.152	3.782	<0.001		
	OEA', SR'	constant	4.445	27.824	<0.001	0.005	0.344 (0.710)

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 23. Multi-Linear regressions for ESI_m with PBDM and its components

The estimated regression results of

$$ESI_{mi} = a + bPBDM_{mi} + cPBDM_{si} + u_i \quad (Eq1)$$

$$ESI_{mi} = \alpha + \beta PBDM_{m1i} + \gamma PBDM_{si} + u_i \quad (Eq2)$$

Where the manager and subordinate *i* and *u_i* the error term confirms the a-priori expectation that managers evaluation about their PBDM management effect on their subordinates’ satisfaction, will be positive. However, the regression analysis shows that

the managers’ self-evaluation about their PBDM management approach is not acknowledged by the subordinates’ evaluation (PBDMs). Overall, keeping all variables constant, the results show that the managers believe that their PBDMm management approach has a positive effect on their subordinates’ job satisfaction, while this is not supported by the subordinates’ evaluation.

At this point we took the initiative, given the established statistically results, to check which if all of the components of PBDMm (OEA, SR, NHL) and PBDMs (OEA’, SR’), may affect the subordinates’ job satisfaction as it is evaluated by the managers, ESI_m. Again, the regression analysis shows that the managers’ self-evaluation of empathy and self-regulation (OEA, SR) are statistically significant and have a positive effect on ESI_m, while it is rejected when the effect of empathy and self-regulation assessed by the subordinates (OEA’, SR’). Interesting to notice that managers’ lifestyle (NHL) is not statistically significant. In that respect, the nutrition and habits of managers seem not to have any significant statistical impact on job satisfaction from managers’ perspectives.

The statistical findings confirm that there is a managers’ misperception in evaluating both their PBDM adopted approach and its effect on their subordinates’ satisfaction. Managers have a wrong perception of how their employees experience their management approach. This seems to be a vicious circle because managers are not able to realize their abilities in terms of empathy and self-regulation, which are the basis of the new management approach, and so, they do proceed to select their approach based on this wrong perception.

7.5.2 Does PBDM affect subordinates job satisfaction according to subordinates’ perception?

The obvious question to be raised at this point following the above regression findings are the following. If instead of using the ESI_m to be the endogenous variable, we use the ESI_s, i.e., the subordinates’ evaluation of their job satisfaction, should PBDMm and/or PBDMs (and their components) affect statistically the ESI_s?

In this case Eq1 and Eq2 are re-specified accordingly:

$$ESI_{si} = a + bPBDM_{mi} + cPBDM_{si} + u_i \quad (Eq1a)$$

$$ESI_{si} = \alpha + \beta PBDM_{m1i} + \gamma PBDM_{si} + u_i \quad (Eq2a)$$

The regression analysis results are quoted in (Multi-) Linear regression (Table 24).

Dependent Variable	Independent Variable		Coefficient	t-statistic	Sign.	Rsquare	F (p-Value)
ESIs	PBDMm, PBDMs	constant	1.420	2.887	0.004	0.542	85.315 (<0.001)
		PBDM	0.117	0.861	>0.005		
		PBDMs	0.643	12.699	<0.001		
	OEA, SR, NHL, OEA', SR'	constant	1.070	1.955	>0.005	0.563	36.304 (<0.001)
		OEA	-0.007	-0.072	>0.005		
		SR	-0.039	-0.603	>0.005		
		NHL	0.270	2.243	0.026		
		OEA'	0.425	6.281	<0.001		
		SR'	0.247	4.040	<0.001		
		OEA, SR, NHL,	constant	2.584	3.282		
	OEA		0.121	0.911	>0.005		
	SR		0.150	1.615	>0.005		
	NHL		0.122	0.687	>0.005		
	PBDMm1, PBDMs	constant	1.797	4.394	<0.001	0.540	84.513 (<0.001)
		PBDM1	0.006	0.053	>0.005		
		PBDMs	0.65	12.677	<0.001		
	OEA, SR, OEA', SR'	constant	1.78	3.935	<0.001	0.547	42.904 (<0.001)
		OEA	0.012	0.130	>0.005		
		SR	-0.014	-0.221	>0.005		
		OEA'	0.418	6.092	<0.001		
		SR'	0.244	3.931	<0.001		
	OEA, SR,	constant	2.896	4.515	<0.001	0.027	1.987 (0.141)
		OEA	0.128	0.972	>0.005		
		SR	0.160	1.745	>0.005		
	OEA', SR'	constant	1.362	12.545	<0.001	0.609	291.226 (<0.001)
		OEA'	0.437	10.768	<0.001		
		SR'	0.333	8.833	<0.001		

Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Table 24. Multi-Linear regressions for ESIs with PBDM and its components

The regression results a of Eq1a and Eq2a, show that employees' job satisfaction from subordinates' perspective is not statistically determined by with the PBDMm and PBDMm1 at the 1% level of significance, while it is statistically determined by their evaluation of their managers adopted PBDMs, i.e., the new management approach from subordinates' perspective. PBDMs has a positive relationship with job satisfaction, more specifically, keeping all variables constant for each additional unit of PBDMs, the job satisfaction is increased by 0. 861.

Regarding the components of PBDMm (OEA, SR, NHL) and PBDMs (OEA', SR'), the coefficients of empathy and self-regulation as assessed by the subordinates (OEA', SR') are statistically significant while the coefficients of empathy and self-regulation as reported by the managers themselves (OEA, SR) are not statistically significant. The same goes for the managers' lifestyle (NHL) which is not statistically significant with a low coefficient value.

The statistical findings confirm the results of paragraph 7.5.1. Job satisfaction as perceived by subordinates, which is experienced job satisfaction, seems not to be interpreted by the new management approach as perceived by managers which is not the case for the same approach when it is considered from the perspective of subordinates. In fact, what is perceived is that there is a misconception on the part of managers about job satisfaction as it is perceived by the subordinates themselves. Based on the survey data and further statistical analysis, it appears that subordinates expect managers to have empathy and self-regulation of emotion. On the other hand, managers believe that they possess these abilities – in high scores – influencing job satisfaction successfully.

The overall statistical results suggest that there is a lack of communication between the managers and subordinates. The difference between their perception in terms of job satisfaction and abilities of empathy and self-regulation (PsychoManagement) supports the need for better communication. The absence of communication between upper and low management and how this could be improved is not something new (Hicks, 2022). Communication channels should be open from and to all directions for establishing an effective communication process (Muscalu, et al., 2013).

Chapter 8 – Discussion / Implementation / Limitations / Further Research

8. Discussion

The core aim of this research is the proposal, having exhausted the persisted bibliography, of a new management approach and administration of businesses and organizations using 180-degree questionnaires distributed to managers and subordinates of Greek companies. The fieldwork information was statistically tested to examine whether the a-priori set hypotheses held or rejected.

It is well known that businesses and companies are made up of the workforce, that is, people. The managerial approach that someone applies within the work environment can affect the job satisfaction of a business, company, or organization’s workforce. To this extent, management could be considered an extremely important factor in determining the level of subordinates’ job satisfaction, which in turn may, *ceteris paribus*, affect impact the efficiency and performance of employees and consequently the competitiveness of the firm.

The existing management models and theories seem to focus rather on methods and ways to increase either production or business profits than explicitly on human factor management. Considering the historical evolution of management and how it has been shaped in the last 100 years or so, a related gap to the issue has not been covered adequately by recent studies. The identified gap in the literature review turned into the core aim-question to be answered in this thesis, i.e., “if a new management approach of businesses and organizations could have a positive effect on employees’ job satisfaction”. The development of a new management approach, which will focus on the human being as well as the modern way of life, given the challenging environment for managers and companies, raised the need for the design and application of a new psychometric tool, been already tested for its validity and reliability.

To meet the requirements of our ambitious aim, extensive research was carried out in the published literature and articles to be familiar with the existing theories and models of administration and human resource management. The main goal was to find out whether a gap exists in terms of the modern need in businesses and whether the implementation of a new management approach, is based on the PsychoManagement principles and emotional intelligence. During the research emerged the interesting causation between job satisfaction and the management style of supervisors as well as the a-priori relationship between the abilities of understanding the emotions of others

(empathy) and the regulation of emotion with the satisfaction of subordinates. It triggered our interest in examining that causation taking into consideration the PsychoManagement principles and emotional intelligence, which in turn became the core hypothesis under consideration of the at hands thesis.

At his point the question arose, based on the literature regarding the role of biodynamics, i.e., the biochemical composition of the brain and how this can influence the way managers decision-making and if it can have an impact on their emotional balance. It led us to a step further in the literature review search, more medicine oriented, to understand, how the levels of hormones can affect the brain's functionality and therefore one's emotional state. The step-by-step learning curve on the issue and always with reference to our main set question led us to the decision to proceed with the development of a new psychometric tool which can classify someone on the one hand whether he follows a healthy lifestyle and on the other hand if he has a balanced emotional status.

The next step was to test statistically the set hypothesis using fieldwork information which in turn required the development and application of a fieldwork-appropriate methodology to obtain reliable results. The questionnaires used were in the Greek language and an attempt was made for the final questionnaire to have a direction of 180 degrees. That is, the questionnaires that were given to be completed by the managers were asked also to be completed by the subordinates. The same approach followed for the questionnaires that had to be addressed by the employees; the questionnaires that were given to be completed by the subordinates were asked also to be completed by the managers.

The final questionnaire consists of 46 questions and consists of sub-scales of the questionnaire on emotional intelligence as well as NHL (Nutrition-Habits-Lifestyle), the new tool that measures the emotional balance status. More specifically, the questionnaire of this thesis aims to measure 1. the manager's ability to appraise the emotions of others from both his/ her own side and from the side of subordinates, 2. the ability to self-regulate emotion and from both his/ her own side and from the side of subordinates, and 3. the managers' ability to maintain an emotional balance status based on their lifestyle they follow. The method of sampling and forwarding the questionnaires to the random sample of Greek companies and organizations in each employment sector and the geographical region was carried out via Google Forms and social media means (Facebook, Instagram).

The contact details from the annual financial guide of ICAP 2021 were utilized by e-mails. The total providing sample was 458 respondents.

Following the completion of the primary research, the data collection, coding, and – qualitative and quantitative – analysis followed. The a-priori core hypothesis was tested via descriptive and inferential statistical analysis, together with econometric regression analysis. Descriptive statistics suggest that most of the responders (61.80%) are women confirming other researchers finding and explained by the fact that working women (managers / supervisors / subordinates) are more willing to take part in a survey. The analysis shows that most of the participants managers self-evaluate that they possess the ability to understand and appraise the emotions of others while the SR variable suggests that most of the sample managers believe that they possess the ability to regulate their emotions. As far as managers’ empathy and self-regulation (OEA, SR – as reported by the managers themselves), becomes clear that most of the managers state that they follow a healthy lifestyle that supports a medium emotional balance. Overall, in all three variables/components, i.e., empathy (OEA), the ability to self-regulate emotion (SR), and lifestyle (NHL), of the PBDM Index, the sample managers state that they possess the ability to understand and evaluate the emotions of others and to regulate their emotions, while at the same time they appear to follow a healthy lifestyle. In other words, they state that they acknowledge and evaluate highly the importance of all three exogenous variables/components of the PBDMm index.

The three variables, (OEA), (SR) and lifestyle (NHL), been self-evaluated by the samples managers, were used to an equally weighted index, the PBDMm index, which a -priori is expected to determine the subordinates’ satisfaction been evaluated by the sample managers. The fact that each of the three components of the PBDMm components are weakly correlated reflects the richness of our index encompassed information and variation.

At the same time, we analyzed how subordinates evaluate their managers' empathy and self-regulation, which were equally weighted used to estimate the PBDMs Index, where “s” stands for subordinates’ perception of their managers PBDM. The comparison of the two indices indicated a deviation of the two indices with managers to overstate, according to their subordinates’ evaluation, their managerial PBDM abilities. To make the two indices more comparable, a new index PBDMm1, was calculated by excluding the variable NHL from the index PBDMm. Their comparison confirmed the finding of the analysis PBDMm and PBDMs.

Turning to the analysis of each of the two indices, PBDMm1 and PBDMs, components, it is noticed that the subordinates, though at a lower mean compared to that of the managers self-evaluation, state that on average their managers possess the ability to understand and appraise the emotions of others.

Turning to the Employees' Job Satisfaction index, (ESI), the ESI_m variable reflects the managers' evaluation about their subordinates' job satisfaction, i.e., how the managers perceive, given their evaluation of the applied PBDM_m managerial approach., as it has been developed in at hands thesis. On the other hand, the ESI_s variable measures the evaluation of subordinates about their job satisfaction derived from the managers PBDM managerial approach, either been evaluated by managers (PBDM_m) or been defined in terms of subordinates' evaluation, defined PBDMs. The samples subordinates' job satisfaction, both ESI_m and ESI_s, was tested, according to our hypothesis, statistically whether it is correlated first with the PBDM_m index and the PBDMm1 index, where the NHL component was excluded to be comparable the PBDMm1 index to the PBDMs index. The results statistically confirm the positive correlation between the ESI and the three PBDM indices.

More specifically, Job satisfaction as perceived by subordinates (ESI_s), seems not to be interpreted by the new management approach, PBDM_m as it is perceived by managers, while it is determined by the variable PBDMs, i.e., the managerial approach as it would be expected by the subordinates to be applied. Based on the survey data and further statistical analysis, it appears that subordinates could offer to the improvement of the PBDM managerial approach, with a range of beneficial effects to the subordinates and the company as a whole, by the managers if the latter had created an environment where communication had been between the two parts was encouraged and an emotionally team spirit established.

To further examine the hypothesis and the primary statistical findings of the correlation analysis, a multivariate linear regressions approach was undertaken. The statistical findings do confirm the correlation finding showing again that there is a managers' misperception in evaluating both their PBDM adopted approach and its effect on their subordinates' satisfaction. Managers have a wrong perception of how their employees experience their management approach. In that respect, the managers are placed into a vicious circle because they cannot realize their abilities in terms of empathy and self-regulation, which are the basis of the new management approach, and so, they select to proceed with a management approach that is based on a wrong perception.

Overall, the analysis shows that the proposed PBDM managerial approach is well acknowledged and welcomed by both sides, the managers and the subordinates, for its contribution to the creation of a modern, in terms of the team’s emotional intelligence, effective and efficient job environment. At the same time, the analysis undoubtedly, which we find it very encouraging and positive for the proposed managerial approach, shows that its contribution to the companies can have a more positive effect if the communication between the managers and subordinates was encouraged for their feedback learning curve. It may suggest that both sides could be asked in our questionnaires to evaluate the communication scale.

The PsychoBioDynamic Management approach includes all features, such as understanding, awareness of reality, interaction, and effective communication, that could contribute to a working environment where employees will be satisfied. Empathy and efficient communication – through the ability to self-regulate emotions – are the components of management that could establish a sincere relationship between the manager and subordinate. A healthy lifestyle of managers could be an important factor in improving the employees’ satisfaction as this way of life provides the managers with all the required conditions for maintaining a high emotional balance status.

The field of our research activity was not limited only to the part of the above research question. As mentioned above, for the needs of this study, a new psychometric tool was created which would help measure and quantify the lifestyle of managers. Within this framework, we also proceeded with a further investigation of whether the manager's nutrition, habits, and general lifestyle can influence the decision-making process. The relevant findings and results are recorded at the end of this PhD thesis as an addendum because it was not a main part of this research.

8.1 Managerial Implications

The importance of studying a new approach to the administration and management of human resources in businesses and organizations lies in the argument that in today's economic context, these businesses rely heavily on a healthy and motivated workforce to perform and be sustainable. The same concept applies to job satisfaction, as it is a good predictor of companies' success, having a positive effect on the productivity and performance of human resources. This study provided both theoretical and practical contributions. At a theoretical level, given the current gap in the literature on why existing models and theories are inadequate, this research provided new insights into the literature

on human resource management in companies and organizations by concluding that a new approach to organizational management and business can be implemented and affect workforce satisfaction. On a practical level, this study can help business managers better understand the importance of improving and upgrading the existing management models that are followed by encompassing an empathetic attitude, having an emotionally regulated management system, and following a healthier lifestyle.

8.2 Restrictions – Limitations

During the research – from the design development to the data collection stage – there were various limitations. Our intention was to eliminate them. Even though we handled most of them, some still existed. Particularly, the limitations that the author of this thesis had to deal with, were:

- i. The willingness of Greek managers and employees to participate in the research; most of them were restrained and had concerns about the questionnaire.
- ii. The subordinates’ concerns about privacy and confidentiality. Hence, the results may be influenced by their concerns.
- iii. The self-report method measurement tools were used for the analysis of the examined parameters, without the presence of the researcher.

8.3 Proposal for further research

Businesses and modern companies operate in a dynamically changing context and environment. The evolution of technology, historical events, and developments in both the social and economic sectors created the need for the search and investigation of a new approach to management. In recent decades the quest by businesses to staff their companies with people who satisfy technocratic requirements now seems obsolete. And this is because technical training is in excess these days. Therefore, the need for development, improvement, and cultivation of soft skills, which are also a factor for the more efficient performance of human resources and consequently the increase in the profitability of businesses, is the trend that modern HR has focused on. PsychoManagement is based on the dimensions of emotional intelligence (Lountzis & Palaskas, 2022) (Palaskas, et al., 2019). A more humanistic way of management and managing businesses and organizations is the starting point for the development of new management theories and models in the field of economics and administration.

Going a step further, the lifestyle of the people who manage teams and make decisions for businesses and organizations, and therefore also of the people who make up the potential, becomes the object of study and thorough research on how and how much it can influence both the existing employees as well as the overall performance of the business. As mentioned in the literature review, the classical rational theory is insufficient and the reason is that, on the one hand, man cannot have collected all and absolute information, on the other hand, the human brain is designed to perform automated processes. In this way, the biochemical composition of the brain at the time a decision is made plays a decisive role in the manner, style, and quality of the decision to be made. As discussed above, diet, daily habits, and the general way of life can affect a person's hormone levels, thus also their emotional state, since they have a direct effect. Adopting a healthy lifestyle can create the right conditions for a high emotional balance.

The extremely fast pace of modern life creates stressful conditions and as a result, the emotional state is vulnerable daily. The implementation of a plan regarding healthy eating habits could help prevent the creation of these conditions that would secrete hormones with a negative effect on the emotional human state (e.g., cortisol). This doctoral thesis was based on the principles of PsychoManagement and with an interdisciplinary eye tried to take this new model of business management and administration one step further. By integrating the parameter of a healthy lifestyle in combination with the dimensions of empathy and the ability to self-regulate emotion, a model is created that can have a positive effect on the job satisfaction of existing employees.

This research highlighted the different perceptions that managers and subordinates have both in the way the management approach is applied and in the level of job satisfaction. The statistical analysis shows the need to improve communication between upper and lower management. On the occasion of this finding, space is opened for further research that can investigate and examine whether the previous experiences of managers, as well as employees, could reduce the difference between different perceptions. Also, it would be of particular interest to examine whether one's previous experiences are related to different perceptions - both at the management level and at the job satisfaction level - but also how much communication between managers and subordinates can be improved.

This study used a sample from Greek businesses and organizations. The sample was random and concerned the entire Greek territory. It would be of particular interest if the research could focus on specific geographical areas as the locality of habits in both

diet and exercise could be a factor that influences and affects the overall job satisfaction of employees, through the lifestyle variable. Also, a unique feature that concerns specific geographical areas is the type of food consumed, e.g., Cretan cuisine. Even more interesting would be a study at a European and global level as it is known how many different cuisines and habits exist around the world (e.g., Chinese, Indian, French, etc.).

At this point, it should be mentioned that in the frame of this research, there was an attempt to apply this management approach to the Arts. We had started to investigate how this new management approach could affect the effectiveness of theater production as well as how the implementation of this new management model could affect the team members (actors). The manager (director and/or producer) would apply for the PBDM and we would be able to collect data from different productions. The COVID restrictions did not allow us to proceed with this study, and hence, we had to stop any action.

Additional room for research exists in the field of the decision-making process by managers in relation to the lifestyle they follow. The field of research is quite large, and it would be of particular interest if we could measure the level of hormones in real-time and therefore the level of emotional balance at the time of decision-making. This means there is a need for a clinical study.

In summary, the proposed new management approach is the basis and pillar for further research in the general field of management. Businesses and organizations are made up of people. Human behavior and corresponding actions are outcomes of a multiparametric model. The incoming stimuli that can affect these parameters are many and most of the time unpredictable. So, if we can apply skills like empathy and self-regulation of emotion while maintaining a healthy lifestyle then we could at least ensure that we will have the employees satisfied.

8.4 Conclusion

In conclusion, the evaluation and interpretation of the findings and results of the empirical research highlight the importance of managers possessing the two basic dimensions of emotional intelligence, empathy, and the ability to self-regulate emotion. Then a healthy lifestyle – which can lead to an emotional balance – is the third factor of the new management approach. More specifically, it was observed that managers and supervisors who are qualified to implement the PBDM have a positive effect on the job satisfaction of subordinates.

Having asked subordinates to fill in a questionnaire that will respond to the abilities of their managers' empathy and emotion regulation, the further processing of these data showed an important difference between the managers' and subordinates' perceptions regarding applied management and job satisfaction. From the totality of the findings and results of the specific doctoral thesis, it appears that the combination of these three components that make up the new management approach has a positive effect on employee satisfaction. This leads to the conclusion that PsychoManagement is an important starting point for the development of new theories in the field of management which will have as their ultimate goal not only the satisfaction of the existing ones but also the profitability of the company. In addition, the overall statistical findings confirm the lack of communication from top to bottom. The differences between the indices, PBDMm and PBDMs – ESI_m and ESI_s, support that there is a misconception of how the managers realize their subordinates' job satisfaction that the real one.

Addendum - Managers’ decision-making

A1 Management of the decision-making process and its dimensions

Decisions are part of humans’ daily life. Choices made by people are influenced by a group of factors: past experiences, a variety of cognitive biases, individual differences, and personal beliefs (Dietrich, 2010). The Decision-making process is a complex procedure that consists of different steps (Lunenborg, 2010) (Milkman, et al., 2009). This process is connected to brain functionality (Basten, et al., 2010). Researchers attempt to elucidate decision-making networks in the primate brain (Rorie & Newsome, 2005). Hence, decision-making is a process that is executed by the brain and is affected by different factors (i.e., hormones which are a basic role in the brain’s functions). These factors influence the biochemical substances of the human brain which are responsible for people’s decisions because the emotions – that are affected by hormonal secretions – and their process may modulate the impact of the influence on the decision-making process (Martino, et al., 2006).

The decision-making process is not something new. This process applies to everyone and everywhere. Companies and Organizations follow the steps that the decision-making process encompasses to find alternatives or/and solutions. This process includes seven (7) steps: 1. Identification of the problem/ issue, 2. Situation Analysis, 3. Possible Course of Actions, 4. Decision Criteria, 5. Course of Actions Selection, 6. Implementation, 7. Check and Evaluation of the Actions (Lunenborg, 2010) (Saaty, 2008).

Research findings (Derntl, et al., 2014) shows that there is a hormonal influence in decision-making process. Hormones may affect the human behaviour as well as the choices they make (Carney & Mason, 2010). The emotional status that someone experiences could affect the final decisions of someone (Blakemore & Robbins, 2012) (de Vesser, et al., 2010). Recent neurophysiological studies state that the decision-making process follows a specific neurobiological mechanism. This mechanism includes “*a multicomponent valuation stage, implemented in ventromedial prefrontal cortex and associated parts of striatum, and a choice stage, implemented in lateral prefrontal and parietal areas*” (Kable & Glimcher, 2009) (Blakemore & Robbins, 2012). Based on that, the concentration and synthesis of the biochemical substances of the brain at the moment someone takes a decision seems to play a decisive role. Any decision taken is influenced by some factors. Some of them are due to exogenous environment and some others due to endogenous personal status. Motivating and influencing parameters can be external

or/internal (Blaskova, et al., 2015) (Laube & van den Bos, 2016). The environment factors (exogenous) such sounds, colors etc. are able to influence the decision process (Henderson & Nutt, 1980) (Bera, 2016). In addition, the personal traits of the decision maker (endogenous) can affect the final decision. The speed of thinking and data processing is another factor that can influence the process (Gréhaigne, et al., 2001). The over-analyzing or the fast taken procedures might cause issues during the decision-making process (Gladwell, 2006). Another dimension is the capability of adapt (Tremblay, et al., 2017). It depends on the decision maker personality and how he/she manages the dynamic environment and the relevant changes (Reyna & Farley, 2006). In addition, the biases and preferences of the person who receives the decisions are crucial for the process. Any opinion based on non-objective evidence can affect the decision-making process. In cases that a business is to take a sophisticated decision, the experts (e.g., consultants, scientists) are influencing the final decisions (Newell & Shanks, 2014) (Brehmer & Hagafors, 181-195).

From the above, the decision-making process seems not to be a simple procedure. This process consists in many parts and encompasses different and intercorrelated components (Lee, 2008) (Carney & Mason, 2010). The decisions can be influenced by both exogenous and endogenous factors. The decision maker's emotional status is one of the crucial components that affects the process (Coricelli, et al., 2007) (de Vesser, et al., 2010). The hormones secretion influences the humans brain functionality, and in turn, the emotional status.

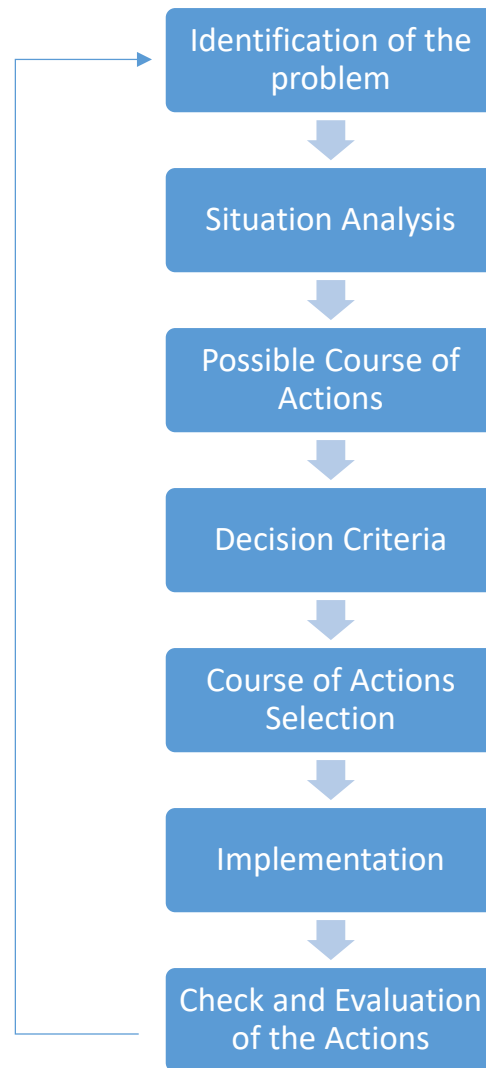


Figure A1. Decision-Making Process (*Lunenburger, 2010*)

A2 Research methodology

This addendum is dealing with the findings of a Primary research carried out through questionnaire.

Further to the literature review and based on the scope of this article, the quantitative data analysis has been selected. Thus, collecting data from a suitable sample of Managers (Principals, Supervisors) and Employees, through questionnaire developed, it has been collected data for investigating the main hypothesis. In addition, the quantitative approach allows the study of the correlations between several variables, such as the degree of correlation between the responses of Managers and Employees, their Lifestyle, and Decision-Making.

A2.1 Formulation of the Main Hypothesis

The literature review has led to the need of finding the answer whether the decisions are influenced by the nutrition, habits, and general lifestyle of the Managers and Employees. The decision-making process is a complicated procedure that encompasses a variety of factors. Unconscious (Newell & Shanks, 2014) and the total balance of humans' hormones can affect the decisions received. (Wegner, et al., 2015) The lifestyle and the daily habits are enough to influence the emotional humans status (Kafatos, et al., 1999) (Krawczynski & Olszewski, 2000) (Ζέρβα & Ζερδία, 2009). On the other hand, the rational theory of decision-making is obsolete (Kahneman, 2012) (Bear, et al., 2007) (Camerer, et al., 2005). Studies have shown that the people are influenced by their emotional status (Porath & Pearson, 2012) (Lovaglia & Houser, 1996), and hence, their brain chemical consistency changes which influences their decisions accordingly. In that context, the main hypothesis of this study which has been formulated is to investigate whether the Managers' decisions are influenced by their Nutrition, Habits, and Lifestyle. Hence, the following question arises:

Could the Managers' Nutrition, Habits, and Lifestyle (NHL) affect the Decision-Making Process (DMP)?

In that frame, the research is dealing with the Greek businesses. Greek Managers and Employees have answered to the questionnaire developed for the scope of this research.

A3 Statistical analysis and findings

A3.1 Sample Description

The collected information was coded and statistically analyzed.

The questionnaires distributed to the Greek companies from the 20th of May 2021 until the 02nd of July 2021. The number of responses collected was 242 (two hundred and forty-two): 128 (a hundred twenty-eight) are Managers (Principals/Supervisors) and 114 (a hundred fourteen) Employees.

The majority of the respondents (74.79%) work in Private Sector and have a manager position (52.89%). In addition, the 68.60% of the participants have experience in a management position and the 43.39% of the sample has completed a post-graduate program. The 60.33% are marriage and the 63.22% are parents (>1 child). Table A1 presents a description of the sample.

The research uses sample from Greek companies/organizations of various sectors and sizes. Particularly, it was asked Managers/Supervisors and their direct Subordinates/Employees to fill out a questionnaire with sincerity and spontaneity.

Gender		Marital Status		Employment Sector	
Male	42.56%	Marriage	60.33%	Private	74.79%
Female	57.44%	Single	21.49%	Public	20.25%
Age		Cohabit	9.09%	Private & Public	4.96%
18-25	1.65%	Divorced	8.26%	Position	
26-34	17.36%	Widower/ Widow	0.83%	Principal (Manager)	30.58%
35-44	43.80%	Number of Children		Supervisor (Manager)	22.31%
45-54	27.69%	0	36.78%	Employee	47.11%
55-64	8.26%	1	23.14%	Management Experience	
65+	1.24%	2	34.30%	0	31.40%
Education		3	5.37%	<3yrs	12.81%
		4+	0.41%	3-6yrs	12.40%
Primary	0.41%	Family Monthly Net Income (EUR)		6-9yrs	5.37%
High Sch.	6.61%	<1000	14.05%	9-12yrs	8.26%
IEK	3.31%	1001-2000	40.08%	12-15yrs	9.09%
TEI	10.74%	2001-3000	19.01%	15-18yrs	4.96%
AEI	29.75%	>3000	26.86%	18-21yrs	5.79%
MSc/MD	43.39%	Employment		21-24yrs	2.07%
PhD	5.37%	Employee	82.23%	24-27yrs	3.72%
Other	0.41%	Freelancer	17.77%	>27yrs	3.72%

Table A1. Sample

A3.2 Emotional Balance Status (EBS) – Questionnaire Design

As stated previously, a new instrument was needed for classifying the participants level of emotional balance using the following characteristics:

- Nutrition
- Habits
- Lifestyle

Overall questionnaire consists of five (5) parts and includes sixty-nine (69) statements and questions. In the first part (A – 10 statements), the respondent is called to fill out demographic information like gender, age, marital status, etc. The second part (B – 20 statements) is related to the business/workplace’s frame, the third part (C – 5 statements) refers to the colleagues/teams’ habits, the fourth part (D – 10 statements) includes statements about nutrition and habits, and the fifth part (E – 25 statements) is related to the internal impact. More particularly, for part D, each statement describes a habit (dietary, or exercise). A detailed analysis about each statement follows in the next paragraphs.

The questionnaire is in the Greek language because the sample of the research are managers and employees from the Greek Business Market.

The answers for Part D and E are indicated on a 5-Likert scale. Grade 1 indicates “Never” and grade 5 indicates “Very Frequently”. The questions 2, 3, 4, 5, 6, and 9 have inverse formulation (hence, inversed score calculation).

The Part A asks for demographics information such the gender, age, educational background, marital status, net monthly family income, children, weight, and height⁹. This part is able to describe the general profile of the respondents. The Part B includes questions/statements related to the business that the respondent is working for: Type and sector of employment, years of experience, positions they have (managers or employees), and statements for benefits provided regarding the business trips, the time of

⁹ This information can assist with the calculation of BMI (Body Mass Index) that provides the status of obesity. The calculation formula is $BMI = \text{Weight (kg)} / \text{Height (m)}^2$

BMI Categories: Underweight = <18.5, Normal weight = 18.5–24.9, Overweight = 25–29.9, Obesity = BMI of 30 or greater

commuting¹⁰, and the possible special management of people who needs special care¹¹ (e.g., pregnant, diabetics, disabled personnel). The Part C is related to the respondent’s workplace environment and his/ her colleagues. They are asked if the environment has influenced him/ her regarding the nutrition and dietary habits¹². The Part D provides a score for the Nutrition, Habits, and Lifestyle of the respondent in terms of the emotional status/ balance. Includes statements for the nutrition as the consumption of homemade food, sugar products, caffeine, and refreshments, processed tomatoes products, non-whole grain foods and fried cooked meals, trans-fat (fast-food), tuna, yolks, seafood, and red meat. As far as the habits, the statements are for the time spent for arts (theatre, music, writing/ reading), and the time they give for contact with the people they love. Regarding the lifestyle, questions for nicotine and work out are included. At this point, it would be very useful to be mentioned that depending on the overall score that a respondent achieves, he/she belongs to one of the categories of emotional balance status (Low, Mid, High). Part E focused on the lifestyle changes that someone has absorbed, and which degree has affected the decisions in terms of data analysis, speed, and risk. The decisions are categorized in three diverse types: personal life decisions, related to work, and the assets management. The questionnaire closes with statements regarding the emotion’s regulation.

The instrument developed to examine statistically the relationship between lifestyle and the decision-making process, which, decisions according to literature review (par. A.1) the decisions are not received based on the classical rational theory, but they depend on factors as the emotional status. The emotions – and behavior – are influenced by the hormones and the relevant chemical synthesis of the decision-maker brain. The basic concept of the questionnaire is to investigate the relationship between nutrition, habits and lifestyle with the decisions are taken by the managers and/or employees. The

¹⁰ “The mood is lower during the commute than other daily activities and stress can be induced by congestion, crowding and unpredictability. People who walk or cycle to work are generally more satisfied with their commute than those who travel by car and especially those who use public transport. Satisfaction decreases with duration of commute.” (Chatterjee, et al., 2020) (Lorenz, 2018) “The longer commute times are associated with lower job and leisure time satisfaction, increased strain and poorer mental health.” (Clark, et al., 2020)

¹¹ Employers who have in their business employees with diabetes or similar diseases must consider each person's capacities and needs on an individual basis (American Diabetes Associations, 2011) (Strasser, et al., 2008)

¹² “Facilitators and barriers may also moderate the relationship between intentions and behavior. An employee who intended to eat a healthy lunch brought from home may experience a barrier when friends ask them to come out for pizza; an employee who intends to exercise may be facilitated by having an hour lunch break and exercise/ shower facilities at the office.” (Mazzola, et al., 2017)

instrument was reviewed by ten (10) people with different educational and experience background. The final version (rev.07) of the instrument was released for a pilot testing. On the 20th of May 2021, the questionnaire officially distributed to the Greek businesses.

The instrument’s reliability has been checked through Cronbach’s Alpha. The coefficient alpha is the most common for assessing the reliability of questionnaires. In this context, the Cronbach alpha is selected to assess the validity of the Nutrition, Habits and Lifestyle, and Decision-Making questionnaire. Acceptable reliability limit for coefficient α is > 0.8 (Whati, et al., 2005). However, values between 0.6 – 0.7 consider acceptable and values over 0.9 provides an excellent reliability (Ursachi, et al., 2015).

The questionnaire is in the Greek language as the sampling of the research would be managers and employees from the Greek Business Market.

The answers will be indicated on a 5-Likert scale. Grade 1 indicates “ΚΑΘΟΛΟΥ” (none) and grade 5 indicates “ΚΑΘΗΜΕΡΙΝΑ” (daily).

PART A - Demographics

The part A is asking for the following:

- Φύλο (gender)
- Ηλικία (age)
- Επίπεδο Εκπαίδευσης (education)
- Οικογενειακή Κατάσταση (marital status)
- Αριθμός Τέκνων (children)
- Μηνιαίο Καθαρό Οικογενειακό Εισόδημα (net family monthly income)
- Βάρος / Ύψος * (weight/height)

*This info can assist with the calculation of BMI (Body Mass Index) that provides the status of obesity. The calculation is quite simple:

$$\text{BMI} = \text{Weight (kg)} / \text{Height (m)}^2$$

BMI Categories:

Underweight = <18.5

Normal weight = $18.5\text{--}24.9$

Overweight = $25\text{--}29.9$

Obesity = BMI of 30 or greater

PART B – Business Frame

- Είδος απασχόλησης (Μισθωτός ή Ελεύθερος Επαγγελματίας)
Employment (Employee or Freelancer)
- Τομέας απασχόλησης (Ιδιωτικό ή Δημόσιο)

Sector of employment (Private or Public)

- Έτη απασχόλησης στην ίδια επιχείρηση/φορέα/εργοδότη

Years of employment under the same company/employer

- Θέση στην επιχείρηση/φορέα (Προϊστάμενος, Διευθυντής, Υπάλληλος)

Position in the company (Supervisor, Principal, Subordinate) H

επιχείρηση/φορέας που απασχολούμαι με αποζημιώνει ικανοποιητικά στην εκτός έδρας εργασία (1: Διαφωνώ απόλυτα, 5: Συμφωνώ απόλυτα)

The company I am employed by compensates satisfactorily for off-site work (1: Strongly disagree, 5: Strongly agree)

- Συνολικός χρόνος μετάβασης και επιστροφής από τον τόπο που διαμένω και τον εργασιακό μου χώρο (commuting).

Total travel time to and from my place of residence and my place of work

- ο Μετακινούμαι με (1: Καθόλου, 5: Πάντα):

I move with (1: Never, 5: Always):

- ☐ Αμάξι (car)
- ☐ Ποδήλατο/Πατίνι (bicycle/skateboard)
- ☐ Περπατώντας (walking)
- ☐ ΜΜΜ (public transportation)
- ☐ Άλλο (other)

- Η επιχείρηση/φορέας που εργάζομαι ανταποκρίνεται στις ανάγκες των ανθρώπων που έχουν κάποιο ιδιαίτερο νόσημα ή χρήζουν ιδιαίτερης φροντίδας (1: Διαφωνώ απόλυτα, 5: Συμφωνώ απόλυτα)

The company/organization I work for meets the needs of people who have a particular illness or need particular care (1: Strongly disagree, 5: Strongly agree)

- ☐ Διαβητικούς (diabetics)
- ☐ Εγκυμονούσες (pregnant)
- ☐ Θηλάζουσες (lactating women)
- ☐ Άλλο (other)

PART C – Colleagues/Team’s Environment

- Οι συνάδελφοί μου έχουν διαφορετικές διατροφικές συνήθειες από εμένα (1: Διαφωνώ απόλυτα, 5: Συμφωνώ απόλυτα)

My colleagues have different eating habits than me (1: Strongly disagree, 5: Strongly agree)

- Πόσο συχνά οι συνάδελφοί με επηρεάζουν στο να επιλέγω τι θα φάω (1: Ποτέ, 5: Καθημερινά)

How often do colleagues influence me in choosing what to eat (1: Never, 5: Daily)

PART D – Nutrition and Habits

This part encompasses the following statements {1: Καθόλου (none), 5: Καθημερινά (daily)}:

1. Πόσο συχνά καταναλώνω μαγειρεμένο φαγητό από το σπίτι εβδομαδιαίως.
How often do I eat home cooked food per week
2. Πόσο συχνά καταναλώνω προϊόντα που περιέχουν ζάχαρη εβδομαδιαίως.
How often do I consume products containing sugar per week
3. Πόσο συχνά καταναλώνω αλκοόλ, καφεΐνη, επεξεργασμένους χυμούς και κονσερβοποιημένα προϊόντα τομάτας εβδομαδιαίως.
How often do I consume alcohol, caffeine, processed juices and canned tomato products per week
4. Πόσο συχνά καταναλώνω μη ολικής άλεσης τρόφιμα ή/και τηγανιτά εβδομαδιαίως.
How often do I consume non-whole grain foods and/or fried foods per week
5. Πόσο συχνά μέσα στην εβδομάδα καταναλώνω τρόφιμα με trans λιπαρά.
How often during the week do I consume foods with trans fats
6. Πόσο συχνά καταναλώνω τρόφιμα όπως τόνο, κρόκους αυγών, θαλασσινά, μοσχαρίσιο κρέας εβδομαδιαίως.
How often do I consume foods such as tuna, egg yolks, seafood, beef per week
7. Πόσο συχνά κάνω χρήση νικοτίνης εβδομαδιαίως.
How often do I use nicotine per week
8. Πόσο συχνά γυμνάζομαι μέσα στην εβδομάδα.
How often do I exercise during the week
9. Πόσο συχνά αφιερώνω χρόνο μέσα στην εβδομάδα σε κάποια μορφή τέχνης (θέατρο, μουσική, συγγραφή, ζωγραφική).
How often do I devote time during the week to some form of art (theatre, music, writing, painting)
10. Πόσο συχνά έχω σωματική επαφή (αγκαλιά) με ανθρώπους που αγαπώ εβδομαδιαίως.
How often do I have physical contact (hug) with people I love per week

The statements constructed based on the analysis made so far.

QUESTION 1 (GENST – General Status)

Πόσο συχνά καταναλώνω μαγειρεμένο φαγητό από το σπίτι εβδομαδιαίως

How often do I eat home cooked food per week

The decreased trans-fat and the high quality of the raw materials of the food is a good driver for keeping a balanced weight (normal BMI). Obesity can cause health issues.

QUESTION 2 (INS – Insulin)

Πόσο συχνά καταναλώνω προϊόντα που περιέχουν ζάχαρη εβδομαδιαίως.

How often do I consume products containing sugar per week

High sugar products can cause the high glucose levels in the blood. The high glucose needs the insulin for the relevant metabolism process. The high blood glucose makes the human to feel tense, angry, sad, foggy, faint, thirsty, tired, nervous, lethargic, blurred vision, headache.

QUESTION 3 (VAS – Vasopressin / ADH)

Πόσο συχνά καταναλώνω αλκοόλ, καφεΐνη, επεξεργασμένους χυμούς και κονσερβοποιημένα προϊόντα τομάτας εβδομαδιαίως.

How often do I consume alcohol, caffeine, processed juices and canned tomato products per week

ADH is the hormone that regulates the levels of water in the body. Caffeine, alcohol, and salty foods tend to decrease the secretion of this hormone. The high level of this hormone can cause polyuria, polydipsia, blood pressure increase, aggressive behavior.

QUESTION 4,5,7,8,9 (CORT – Cortisol)

Πόσο συχνά καταναλώνω μη ολικής άλεσης τρόφιμα ή/και τηγανιτά εβδομαδιαίως.

How often do I consume non-whole grain foods and/or fried foods per week

Πόσο συχνά μέσα στην εβδομάδα καταναλώνω τρόφιμα με trans λιπαρά.

How often during the week do I consume foods with trans fats

Πόσο συχνά γυμνάζομαι μέσα στην εβδομάδα.

How often do I exercise during the week

Πόσο συχνά αφιερώνω χρόνο μέσα στην εβδομάδα σε κάποια μορφή τέχνης (θέατρο, μουσική, συγγραφή, ζωγραφική).

How often do I devote time during the week to some form of art (theatre, music, writing, painting)

Πόσο συχνά κάνω χρήση νικοτίνης εβδομαδιαίως.

How often do I use nicotine per week

The absence of exercise, the habits related to enjoyment, smoking, stress life, and food with a high concentration of trans-fat can trigger and boost the secretion of cortisol.

Cortisol can cause an increase in blood pressure, anxiety, weight gain/loss, muscle weakness, dizziness, thirst, fatigue, mood swings.

QUESTION 6 (TEST – Testosterone)

Πόσο συχνά καταναλώνω τρόφιμα όπως τόνο, κρόκους αυγών, θαλασσινά, μοσχαρίσιο κρέας εβδομαδιαίως.

How often do I consume foods such as tuna, egg yolks, seafood, beef per week

Foods with a high concentration of vitamin D could lead to an increase in testosterone.

High levels of testosterone can cause high blood pressure, insomnia, headaches, aggressive behavior, mood swings, impaired judgment, delusions. On the other hand, the decreased level of this hormone can reduce the body and facial hair, and cause loss of muscle mass, low libido, irritability, poor concentration, depression (mainly for women).

QUESTION 10 (OXY – Oxytocin)

Πόσο συχνά έχω σωματική επαφή (αγκαλιά) με ανθρώπους που αγαπώ εβδομαδιαίως.

How often do I have physical contact (hug) with people I love per week

The secretion of this hormone increases when hug someone, dance, laugh, read your favorite book, and listen to the music you like.

It is a positive feeling booster.

PART E – Internal Impact

Σε ποιο βαθμό σας έχει επηρεάσει η εργασία σας στην υιοθέτηση ενός νέου τρόπου ζωής (1:Καθόλου, 5:Απόλυτα):

To what extent has your job influenced you to adopt a new lifestyle (1:Not at all, 5:Absolutely):

- A. Στην άσκηση (exercise)
- B. Στην διατροφή (nutrition)
- Γ. Στις συνήθειες μου (my habits)
- Δ. Στον τρόπο που λαμβάνω αποφάσεις

In the way I make decisions

- Δ1. στην εργασία μου (at my work)
- Δ2. στην προσωπική μου ζωή (in my personal life)
- Δ3. σε έκτακτες περιστάσεις (in emergency circumstances)

Sample Description

Our statistical analysis use information of 242 responses (two hundred and forty-two): 128 (a hundred twenty-eight) are Managers (Principals/Supervisors) and 114 (a hundred fourteen) Employees to our distributed questionnaire to the Greek companies from the 20th of May 2021 until the 02nd of July 2021.

Having codified the data of our sample we proceeded to the statistical analysis of the data. Initially, to become familiar with the “profile” of our data proceeded to descriptive statistical analysis, summarized in Table A2.

Ethics and Research Reliability

Every respondent was informed about the scope of the research as well as the duration of the questionnaire. The anonymity of the participants was protected, since the questionnaire does not ask for or reveal the identity of each participant.

Data Collection and Analysis

As stated, the questionnaire was considered as the most appropriate tool for this study. The structure – described previously – has provided information both about the nutrition, habits, and lifestyle of the respondents and how much they have influenced their decision-making process. The instrument developed as there was not any related research to that study. Hence, an Exploratory Factor Analysis (EFA) was carried out. EFA is a useful tool for exploring the relationships between variables for complex concepts. It allows researchers to explore concepts that cannot be easily measured directly by shrinking a large number of variables into a few interpretable underlying factors. The suitability of data for Factor Analysis was initially investigated.

Data Suitability for Factor Analysis

Once the data collected, they were processed through the IBM SPSS 26. Reliability tests were conducted and an EFA carried out for investigating the consistency and coherence of the instrument.

Questionnaire	Cronbach a
Part D - NHL	0.509
Part E - DM & Internal Impact	0.910

Table A2. Cronbach a Results

According to Table A2, the Cronbach Alpha for the Parts D is 0.509¹³ and E is 0.910 (Ursachi, et al., 2015). The low value of Cronbach Alpha of Part D might be caused due to the dimensional differences of the statements.

¹³ The Cronbach a of Part D is increased at 0.509 if the statement 6 is removed

In addition, the instrument was reviewed by ten (10) people with different peducational and experience backgrounds for ensuring the content validity.

The Exploratory Factor Analysis has been conducted after the KMO and Bartlett’s Test. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in variables that might be caused by underlying factors. Values which are near to 1.0 indicate that a factor analysis may be useful with data. Otherwise, the EFA will not be useful. Bartlett’s test of sphericity tests the hypothesis that “*correlation matrix is an identity matrix, which would indicate that variables are unrelated and therefore unsuitable for structure detection*”. Values <0.05 of the significance level indicate that a factor analysis may be useful with your data (IBM, 2021). In accordance with the Table A3, the adequacy of the sample and data suitability are confirmed (Williams, et al., 2010).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.780
Bartlett's Test of Sphericity	Approx. Chi-Square	7001.216
	df	1711.000
Sig.		0.000

Table A3. KMO and Bartlett’s Test

Principal Component Analysis (PCA)

Since the data suitability tested, a PCA has been conducted. Based on the results of MSA (Measures of Sampling Adequacy), five (5) variables (statements) present values less than 0.5¹⁴. The MSA is a value that assesses the adequacy of the inter-correlations of a set of variables and each variable for an EFA. The three (3) of them are related to the commuting and two (2) related to nutrition. In addition, all the communalities¹⁵ values are higher than 0.5, and hence, no need to remove any variable from the instrument.

Total Variance Explained						
Componen t	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.185	15.568	15.568	9.185	15.568	15.568
2	4.627	7.842	23.411	4.627	7.842	23.411
3	3.668	6.218	29.628	3.668	6.218	29.628
4	3.088	5.234	34.863	3.088	5.234	34.863

¹⁴ The MSA is acceptable for values >0.5 (An Gie & Sean , 2013)

¹⁵ Communalities indicate the amount of variance in each variable that is accounted for (Values > 0.5 are desirable, Values < 0.2 would exclude the variable) (Samuels, 2017)

5	2.489	4.218	39.081	2.489	4.218	39.081
6	2.184	3.702	42.783	2.184	3.702	42.783
7	1.851	3.137	45.919	1.851	3.137	45.919
8	1.721	2.916	48.835	1.721	2.916	48.835
9	1.666	2.824	51.660	1.666	2.824	51.660
10	1.534	2.600	54.260	1.534	2.600	54.260
11	1.456	2.467	56.727	1.456	2.467	56.727
12	1.407	2.385	59.112	1.407	2.385	59.112
13	1.305	2.212	61.324	1.305	2.212	61.324
14	1.187	2.011	63.335	1.187	2.011	63.335
15	1.152	1.953	65.288	1.152	1.953	65.288
16	1.086	1.841	67.129	1.086	1.841	67.129
17	1.011	1.714	68.843	1.011	1.714	68.843
18	0.979	1.660	70.503			
19	0.949	1.608	72.110			
.....						
....	...	...		..		
57	0.107	0.181	99.726			
58	0.094	0.160	99.886			
59	0.067	0.114	100.000			
Extraction Method: Principal Component Analysis.						

Table A4. Total Variance Explained – Components Selection

The PCA results has led to the reduction of the total variables to 17 components (Table A4). In Parallel Analysis¹⁶ actual eigenvalues are compared with random order eigenvalues. Factors are retained when actual eigenvalues surpass random ordered eigenvalues (O'Connor, 2000). According to the following Table, the components reduced at nine (9):

Component Number	Actual eigenvalue from PCA	Random order from parallel analysis	Decision
1	9.185	2.129	Accept
2	4.627	2.023	Accept
3	3.668	1.946	Accept
4	3.088	1.868	Accept
5	2.489	1.81	Accept
6	2.184	1.753	Accept

¹⁶ Parallel analysis is a method for determining the number of components or factors to retain from PCA

7	1.851	1.703	Accept
8	1.721	1.653	Accept
9	1.666	1.612	Accept
10	1.534	1.566	Reject
11	1.456	1.522	Reject
12	1.407	1.484	Reject
13	1.305	1.444	Reject
14	1.187	1.405	Reject
15	1.152	1.37	Reject
16	1.086	1.332	Reject
17	1.011	1.299	Reject

Table A5. Components Selection

Thus, the re-calculation of PCA – with nine (9) components – has provided the following results:

The Q23 and Q39 should be removed as the communalities value is less than 0.2 (Samuels, 2017). The Oblique rotation¹⁷ correlates the variables into nine (9) components as below:

Component	Items
1	q54, q55, q56, q57, q58, q59, q60, q61, q62, q63, q64
2	q40, q49, q50, q51, q52, q53
3	q24, q25, q26, q27, q28
4	q29, q30, q31, q43, q44, q46, q47, q48
5	q12, q13, q14, q15, q45
6	q33, q35, q36, q37, q38
7	q10, q34, q66, q67, q68
8	q11, q16, q18, q20, q22, q42
9	q17, q19, q21, q41

Table A6. Variables Correlation

Each group of the factors/variables – that belong to one of the nine (9) components – is possible to be labelled. The interpretation and understanding of these factors could lead to the relevant identification of the common theme (Ul Hadi, et al., 2016). In addition, the Cronbach a re-calculated for each component:

¹⁷Oblique rotation reorients the factors so that they fall closer to clusters of vectors representing manifest variables, thereby simplifying the mathematical description of the manifest variables.

Component	Label	Cronbach a	Reliability ¹⁸
1	Decision-Making Process	0.938	Accept, Excellent
2	Art Habits	0.775	Accept, Good
3	Business and Personnel Needs	0.819	Accept, Fairly Hugh
4	Nutrition, Habits & Lifestyle	0.625	Acceptable, Moderate
5	Experience	0.614	Acceptable, Moderate
6	Nutrition	0.347	Unacceptable
7	Internal Impact	0.676	Acceptable, Reasonable
8	Business Transportation	Negative	Unacceptable
9	Commuting	Negative	Unacceptable

Table A7. Labelling the Components

According to the Table A7, the components 6, 8 and 9 have unacceptable values. In addition, the nine (9) factors present an extremely low intercorrelation (Table A8). Thus, these factors can be considered as independent variables. This information is providing the opportunity for further investigation regarding the possible relationships that may have these components.

Component Correlation Matrix									
Component	1	2	3	4	5	6	7	8	9
1	1.000	-0.009	0.185	0.071	-0.159	0.005	0.131	-0.040	-0.013
2	-0.009	1.000	0.023	-0.129	-0.070	0.120	-0.062	-0.006	-0.059
3	0.185	0.023	1.000	0.088	-0.117	-0.033	0.066	0.094	0.096
4	0.071	-0.129	0.088	1.000	0.055	0.052	0.024	0.013	-0.037
5	-0.159	-0.070	-0.117	0.055	1.000	-0.062	-0.069	-0.097	-0.022
6	0.005	0.120	-0.033	0.052	-0.062	1.000	0.003	0.059	-0.109
7	0.131	-0.062	0.066	0.024	-0.069	0.003	1.000	0.001	0.034
8	-0.040	-0.006	0.094	0.013	-0.097	0.059	0.001	1.000	0.005
9	-0.013	-0.059	0.096	-0.037	-0.022	-0.109	0.034	0.005	1.000
Extraction Method: Principal Component Analysis.									
Rotation Method: Oblimin with Kaiser Normalization.									

Table A8. Intercorrelation of Components

¹⁸ (Taber, 2018) (Ursachi, et al., 2015)

The questionnaire – developed for the investigation of the Business Frame and Environment, Decision-Making (DM), **Nutrition, Habits, and Lifestyle (NHL)** – has acceptable reliability according to the Cronbach reliability test ($\alpha=0.692$). Partially, the NHL and DM parts provide a value of 0.863 (very good reliability). In terms of validity, the instrument has been reviewed for the content and language, and hence, it was verified the content validity. The structure validity and the instrument’s coherence were tested via Factor Analysis (PCA). Based on that, the components and items of the questionnaire do not present strength intercorrelation. Partially, the items of Part E of the instrument (Decision-Making) have excellent reliability and validity.

The Factor Analysis leads to the reduction of the fifty-nine (59) items of the instrument to the nine (9) components. The groups that were created after this process showed that the parts of the questionnaire had a common thematic basis. In addition, the six (6) of nine (9) factors present acceptable reliability which means that the choice of the questions/statements of each part serves the purpose of the study.

The scope of this instrument was the creation of a questionnaire that could provide information regarding the Nutrition, Habits, and Lifestyle of someone and the impact on his/her decisions. According to the findings of the statistical analysis, the items of NHL and DM can be used to evaluate the level of the respondents’ emotional balance status and the effect on their decisions in the different areas of life (personal, working, and assets management). Moreover, the questionnaire could be a useful tool for investigating how the benefits that a company provides to its personnel might be a factor that influences their decision-making process.

According to Table A7 and Table A8, the factors (excluding the 6th, 8th, and 9th components) are deemed as independent variables. This fact provides the chance for checking different combinations of factors and possible relationships and the effect they may have on each other. Further research could be conducted.

A.3.3 Classification

As stated in previous paragraphs, basic intention of the instrument developed was to classify the respondents based on their responses for NHL to the next four classes (Table A11):

- ✓ High Emotional Balance Status
- ✓ Mid High Emotional Balance Status
- ✓ Mid Low Emotional Balance Status

✓ Low Emotional Balance Status

The score calculated from the responses of the NHL subscale provides this information. All answers are indicated in the 5-Likert scale. The total score is calculated by adding the grades for each statement. Thus, the max score can be 5.00 and the minimum 1.00.

Emotional Balance Status	(EBS)
4.01 – 5.00	High
3.01 – 4.00	Mid High
2.01 – 3.00	Mid Low
1.00 – 2.00	Low

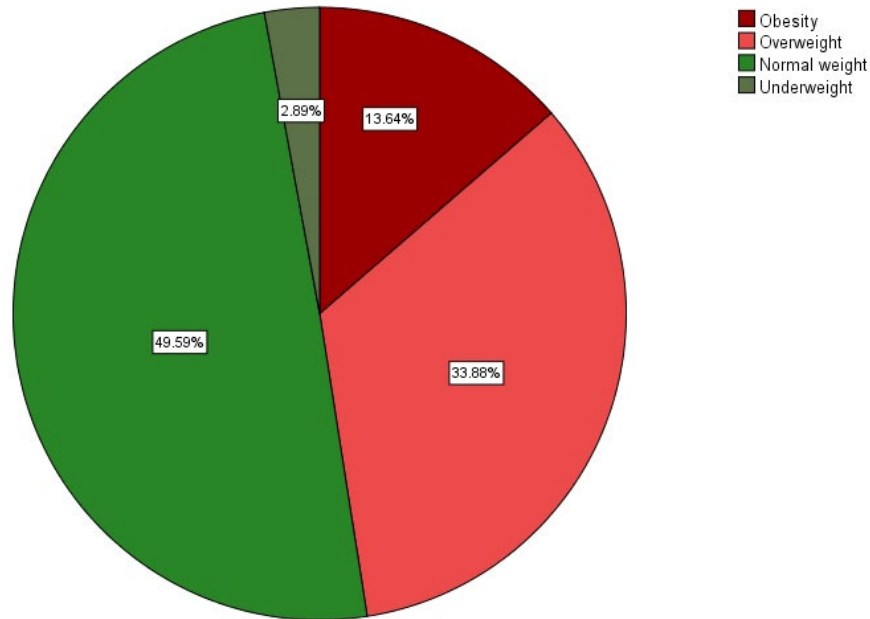
Table A9. Scoring – Classes

A3.4 Ethics and Research Reliability

Every respondent was informed about the scope of the research as well as the duration of the questionnaire. The anonymity of the participants was protected, since the questionnaire does not ask for or reveal the identity of each participant.

A3.5 Survey Findings

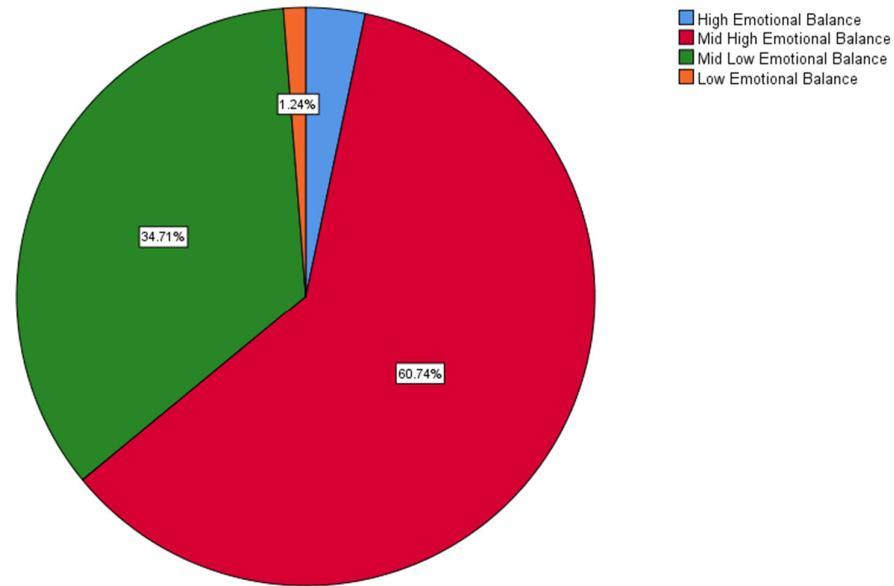
The respondents have been asked to input their weight and height in order for the BMI to be calculated. Based on the responses, the half sample indicates a normal BMI (Figure A2). 47.52% indicates a BMI bigger than twenty-five (25), which means overweight/obesity.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure A2. BMI of the sample

Based on the NHL questionnaire, the scores have been classified indicating the degree of the emotional status balance that the respondents might achieve. In that respect, four (4) classes generated: High Emotional Status Balance: respondents who consume food and have habits/lifestyle that keep the body in balance; Mid High Emotional Status Balance: respondents who consume some food and have habits/lifestyle that boost the secretion of some hormones with impact on the emotions; Mid Low Emotional Status: respondents who consume some food and have habits/lifestyle that cannot help to keep a normal hormones balance in their body; Low Emotional Status: respondents who consume food and have habits/lifestyle that cannot help to keep a normal hormones balance in their body. Figure A3 presents the distribution of the sample to these categories. According to that figure, most of the sample (60.74%) indicates a mid-high emotional balance.



Source: Lountzis G., (2023), The PsychoBioDynamic Management (PBDM) Approach – An Empirical Study, Field work findings for Doctoral Thesis, Department of Economic and Regional Development, Panteion University of Social and Political Sciences, Athens

Figure A3. The balance of emotional status based on the NHL score

The sample outcome on the question whether the lifestyle change affects the respondents’ decisions regarding the way they process the data prior to take a decision is quoted in Table A10:

The lifestyle changes affect the way I process the data

	Work	Personal Life	Management of my Assets
Strongly Agree	11.16%	11.16%	12.81%
Agree	31.40%	35.54%	26.03%
Subtotal	42.56%	46.70%	38.84%
Undecided	33.88%	34.30%	35.12%
Disagree	16.12%	12.81%	14.46%
Strongly Disagree	7.44%	6.20%	11.57
Subtotal	23.56%	19.01%	26.03%

Table A10. Lifestyle changes have affected the data process of the DMP

Most of the sample agrees that the changes of their lifestyle have influenced the way of how they process the data and information they receive before they have a final decision. In more detail, 42.56% agree that their decisions related to the work are influenced by changes in lifestyle, 46.70% agree the same when they must take decision

for their personal life, and 38.84% agree that their decisions— regarding the asset management – are affected by any change related to their lifestyle.

Next the participants’ view, Table A11, the speed of the decision-making process and whether it is affected by the lifestyle changes or not is presented.

The lifestyle changes affect the speed with which I make decisions

	Work	Personal Life	Management of my Assets
Strongly Agree	14.05%	9.50%	11.16%
Agree	33.47%	33.47%	25.62%
Subtotals	47.52%	42.97%	36.78%
Undecided	29.75%	33.47%	34.30%
Disagree	14.88%	17.77%	15.70%
Strongly Disagree	7.85%	5.79%	13.22%
Subtotals	22.73%	23.56%	28.92%

Table A11. Lifestyle changes have affected the speed of the DMP

According to this table, 47.52% agrees that the speed of the DMP – in work – is influenced; 42.97% agrees that these changes can affect the speed of their DMP when they decide for personal issues, while 36.78% agrees the same for the decisions related to the asset management.

The risk of the decisions seems to be affected by the changes in lifestyle. As the table 12 shows, 42.54% of the respondents agree that the risk-taking of the DMP is influenced when they are going to take decisions related to their work; 38.02% agree the same for their personal life decisions; when they must decide for their assets, 36.37% agree that the lifestyle changes can affect the degree of the risk-taking.

The lifestyle changes affect the degree of risk-taking when I decide

	Work	Personal Life	Management of my Assets
Strongly Agree	11.96%	9.09%	11.16%
Agree	30.58%	28.93%	25.21%
Subtotals	42.54%	38.02%	36.37%
Undecided	29.75%	38.02%	32.64%
Disagree	20.25%	16.94%	17.77%
Strongly Disagree	7.44%	7.02%	13.22%
Subtotals	27.69%	23.96%	30.99%

Table A12. Lifestyle changes have affected the risk-taking of the DMP

Statistical Analysis

The main hypothesis (§A2.1) of this research was to find out if the NHL and BMI are factors that can influence the decision-making process. In this regard, we proceeded to statistically analyze our data to check the correlation between DMP, NHL and BMI. This relationship was verified through TwoWay Anova (Table A13). The results statistically confirm the a-priori hypothesis of a correlation between the decision-making process with the BMI and the NHL's interaction with the BMI ($F=2.350$, $p=0.03<0.05$).

$$DM=f(NHL,BMI)$$

Dependent Variable: DM_Totals

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1511.241 ^a	13	116.249	1.747	0.05
Intercept	22465.766	1	22465.766	337.7	0
NHL_4Categories	461.285	3	153.762	2.311	0.08
BMI_Categories	564.996	3	188.332	2.831	0.04
NHL_4 Categories*BMI_Categories	1094.252	7	156.322	2.35	0.03
Error	15169.259	228	66.532		
Total	215761	242			
Corrected Total	16680.5	241			

a. R Squared=0.91 (Adjusted R Squared=.39)

Table A13. TwoWay ANOVA for DMP, NHL & BMI

A4 Conclusions – Discussion

The set hypothesis of the present paper was examined using fieldwork information of our developed questionnaire. The statistical analysis of the coded information shows that statistically significant correlation between DMP and NHL in interaction with BMI exists, confirmed our hypothesis. Further statistical analysis of the survey findings shows that the majority of respondents agree that changes in diet, habits and lifestyle affect the decision-making process. Of course, there is a percentage of 29% to 35% who believe that lifestyle changes do not – positively or negatively – affect the way they make decisions.

It is important to note that less than half of the sample has a normal body mass index (BMI). In addition, the vast majority of the sample have adopted a lifestyle as well as nutrition and habits that can maintain their emotional balance at an average level. Only 12.81% are those who have adopted habits that allow them to maintain a high mental balance.

Based on these data, it can be concluded that lifestyle changes can affect the decision-making process either it concerns employment or asset management issues or even issues related to personal life and relationships with others.

To sum-up the healthy lifestyle might affect the emotional status, Decision Making Process (DMP) is statistically correlate with the nutrition, habits, BMI and the general lifestyle, and the three (3) DMP dimensions (Data processing, Speed and Risk-Taking) are influenced by the lifestyle changes.

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Annex I

The questionnaire of NHL, that was developed for the needs of this research, has been reviewed for its content validity by the following reviewers:

1. Professor Clive Richardson (Department of Economic and Regional Development, Panteion University)
2. Dr. Ifigenia Megremi (Geologist, Phd, MSc)
3. Chrysa Tsirimokou (PhD Student, Panteion University)
4. Theodora Kalesi (Librarian, MSc, NKUA Library & Information Centre)
5. Sofia Papadopoulou (PhD Student at University of the Peloponnese, Sport Management department, Olympic Games Bronze Medal Awarded in Sailing)
6. Patty Tampourea (IMS Analyst EMEA, ABS Hellenic)
7. Evangelos Vertopoulos (MSc Sport Psychology, REBT Psychotherapy Mental training & Performance Expert)
8. Vicky Vavva (Mental Health Counselor, Parent Counselor, Dramatherapist, Play Therapist)
9. Marina-Zoe Saoulidou (PhD Student at NKUA, Research Fellow at NKUA)
10. Efstathios Vorris (Geologist, MSc)

The questionnaire distributed twice, before and after corrections.

Annex II

NUTRITION – HABITS – LIFESTYLE & DM QUESTIONNAIRE



ΠΑΝΤΕΙΟΝ ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΟΙΝΩΝΙΚΩΝ ΚΑΙ ΠΟΛΙΤΙΚΩΝ ΕΠΙΣΤΗΜΩΝ

ΠΡΟΓΡΑΜΜΑ ΔΙΔΑΚΤΟΡΙΚΩΝ ΣΠΟΥΔΩΝ

ΟΔΗΓΙΕΣ

Το ερωτηματολόγιο αυτό είναι ανώνυμο και εντάσσεται σε μια έρευνα που διεξάγεται από το Τμήμα Οικονομικής και Περιφερειακής Ανάπτυξης του Πάντειου Πανεπιστημίου και αφορά στη μελέτη των διατροφικών συνηθειών καθώς και στον τρόπο ζωής των εργαζομένων και στελεχών οργανισμών, φορέων και επιχειρήσεων δημόσιου και ιδιωτικού τομέα.

Παρακαλώ διαβάστε με προσοχή το ερωτηματολόγιο και απαντήστε με τη μεγαλύτερη δυνατή ειλικρίνεια, δηλώνοντας την απάντηση που σας εκφράζει περισσότερο.

Καλείστε να δηλώσετε κάποια δημογραφικά στοιχεία όπως και κάποιες ερωτήσεις σχετικά με τον εργασιακό σας χώρο. Οι απαντήσεις σας θα δίνονται σύμφωνα με μια πεντάβαθμη κλίμακα. Δεν υπάρχουν σωστές ή λάθος απαντήσεις. Αυτό που ζητάμε από εσάς είναι η προσωπική σας άποψη. Σκεφτείτε άμεσα και απαντήστε αυθόρμητα. Η διάρκεια για τη συμπλήρωση του ερωτηματολογίου δεν ξεπερνά τα 10 λεπτά. Οι απαντήσεις σας θα είναι απόλυτα εμπιστευτικές και θα χρησιμοποιηθούν αποκλειστικά και μόνο για ερευνητικούς σκοπούς.

Σας ευχαριστούμε πολύ εκ των προτέρων.

ΜΕΡΟΣ 1ο

1. Φύλο

☐ Άνδρας ☐ Γυναίκα ☐ Άλλο

2. Ηλικία

☐ 18-25 ☐ 26-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65+

3. Επίπεδο Εκπαίδευσης

☐ Δεν τελείωσα το δημοτικό	☐ Απόφοιτος ΤΕΙ
☐ Απόφοιτος Δημοτικού	☐ Απόφοιτος ΙΕΚ
☐ Απόφοιτος Γυμνασίου	☐ Κάτοχος Μεταπτυχιακού Τίτλου
☐ Απόφοιτος Λυκείου	☐ Κάτοχος Διδακτορικού Τίτλου
☐ Απόφοιτος ΑΕΙ	☐ Άλλο

4. Οικογενειακή Κατάσταση

☐ Έγγαμος/η ☐ Άγαμος/η ☐ Συμβιώνω ☐ Διαζευγμένος/η ☐ Χήρος/α

5. Αριθμός Παιδιών

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4+

6. Μηνιαίο Καθαρό Οικογενειακό Εισόδημα (σε ευρώ)

☐ <1,000 ☐ 1,001-2,000 ☐ 2,001-3,000 ☐ 3,000<

7. Βάρος (σε kg) _____

8. Ύψος (σε cm) _____

ΜΕΡΟΣ 2ο

9. Απασχόληση

☐ Μισθωτός ☐ Ελεύθερος Επαγγελματίας

10. Τομέας απασχόλησης

☐ Ιδιωτικός ☐ Δημόσιος

11. Συνολικά έτη εργασιακής εμπειρίας (σε οποιεσδήποτε εργασίες) _____

12. Έτη απασχόλησης σε θέση διοίκησης/μάνατζμεντ _____

13. Έτη απασχόλησης στην παρούσα επιχείρηση/φορέα/εργοδότη _____

14. Θέση στην επιχείρηση/φορέα

☐ Διευθυντής ☐ Προϊστάμενος ☐ Υπάλληλος

15. Στην περίπτωση της εκτός έδρας εργασία η επιχείρηση/φορέας που απασχολούμαι με αποζημιώνει ικανοποιητικά

☐ ☐ ☐ ☐ ☐ ☐ ☐

Δεν ισχύει	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
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16. Συνολικός μέσος χρόνος (σε ώρες) ημερήσιας μετάβασης και επιστροφής από τον τόπο που διαμένω προς τον εργασιακό μου χώρο (commuting) _____

16.1 Μετακινούμαι με:

α. Αυτοκίνητο

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

β. Ποδήλατο/Πατίνι

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

γ. Περπατώντας

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

δ. Μηχανή/Σκούτερ

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

ε. Μέσα Μαζικής Μεταφοράς

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

ζ. Άλλο

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

17. Η επιχείρηση/φορέας που εργάζομαι ανταποκρίνεται στις ανάγκες των ανθρώπων που έχουν κάποιο ιδιαίτερο νόσημα ή χρήζουν ιδιαίτερης φροντίδας

α. Διαβητικούς

☐

Δεν γνωρίζω/
Δεν ισχύει

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

β. Εγκυμονούσες

☐
☐
☐
☐
☐
☐

Δεν γνωρίζω/ Δεν ισχύει	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
γ. Θηλάζουσες					
☐	☐	☐	☐	☐	☐
Δεν γνωρίζω/ Δεν ισχύει	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
δ. Άτομα Με Ειδικές Ανάγκες (ΑΜΕΑ)					
☐	☐	☐	☐	☐	☐
Δεν γνωρίζω/ Δεν ισχύει	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
ε. Άλλο					
☐	☐	☐	☐	☐	☐
Δεν γνωρίζω/ Δεν ισχύει	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

ΜΕΡΟΣ 3ο

18. Έχετε παρόμοιες διατροφικές συνήθειες με τους συναδέλφους σας

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

19. Πόσο συχνά σας επηρεάζουν οι συνάδελφοί σας στην επιλογή του φαγητού σας

☐	☐	☐	☐	☐
Ποτέ	Σπάνια	Μερικές φορές	Συχνά	Πολύ Συχνά

ΜΕΡΟΣ 4ο

20. Πόσο συχνά καταναλώνετε μαγειρεμένο φαγητό από το σπίτι εβδομαδιαίως

☐	☐	☐	☐	☐
Ποτέ	Σπάνια	Μερικές φορές	Συχνά	Πολύ Συχνά

21. Πόσο συχνά καταναλώνετε προϊόντα που περιέχουν ζάχαρη εβδομαδιαίως

☐	☐	☐	☐	☐
Ποτέ	Σπάνια	Μερικές φορές	Συχνά	Πολύ Συχνά

22. Πόσο συχνά καταναλώνετε αλκοόλ, καφεΐνη, επεξεργασμένους χυμούς και κονσερβοποιημένα προϊόντα τομάτας εβδομαδιαίως

☐	☐	☐	☐	☐
Ποτέ	Σπάνια	Μερικές φορές	Συχνά	Πολύ Συχνά

23. Πόσο συχνά καταναλώνετε μη ολικής άλεσης τρόφιμα ή/και τηγανιτά εβδομαδιαίως

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

24. Πόσο συχνά μέσα στην εβδομάδα καταναλώνετε τρόφιμα με trans (κορεσμένα) λιπαρά (π.χ. γρήγορο φαγητό)

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

25. Πόσο συχνά καταναλώνετε τρόφιμα όπως τόνο, κρόκους αυγών, θαλασσινά, μοσχαρίσιο κρέας εβδομαδιαίως

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

26. Πόσο συχνά αφιερώνετε χρόνο μέσα στην εβδομάδα σε κάποια μορφή τέχνης (θέατρο, μουσική, συγγραφή, ζωγραφική)

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

27. Πόσο συχνά έχετε σωματική επαφή (αγκαλιά) με ανθρώπους που αγαπάτε εβδομαδιαίως

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

28. Πόσο συχνά κάνετε χρήση νικοτίνης εβδομαδιαίως

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

29. Πόσο συχνά γυμνάζεστε μέσα στην εβδομάδα

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

ΜΕΡΟΣ 5ο

30. Υιοθετήσατε αλλαγές στον τρόπο ζωής σας από τότε που αρχίσατε να εργάζεστε

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

31. Αν ναι, πότε

☐

Τον τελευταίο
χρόνο

☐

Τα τελευταία
2 -5 χρόνια

☐

Τα τελευταία
6 -10 χρόνια

☐

Πάνω από 10
χρόνια

α. Στην άσκηση

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

β. Στην διατροφή μου

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ. Στις συνήθειές μου

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ.1. Θέατρο

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ.2. Μουσική

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ.3. Διάβασμα/Συγγραφή

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ.4. Ζωγραφική

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

γ.5. Μέσα Κοινωνικής Δικτύωσης (Social Media)

☐
☐
☐
☐
☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

32. Οι παραπάνω αλλαγές έχουν επηρεάσει την διαδικασία λήψης απόφασης¹⁹ σας

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
α. στον τρόπο που επεξεργάζομαι τα δεδομένα πριν λάβω μία απόφαση στην εργασία μου				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
β. στην ταχύτητα με την οποία λαμβάνω αποφάσεις στην εργασία μου				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
γ. στο βαθμό ανάληψης του κινδύνου κατά την λήψη της απόφασης στην εργασία μου				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
δ. στον τρόπο που επεξεργάζομαι τα δεδομένα πριν λάβω μία απόφαση σε ζητήματα της προσωπικής μου ζωής και στις σχέσεις μου με τους άλλους				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
ε. στην ταχύτητα με την οποία λαμβάνω αποφάσεις σε ζητήματα της προσωπικής μου ζωής και στις σχέσεις μου με τους άλλους				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
στ. στο βαθμό ανάληψης του κινδύνου κατά την λήψη της απόφασης σε ζητήματα της προσωπικής μου ζωής και στις σχέσεις μου με τους άλλους				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
ζ. στον τρόπο που επεξεργάζομαι τα δεδομένα πριν λάβω μία απόφαση σε σχέση με την διαχείριση των περιουσιακών μου στοιχείων				
☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
η. στην ταχύτητα με την οποία λαμβάνω αποφάσεις σε σχέση με την διαχείριση των περιουσιακών μου στοιχείων				

¹⁹ Οι αποφάσεις λαμβάνονται υπό τρεις συνθήκες: βεβαιότητας, κινδύνου, και αβεβαιότητας

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

θ. στο βαθμό ανάληψης του κινδύνου κατά την λήψη της απόφασης σε σχέση με την διαχείριση των περιουσιακών μου στοιχείων

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

ι. στην αναλογία συναισθήματος – λογικής των αποφάσεών μου

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

κ. στο να αλλάζω την απόφασή μου όταν αυτή δεν οδηγεί στο αποτέλεσμα που θέλω αν και αυτό μπορεί να έχει κάποιο κόστος

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

33. Η αλλαγή του τρόπου ζωής μου με έχει επηρεάσει

α. στον τρόπο που σκέφτομαι όταν θέλω να νιώσω περισσότερο θετικό συναίσθημα (όπως χαρά ή διασκέδαση)

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

β. στον τρόπο που σκέφτομαι όταν θέλω να νιώσω λιγότερο αρνητικό συναίσθημα (όπως λύπη ή θυμό)

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

γ. στον τρόπο που αντιμετωπίζω μία στρεσογόνο κατάσταση

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

ΔΗΛΩΣΗ ΤΗΡΗΣΗΣ ΕΧΕΜΥΘΕΙΑΣ

Η συμμετοχή φυσικών προσώπων στην έρευνα είναι εθελοντική αλλά αναγκαία. Το ερωτηματολόγιο είναι ανώνυμο και δεν περιέχει προσωπικά στοιχεία φυσικών προσώπων από τα οποία θα μπορούσε να αποκαλυφθεί με οποιονδήποτε τρόπο η ταυτότητα των συμμετεχόντων. Οι απαντήσεις είναι απόλυτα εμπιστευτικές και μόνο τα μέλη της ερευνητικής ομάδας θα έχουν πρόσβαση σε αυτές. Οι απαντήσεις θα χρησιμοποιηθούν αποκλειστικά για ερευνητικούς σκοπούς και συγκεκριμένα θα τύχουν ποσοτικής ή/και ποιοτικής επεξεργασίας συνολικά. Καμία μεμονωμένη πληροφορία σχετικά με οποιοδήποτε φυσικό πρόσωπο δεν θα δημοσιευθεί, παρά μόνο τα τελικά αποτελέσματα της έρευνας. Η ανωνυμία των συμμετεχόντων και το προσωπικό απόρρητο θα τηρηθεί στο ακέραιο καθ’ όλη τη διάρκεια της έρευνας αλλά και μετά το πέρας αυτής, και δεσμεύει τα μέλη της ερευνητικής ομάδας.

Γιώργος Λούντζης, Υποψήφιος Διδάκτωρ (g.lountzis@panteion.gr)

Annex III
FINAL QUESTIONNAIRE



ΠΑΝΤΕΙΟΝ ΠΑΝΕΠΙΣΤΗΜΙΟ
ΚΟΙΝΩΝΙΚΩΝ ΚΑΙ ΠΟΛΙΤΙΚΩΝ ΕΠΙΣΤΗΜΩΝ

ΠΡΟΓΡΑΜΜΑ ΔΙΔΑΚΤΟΡΙΚΩΝ ΣΠΟΥΔΩΝ

ΟΔΗΓΙΕΣ

Το ερωτηματολόγιο αυτό είναι ανώνυμο και εντάσσεται σε μια έρευνα που διεξάγεται από το Τμήμα Οικονομικής και Περιφερειακής Ανάπτυξης του Πάντειου Πανεπιστημίου και αφορά στη μελέτη των διατροφικών συνηθειών καθώς και στον τρόπο ζωής των εργαζομένων και στελεχών οργανισμών, φορέων και επιχειρήσεων δημόσιου και ιδιωτικού τομέα.

Παρακαλώ διαβάστε με προσοχή το ερωτηματολόγιο και απαντήστε με τη μεγαλύτερη δυνατή ειλικρίνεια, δηλώνοντας την απάντηση που σας εκφράζει περισσότερο.

Καλείστε να δηλώσετε κάποια δημογραφικά στοιχεία όπως και κάποιες ερωτήσεις σχετικά με τον εργασιακό σας χώρο. Οι απαντήσεις σας θα δίνονται σύμφωνα με μια πεντάβαθμη κλίμακα. Δεν υπάρχουν σωστές ή λάθος απαντήσεις. Αυτό που ζητάμε από εσάς είναι η προσωπική σας άποψη. Σκεφτείτε άμεσα και απαντήστε αυθόρμητα. Η διάρκεια για τη συμπλήρωση του ερωτηματολογίου δεν ξεπερνά τα 10 λεπτά. Οι απαντήσεις σας θα είναι απόλυτα εμπιστευτικές και θα χρησιμοποιηθούν αποκλειστικά και μόνο για ερευνητικούς σκοπούς.

Σας ευχαριστούμε πολύ εκ των προτέρων.

ΜΕΡΟΣ 1ο

3. Φύλο

☐ Άνδρας ☐ Γυναίκα ☐ Άλλο

4. Ηλικία

☐ 18-25 ☐ 26-34 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65+

3. Επίπεδο Εκπαίδευσης

☐ Δεν τελείωσα το δημοτικό	☐ Απόφοιτος ΤΕΙ
☐ Απόφοιτος Δημοτικού	☐ Απόφοιτος ΙΕΚ
☐ Απόφοιτος Γυμνασίου	☐ Κάτοχος Μεταπτυχιακού Τίτλου
☐ Απόφοιτος Λυκείου	☐ Κάτοχος Διδακτορικού Τίτλου
☐ Απόφοιτος ΑΕΙ	☐ Άλλο

4. Οικογενειακή Κατάσταση

☐ Έγγαμος/η ☐ Άγαμος/η ☐ Συμβιώνω ☐ Διαζευγμένος/η ☐ Χήρος/α

5. Αριθμός Παιδιών

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4+

6. Μηνιαίο Καθαρό Οικογενειακό Εισόδημα (σε ευρώ)

☐ <1,000 ☐ 1,001-2,000 ☐ 2,001-3,000 ☐ 3,000<

7. Βάρος (σε kg) _____

8. Ύψος (σε cm) _____

9. Απασχόληση

☐ Μισθωτός ☐ Ελεύθερος Επαγγελματίας

10. Τομέας απασχόλησης

☐ Ιδιωτικός ☐ Δημόσιος

11. Έτη απασχόλησης στην παρούσα επιχείρηση/φορέα/εργοδότη _____

12. Θέση στην επιχείρηση/φορέα

☐ Διευθυντής ☐ Προϊστάμενος ☐ Υπάλληλος

ΜΕΡΟΣ 2ο

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΥΦΙΣΤΑΜΕΝΟΥΣ

2.1. Ο/Η Προϊστάμενος/η μου πάντα μπορεί να καταλάβει πως αισθάνονται οι υφιστάμενοί του με βάση τη συμπεριφορά τους.

☐ ☐ ☐ ☐ ☐

Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

2.2. Ο/Η Προϊστάμενος/η μου είναι καλός παρατηρητής των συναισθημάτων των άλλων.

☐	☐	☐	☐	☐
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

2.3. Ο/Η Προϊστάμενος/η μου είναι ευαίσθητος/η στα συναισθήματα και την συγκινησιακή κατάσταση των άλλων ανθρώπων.

☐	☐	☐	☐	☐
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

2.4. Ο/η Προϊστάμενος/η μου έχει μια καλή κατανόηση των συναισθημάτων των ανθρώπων γύρω του.

☐	☐	☐	☐	☐
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Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΑΜΕΝΟΥΣ/MANATZΕΡΣ

2.1'. Πάντα μπορώ να καταλάβω πως αισθάνονται οι φίλοι μου με βάση την συμπεριφορά τους.

☐	☐	☐	☐	☐
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Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
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2.2'. Είμαι καλός παρατηρητής των συναισθημάτων των άλλων.

☐	☐	☐	☐	☐
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Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

2.3'. Είμαι ευαίσθητος στα συναισθήματα και την συγκινησιακή κατάσταση των άλλων ανθρώπων.

☐	☐	☐	☐	☐
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Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

2.4'. Έχω μια καλή κατανόηση των συναισθημάτων των ανθρώπων γύρω μου.

☐	☐	☐	☐	☐
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Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα
--------------------	---------	------------------------------	---------	--------------------

ΜΕΡΟΣ 3ο

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΥΦΙΣΤΑΜΕΝΟΥΣ

3.1. Ο/Η Προϊστάμενος/η μου μπορεί με την λογική να ελέγξει τον θυμό του/της και να ανταπεξέλθει τις δυσκολίες.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

3.2. Ο/Η Προϊστάμενος/η μου είναι απόλυτα ικανός/ή να ελέγξει τα συναισθήματά του/της.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

3.3. Ο/Η Προϊστάμενος/η μου όταν θυμώνει, πάντα μπορεί να ηρεμήσει γρήγορα.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

3.4. Ο/Η Προϊστάμενος/η μου έχει καλό έλεγχο των συναισθημάτων του/της.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

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Συμφωνώ
Απόλυτα

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΑΜΕΝΟΥΣ/MANATZΕΡΣ

3.1'. Μπορώ με την λογική να ελέγξω τον θυμό μου και να ανταπεξέλθω τις δυσκολίες.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

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Συμφωνώ
Απόλυτα

3.2'. Είμαι απόλυτα ικανός να ελέγξω τα συναισθήματά μου.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

3.3'. Όταν θυμώνω, πάντα μπορώ να ηρεμήσω γρήγορα.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

3.4'. Έχω καλό έλεγχο των συναισθημάτων μου.

☐☐☐☐☐

Διαφωνώ
απόλυτα

Διαφωνώ

Ούτε διαφωνώ
ούτε συμφωνώ

Συμφωνώ

Συμφωνώ
Απόλυτα

ΜΕΡΟΣ 4ο

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΑΜΕΝΟΥΣ/ΜΑΝΑΤΖΕΡΣ

4.1'. Πόσο συχνά καταναλώνετε μαγειρεμένο φαγητό από το σπίτι εβδομαδιαίως

☐
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☐
☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.2'. Πόσο συχνά καταναλώνετε προϊόντα που περιέχουν ζάχαρη εβδομαδιαίως

☐
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☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.3'. Πόσο συχνά καταναλώνετε αλκοόλ, καφεΐνη, επεξεργασμένους χυμούς και κονσερβοποιημένα προϊόντα τομάτας εβδομαδιαίως

☐
☐
☐
☐
☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.4'. Πόσο συχνά καταναλώνετε μη ολικής άλεσης τρόφιμα ή/και τηγανιτά εβδομαδιαίως

☐
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☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.5'. Πόσο συχνά μέσα στην εβδομάδα καταναλώνετε τρόφιμα με trans (κορεσμένα) λιπαρά (π.χ. γρήγορο φαγητό)

☐
☐
☐
☐
☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.6'. Πόσο συχνά καταναλώνετε τρόφιμα όπως τόνο, κρόκους αυγών, θαλασσινά, μοσχαρίσιο κρέας εβδομαδιαίως

☐
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☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.7'. Πόσο συχνά αφιερώνετε χρόνο μέσα στην εβδομάδα σε κάποια μορφή τέχνης (θέατρο, μουσική, συγγραφή, ζωγραφική)

☐
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☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.8'. Πόσο συχνά έχετε σωματική επαφή (αγκαλιά) με ανθρώπους που αγαπάτε εβδομαδιαίως

☐
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☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.9'. Πόσο συχνά κάνετε χρήση νικοτίνης εβδομαδιαίως

☐
☐
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☐
☐

Ποτέ

Σπάνια

Μερικές φορές

Συχνά

Πολύ Συχνά

4.10'. Πόσο συχνά γυμνάζεστε μέσα στην εβδομάδα

☐

Ποτέ

☐

Σπάνια

☐

Μερικές φορές

☐

Συχνά

☐

Πολύ Συχνά

ΜΕΡΟΣ 5ο

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΥΦΙΣΤΑΜΕΝΟΥΣ

5.1. Ο Προϊστάμενος μου με υποστηρίζει όταν τον χρειάζομαι

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

5.2. Ο Προϊστάμενος μου κατανοεί τα προβλήματά μου

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

5.3. Ο Προϊστάμενος μου είναι αγενής.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

5.4. Ο Προϊστάμενος μου είναι ενοχλητικός.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

ΝΑ ΣΥΜΠΛΗΡΩΘΕΙ ΜΟΝΟ ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΑΜΕΝΟΥΣ/MANATΖΕΡΣ

5.1'. Υποστηρίζω τους υφισταμένους μου όταν με χρειάζονται.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

5.2'. Κατανοώ τα προβλήματα των υφισταμένων μου.

☐

Διαφωνώ
απόλυτα

☐

Διαφωνώ

☐

Ούτε διαφωνώ
ούτε συμφωνώ

☐

Συμφωνώ

☐

Συμφωνώ
Απόλυτα

5.3'. Εκτιμώ ότι δεν είμαι αγενής.

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

5.4'. Εκτιμώ ότι δεν είμαι ενοχλητικός.

☐	☐	☐	☐	☐
Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ Απόλυτα

ΔΗΛΩΣΗ ΤΗΡΗΣΗΣ ΕΧΕΜΥΘΕΙΑΣ

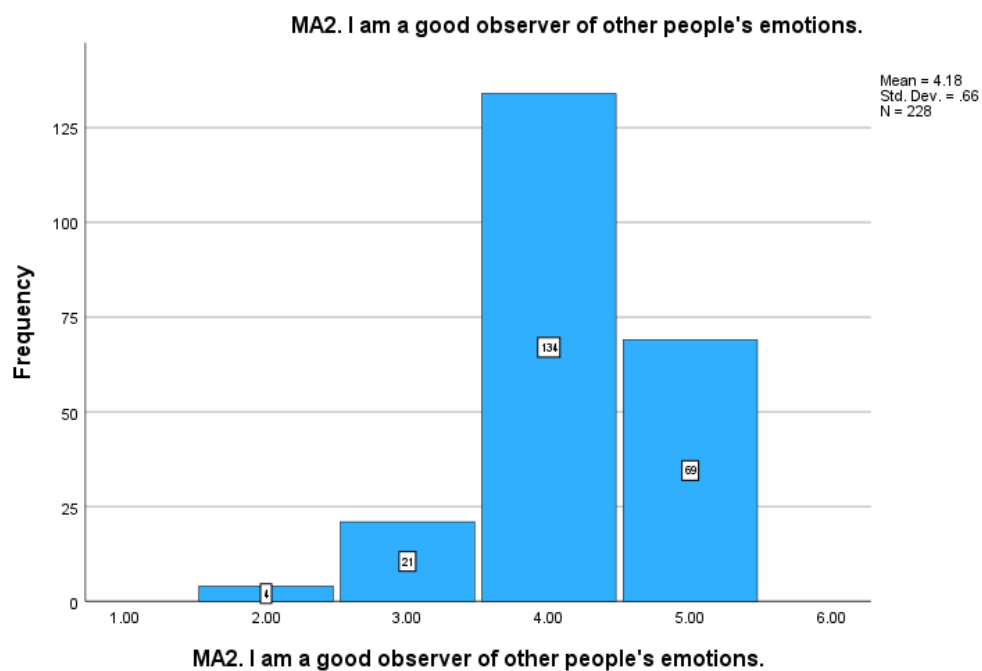
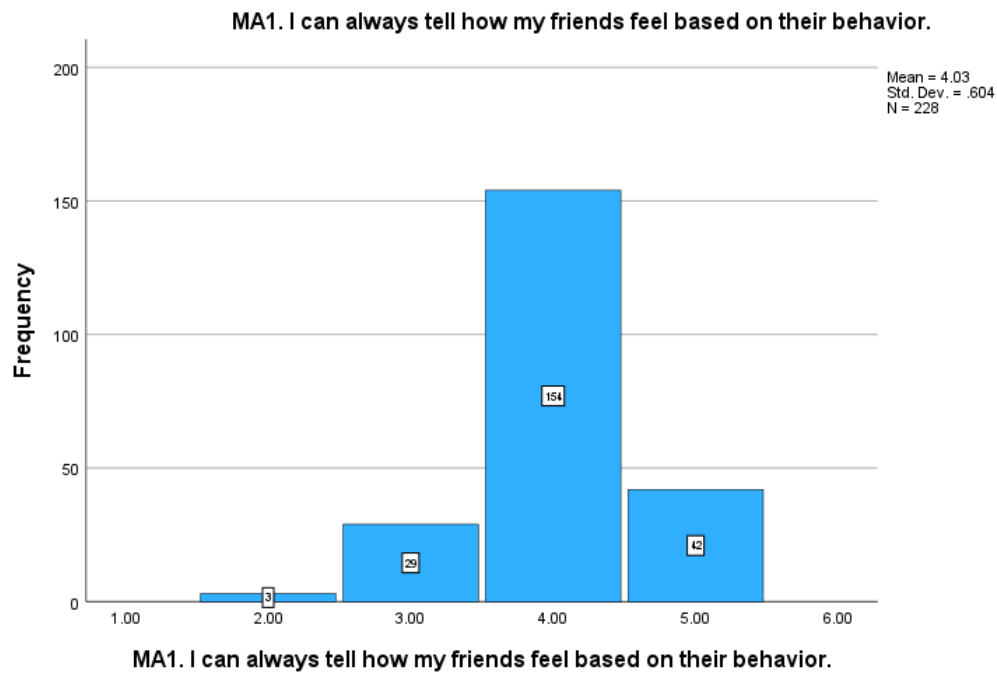
Η συμμετοχή φυσικών προσώπων στην έρευνα είναι εθελοντική αλλά αναγκαία. Το ερωτηματολόγιο είναι ανώνυμο και δεν περιέχει προσωπικά στοιχεία φυσικών προσώπων από τα οποία θα μπορούσε να αποκαλυφθεί με οποιονδήποτε τρόπο η ταυτότητα των συμμετεχόντων. Οι απαντήσεις είναι απόλυτα εμπιστευτικές και μόνο τα μέλη της ερευνητικής ομάδας θα έχουν πρόσβαση σε αυτές. Οι απαντήσεις θα χρησιμοποιηθούν αποκλειστικά για ερευνητικούς σκοπούς και συγκεκριμένα θα τύχουν ποσοτικής ή/και ποιοτικής επεξεργασίας συνολικά. Καμία μεμονωμένη πληροφορία σχετικά με οποιοδήποτε φυσικό πρόσωπο δεν θα δημοσιευθεί, παρά μόνο τα τελικά αποτελέσματα της έρευνας. Η ανωνυμία των συμμετεχόντων και το προσωπικό απόρρητο θα τηρηθεί στο ακέραιο καθ' όλη τη διάρκεια της έρευνας αλλά και μετά το πέρας αυτής, και δεσμεύει τα μέλη της ερευνητικής ομάδας.

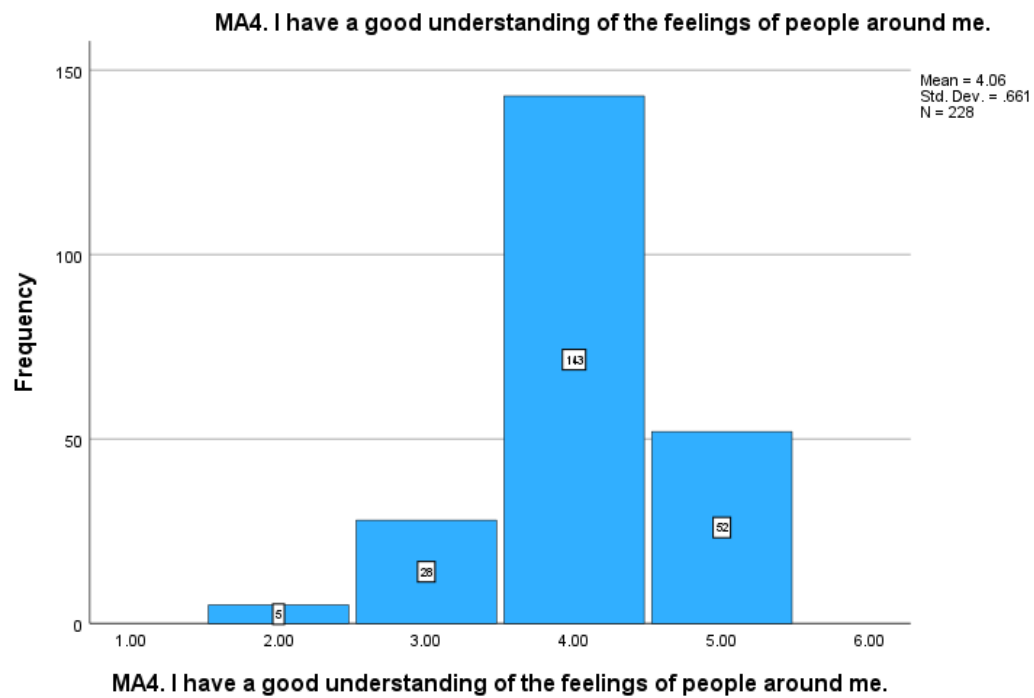
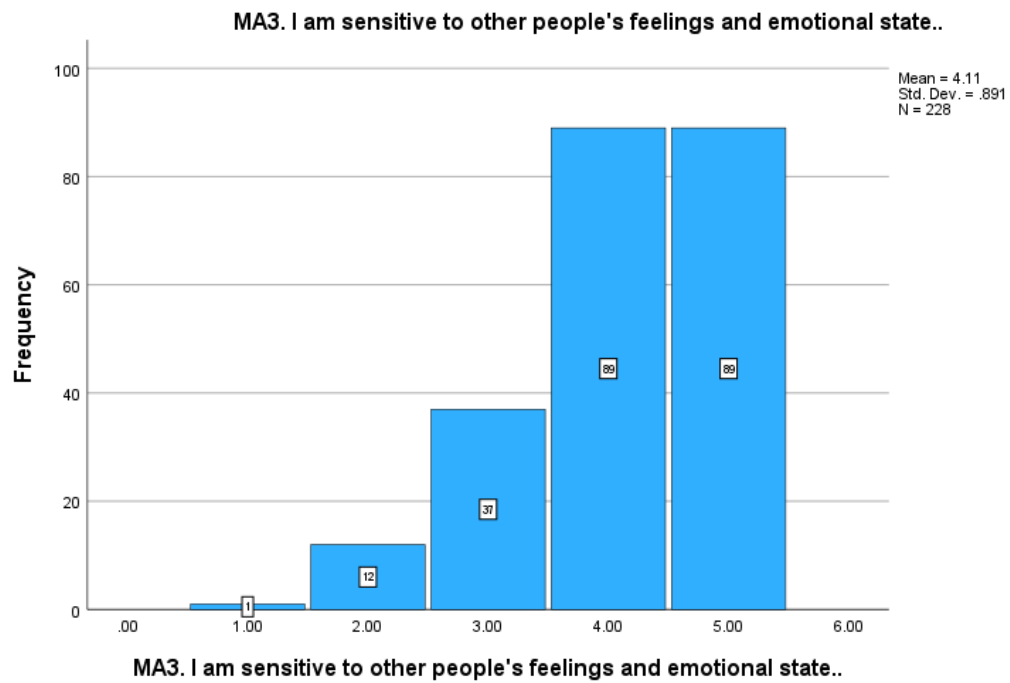
Γιώργος Λούντζης, Υποψήφιος Διδάκτωρ (g.lountzis@panteion.gr)

Annex IV

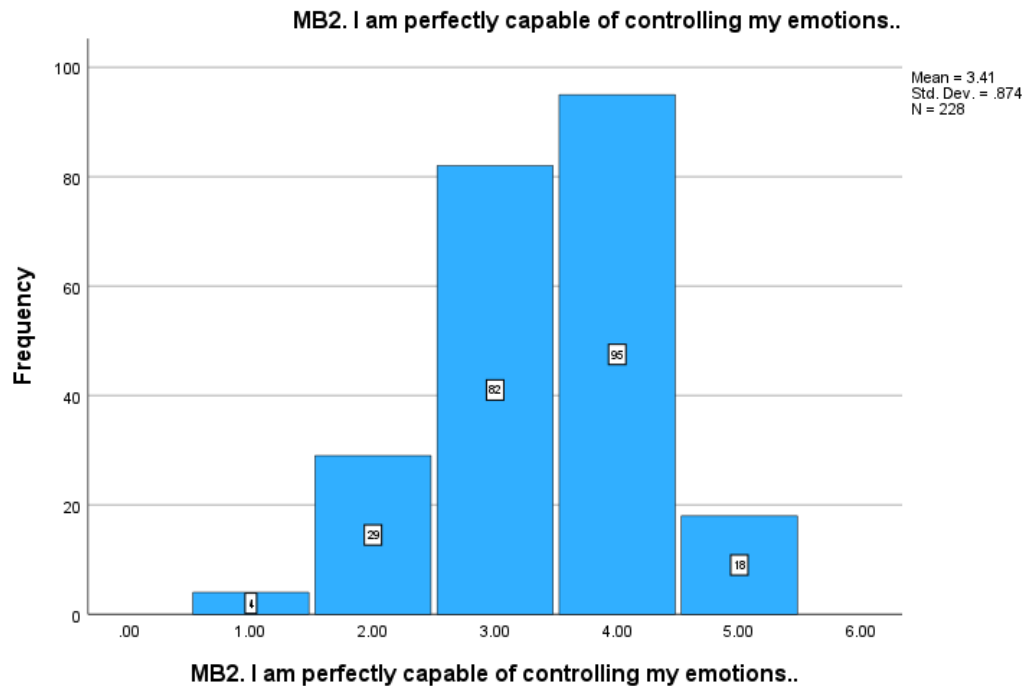
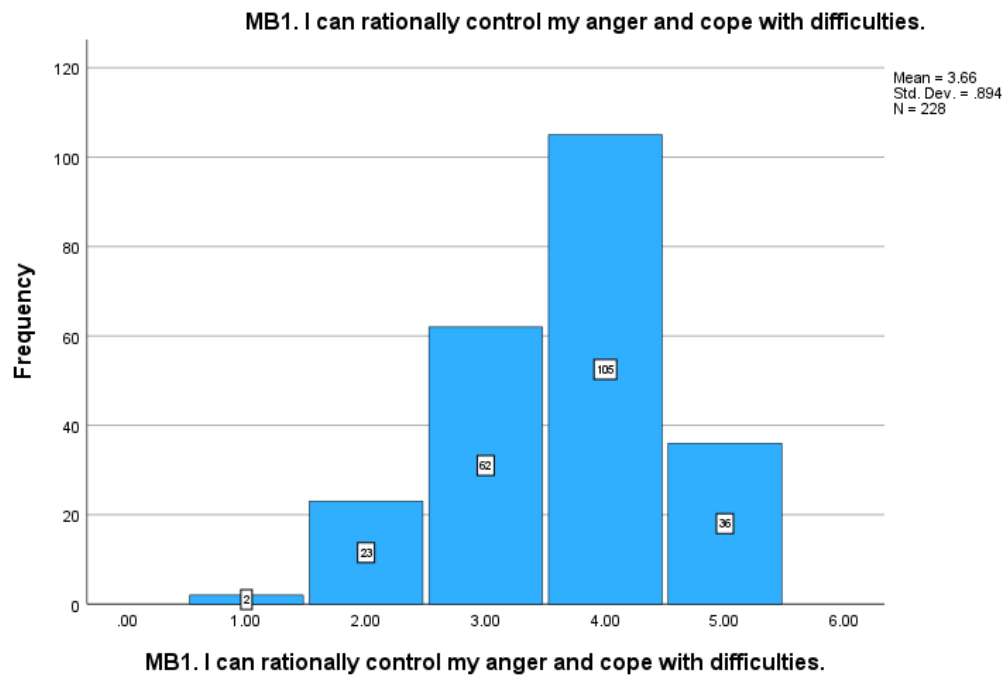
A. Managers self-reported answers

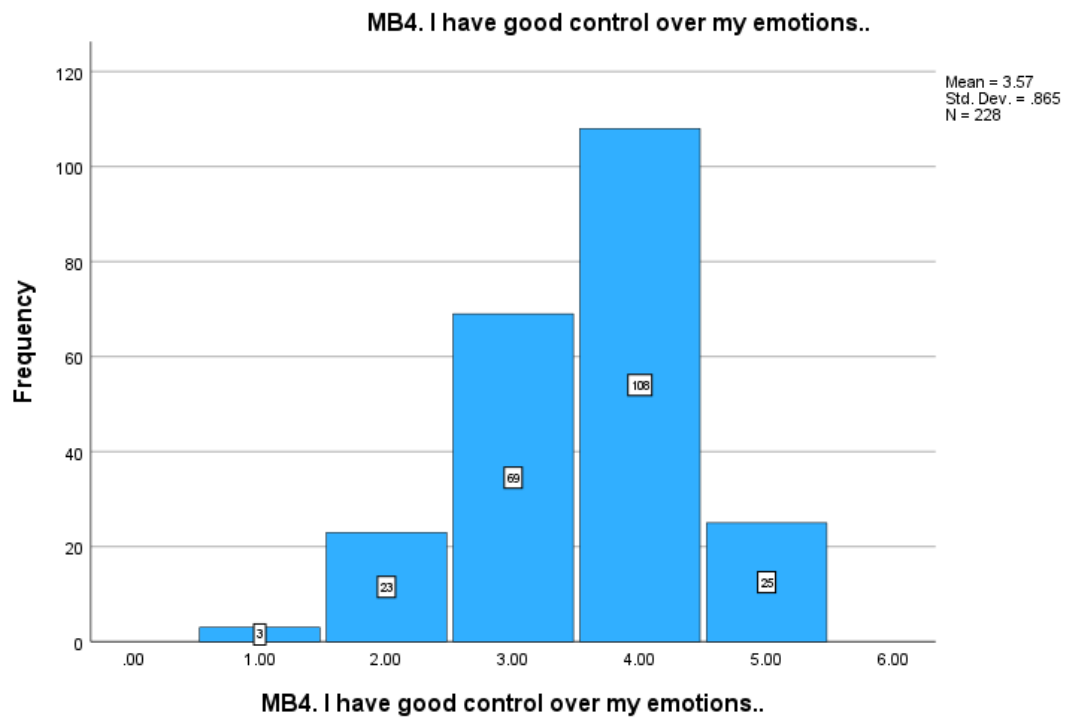
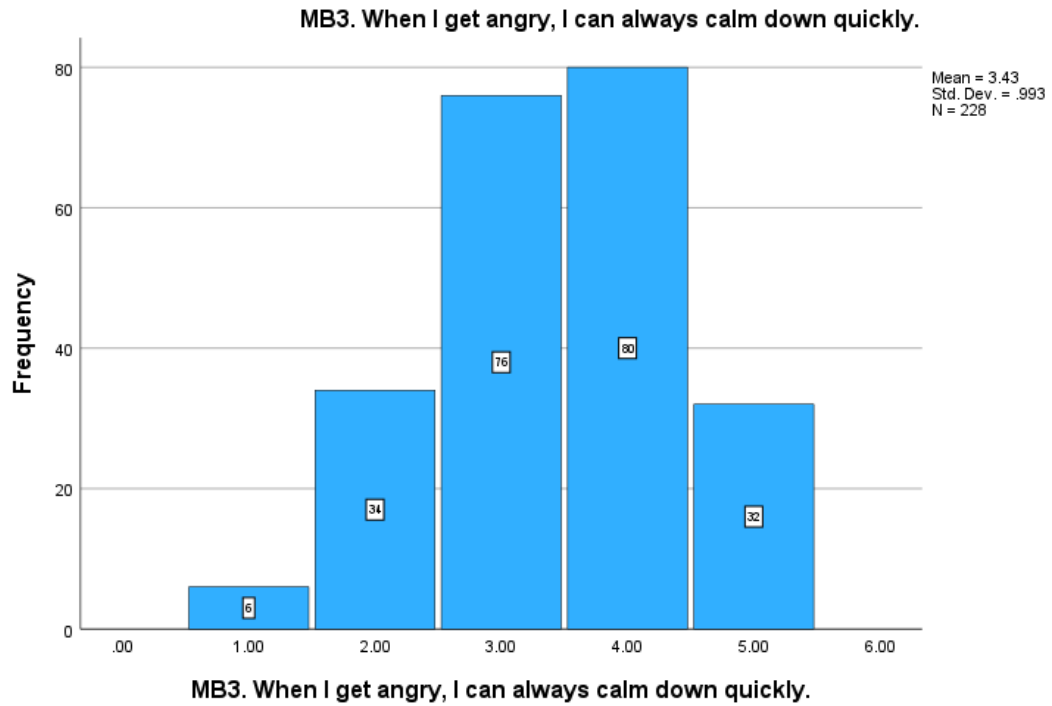
1. Distribution of answers to the Wong and Law Emotional Intelligence sub-scale items (Others Emotions Appraisal)



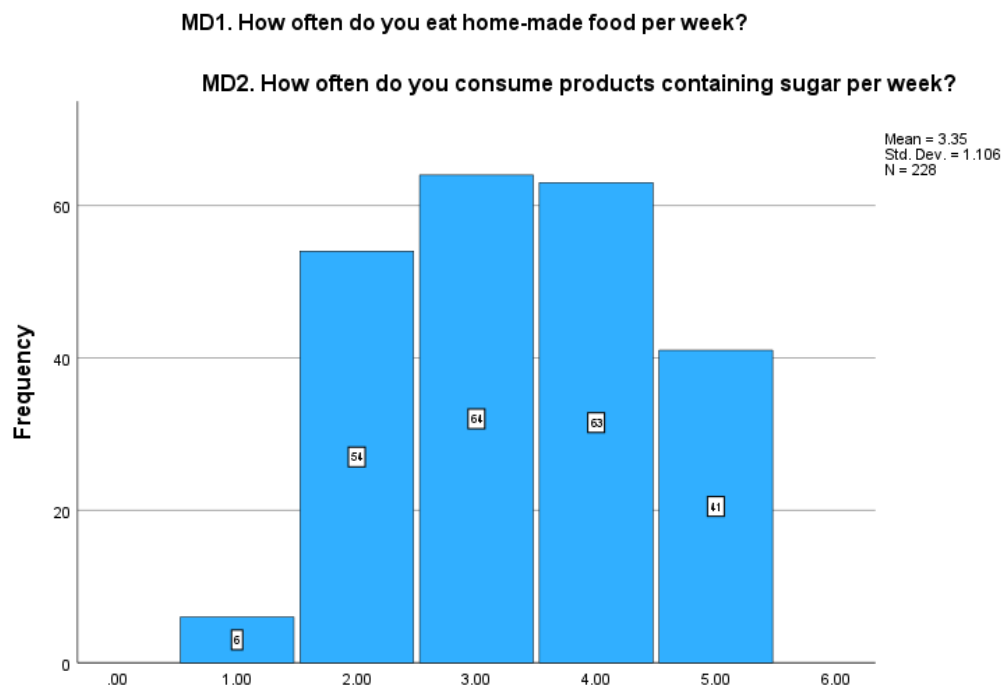
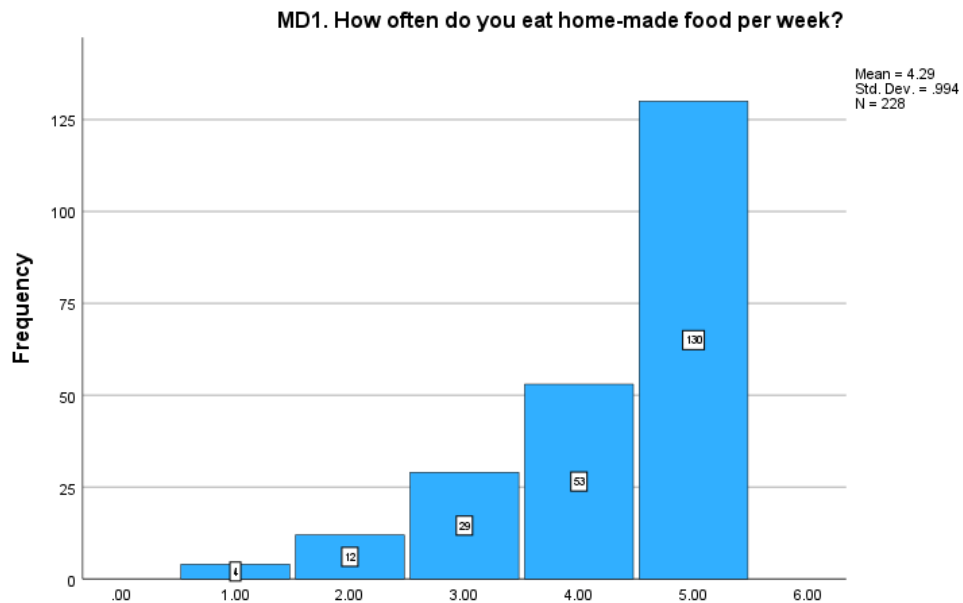


2. Distribution of answers to the Wong and Law Emotional Intelligence sub-scale items (Self-regulation)



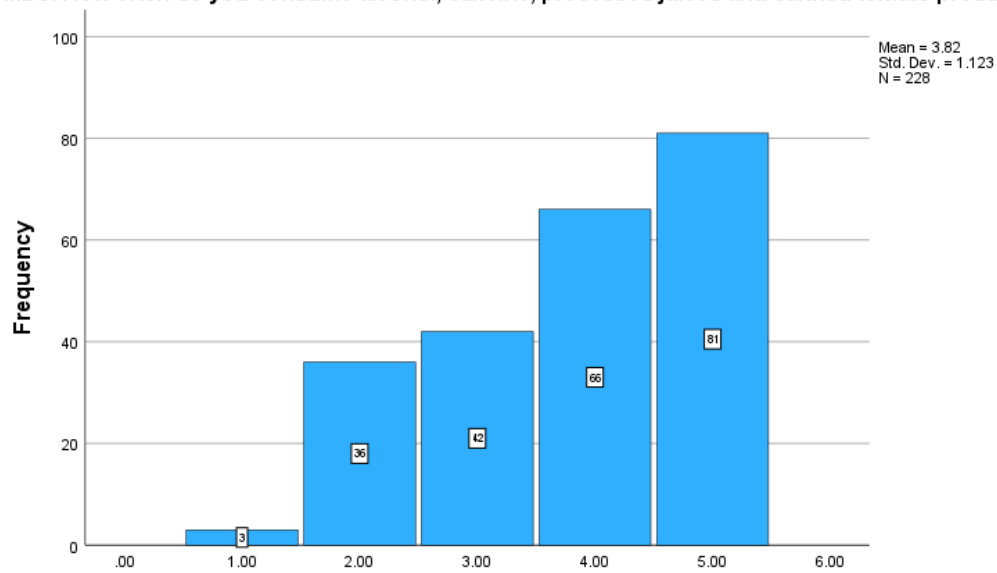


3. Distribution of answers to the NHL sub-scale items



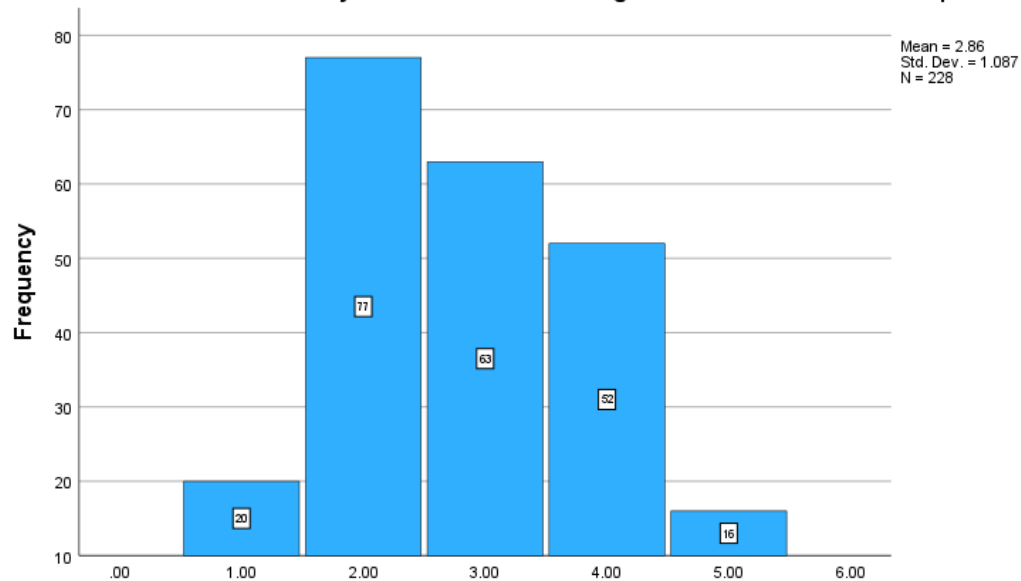
MD2. How often do you consume products containing sugar per week?

MD3. How often do you consume alcohol, caffeine, processed juices and canned tomato products per week?

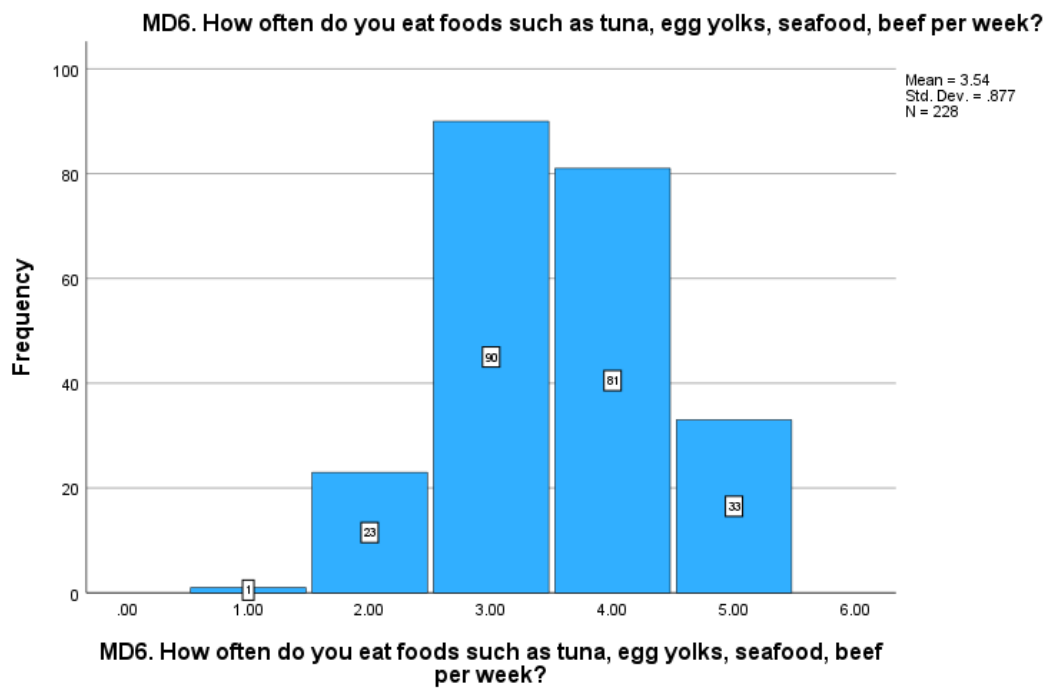


**MD3. How often do you consume alcohol, caffeine, processed juices and
canned tomato products per week?**

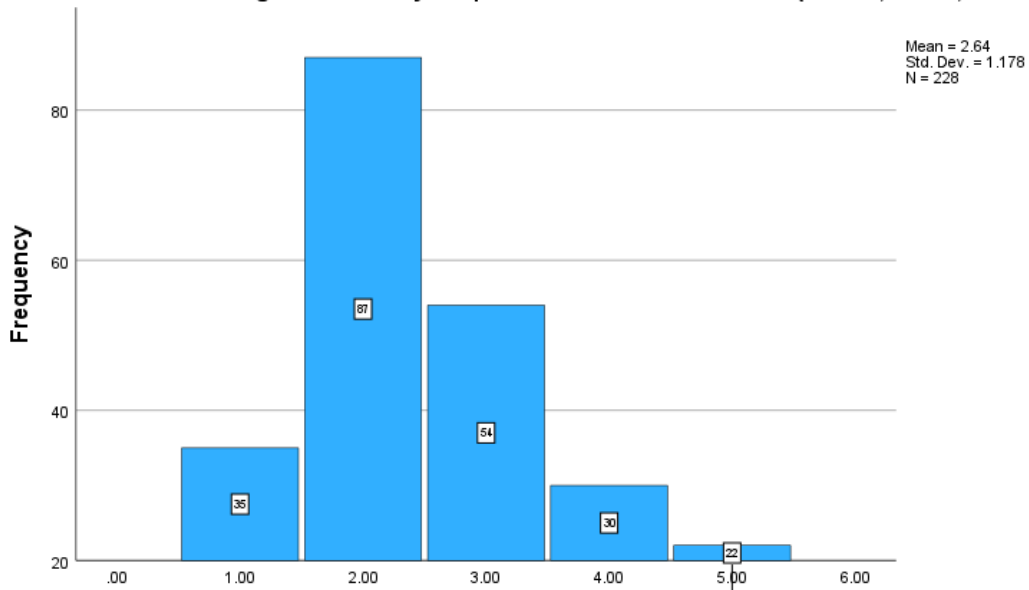
MD4. How often do you consume non-whole grain foods and/or fried foods per week?



**MD4. How often do you consume non-whole grain foods and/or fried
foods per week?**

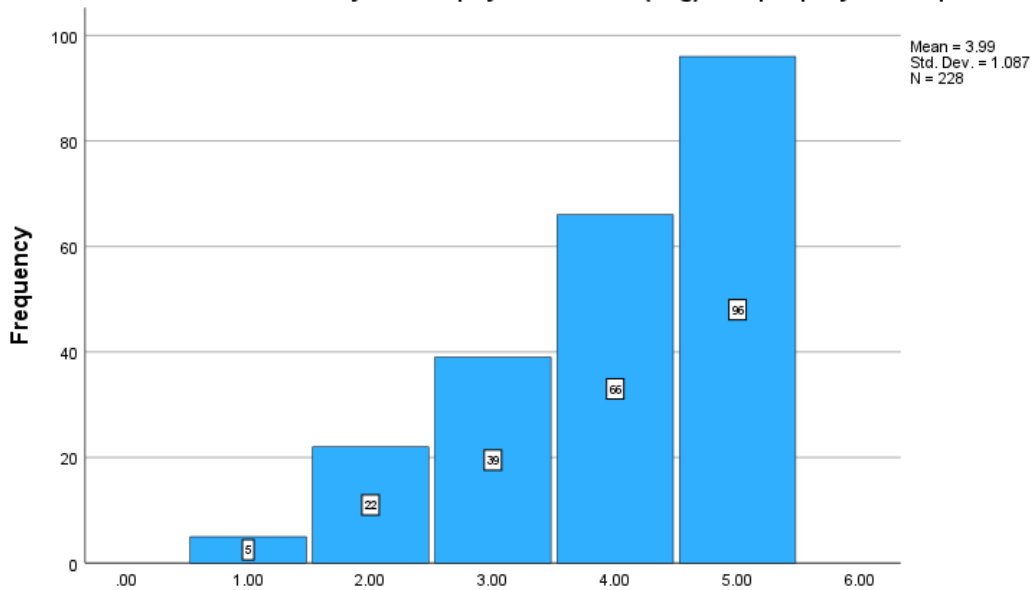


MD7. How often during the week do you spend time in some form of art (theatre, music, writing, painting)?

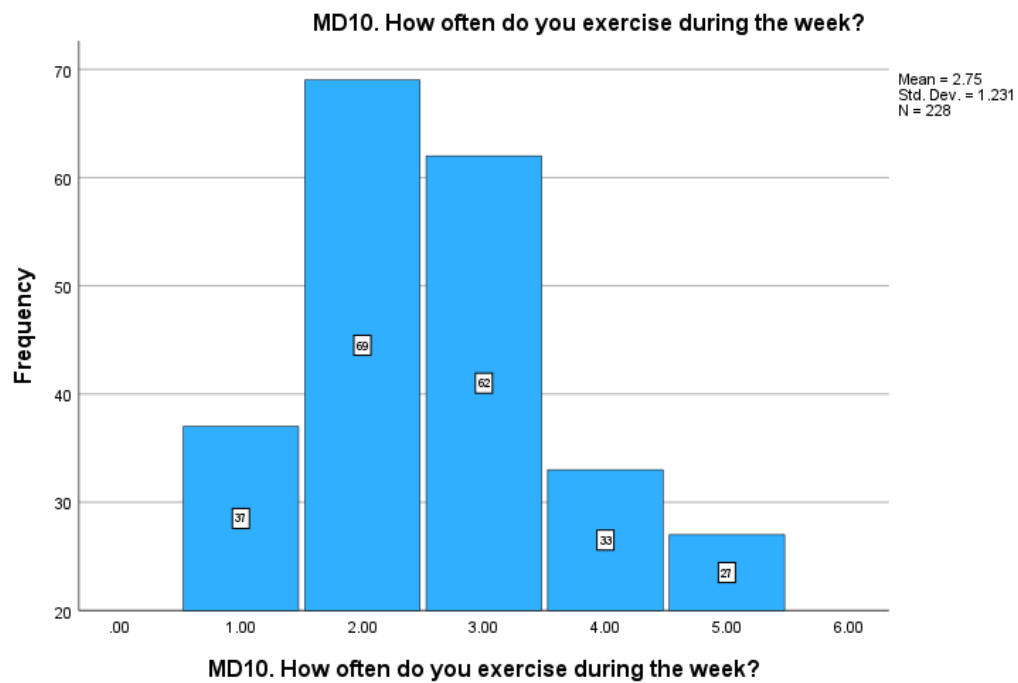
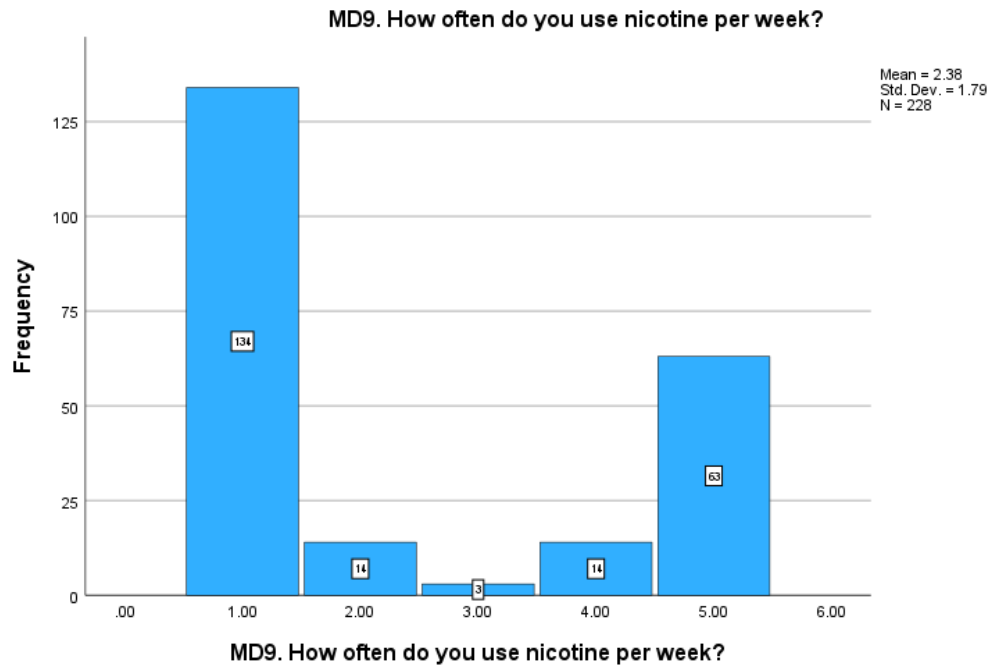


MD7. How often during the week do you spend time in some form of art (theatre, music, writing, painting)?

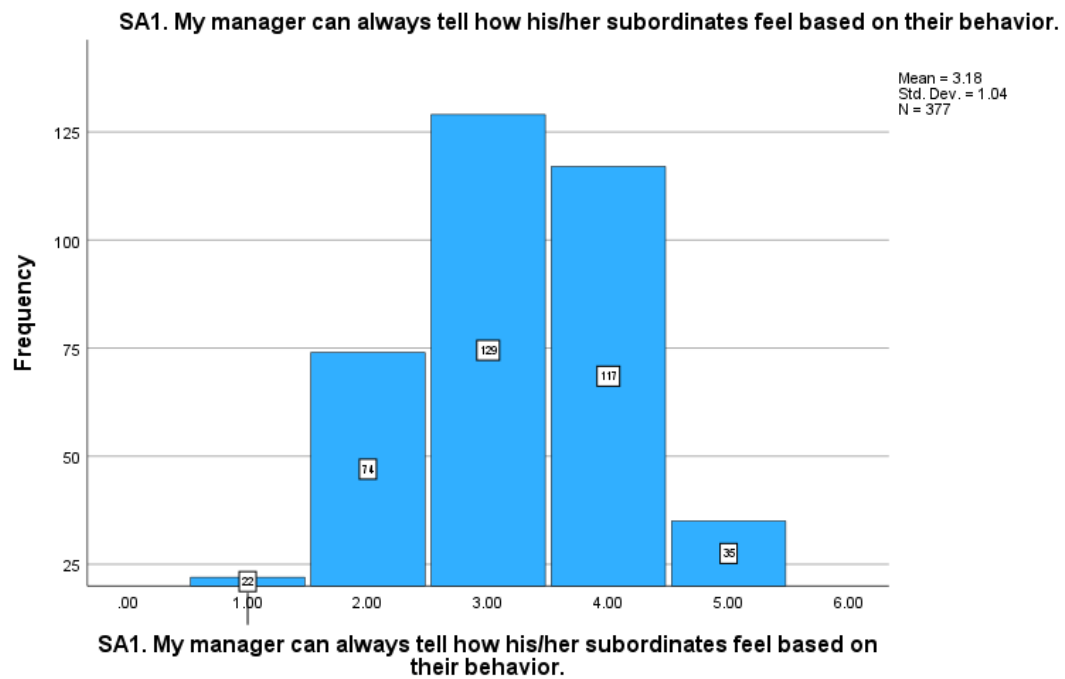
MD8. How often do you have physical contact (hug) with people you love per week?

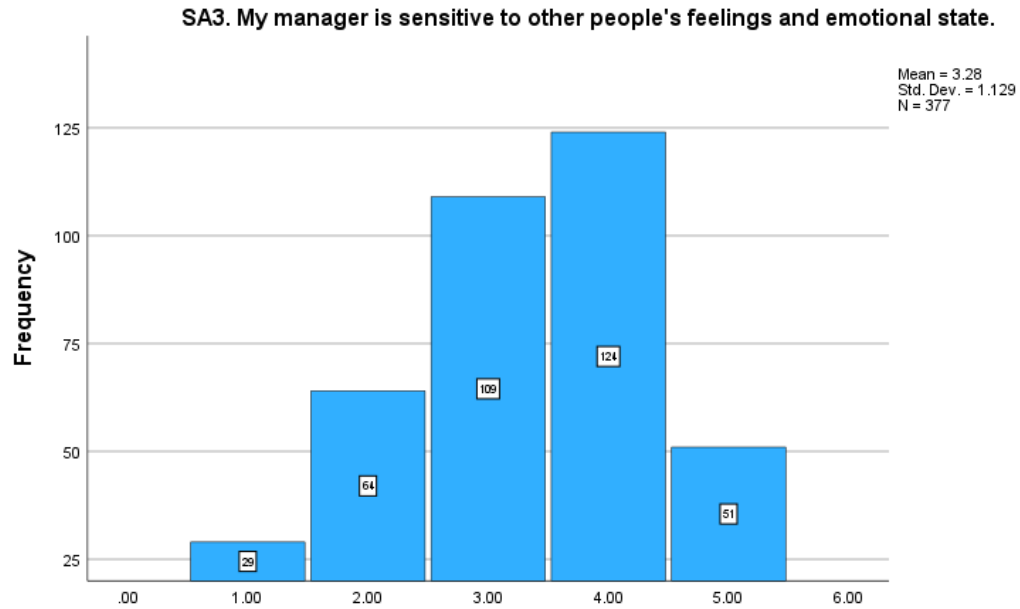


MD8. How often do you have physical contact (hug) with people you love per week?

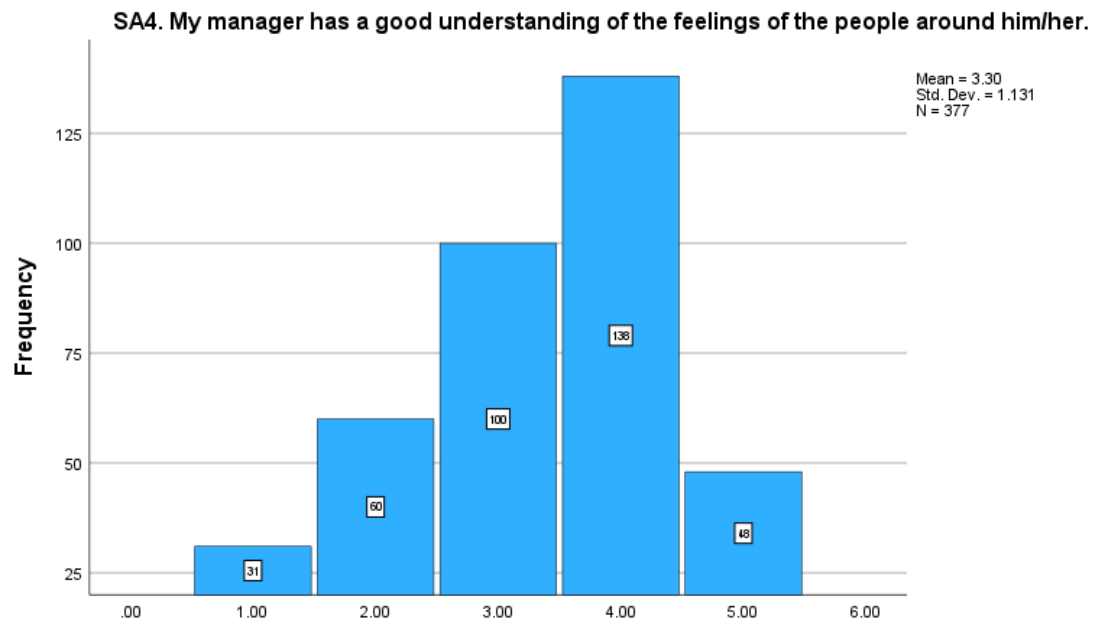


B. Employees answers for managers’ empathy and self-regulation

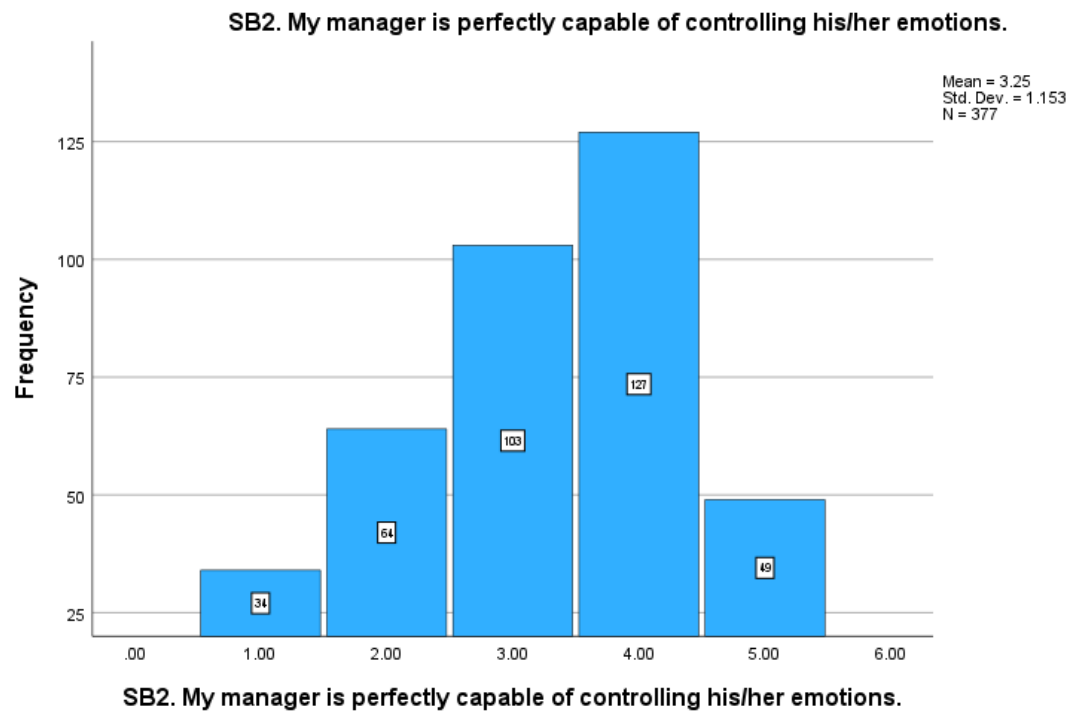
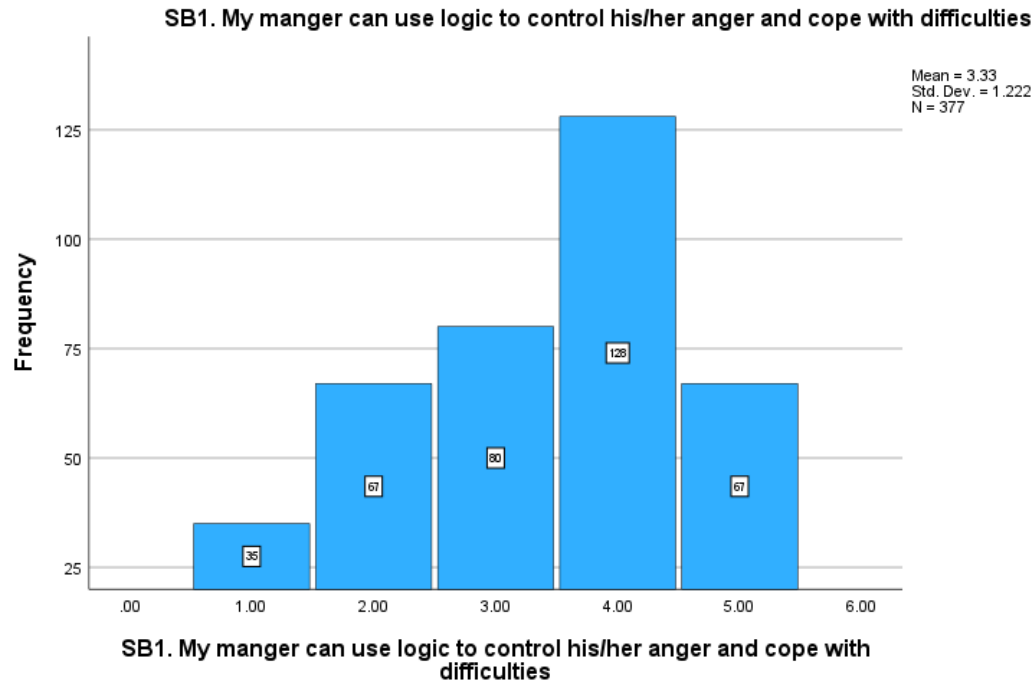


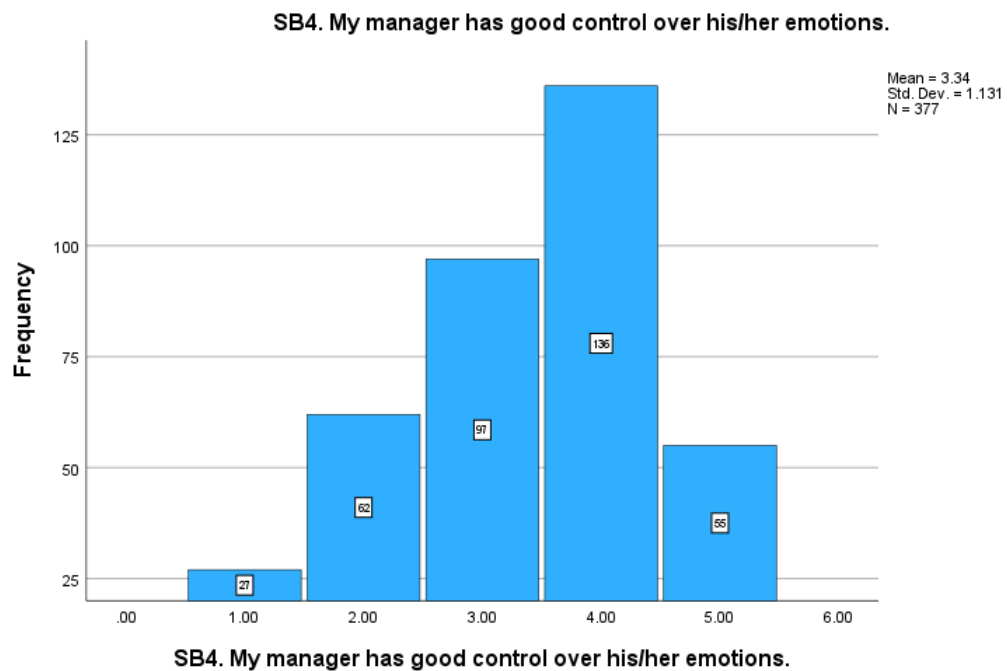


SA3. My manager is sensitive to other people's feelings and emotional state.

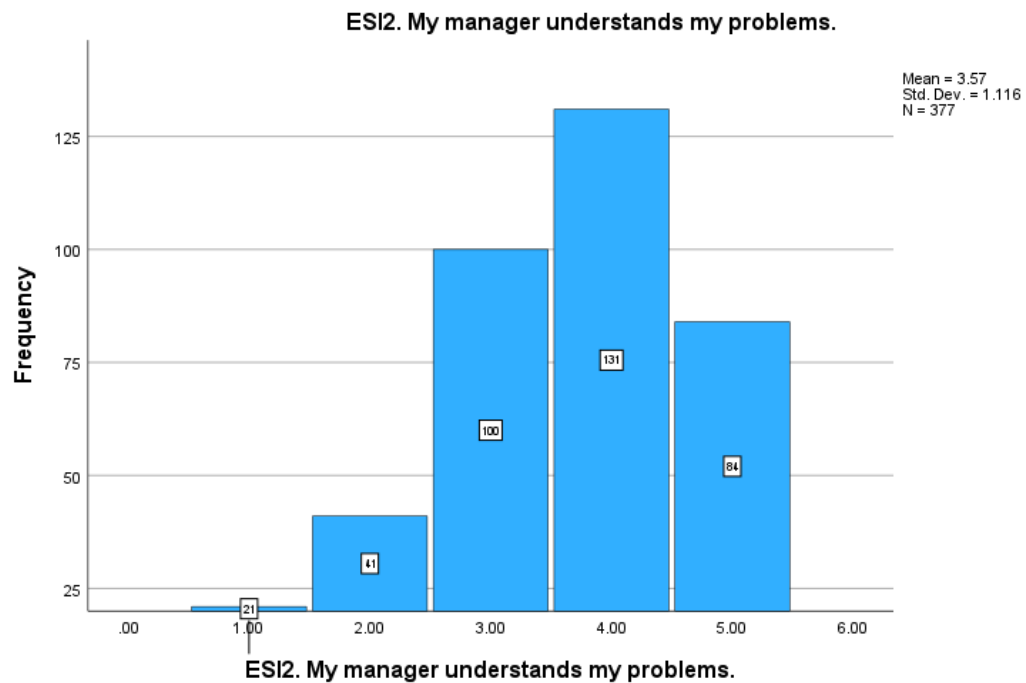
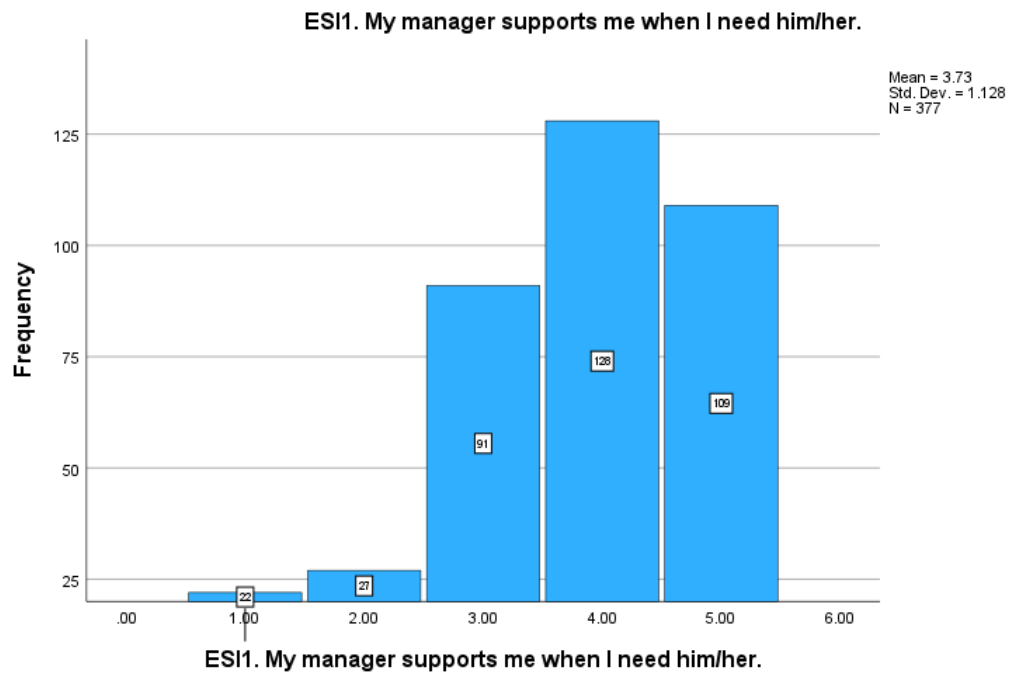


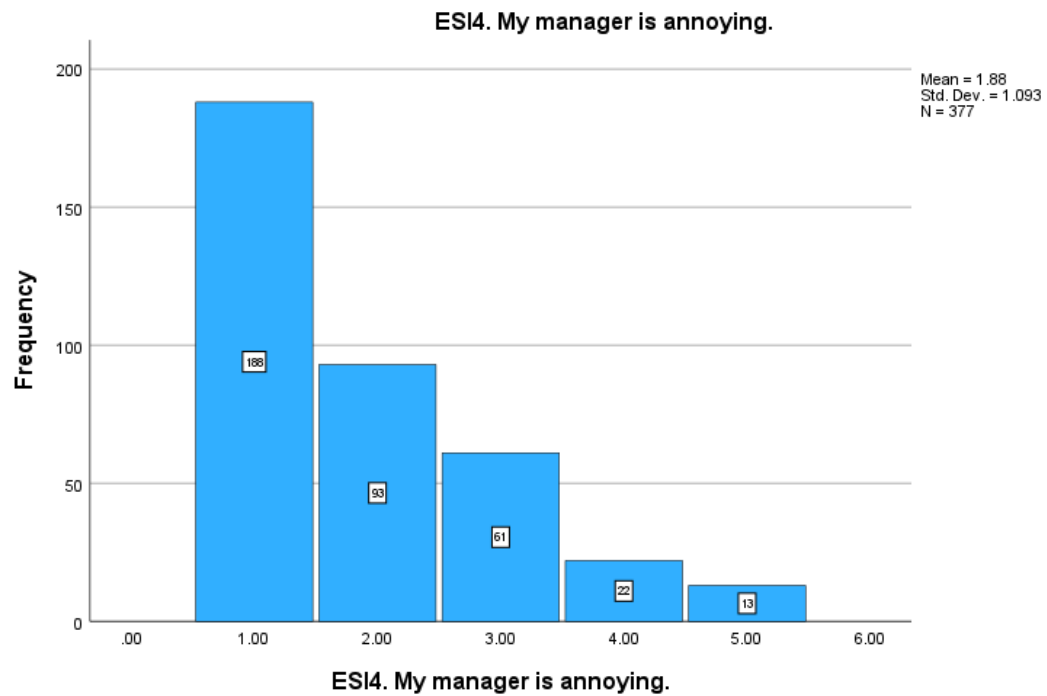
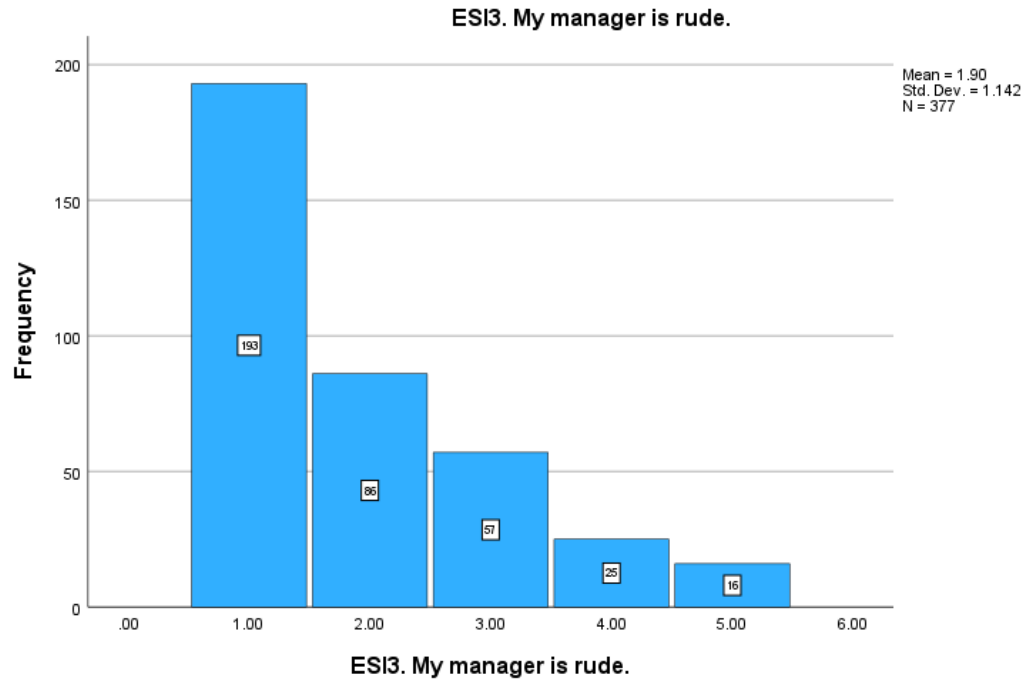
SA4. My manager has a good understanding of the feelings of the people around him/her.





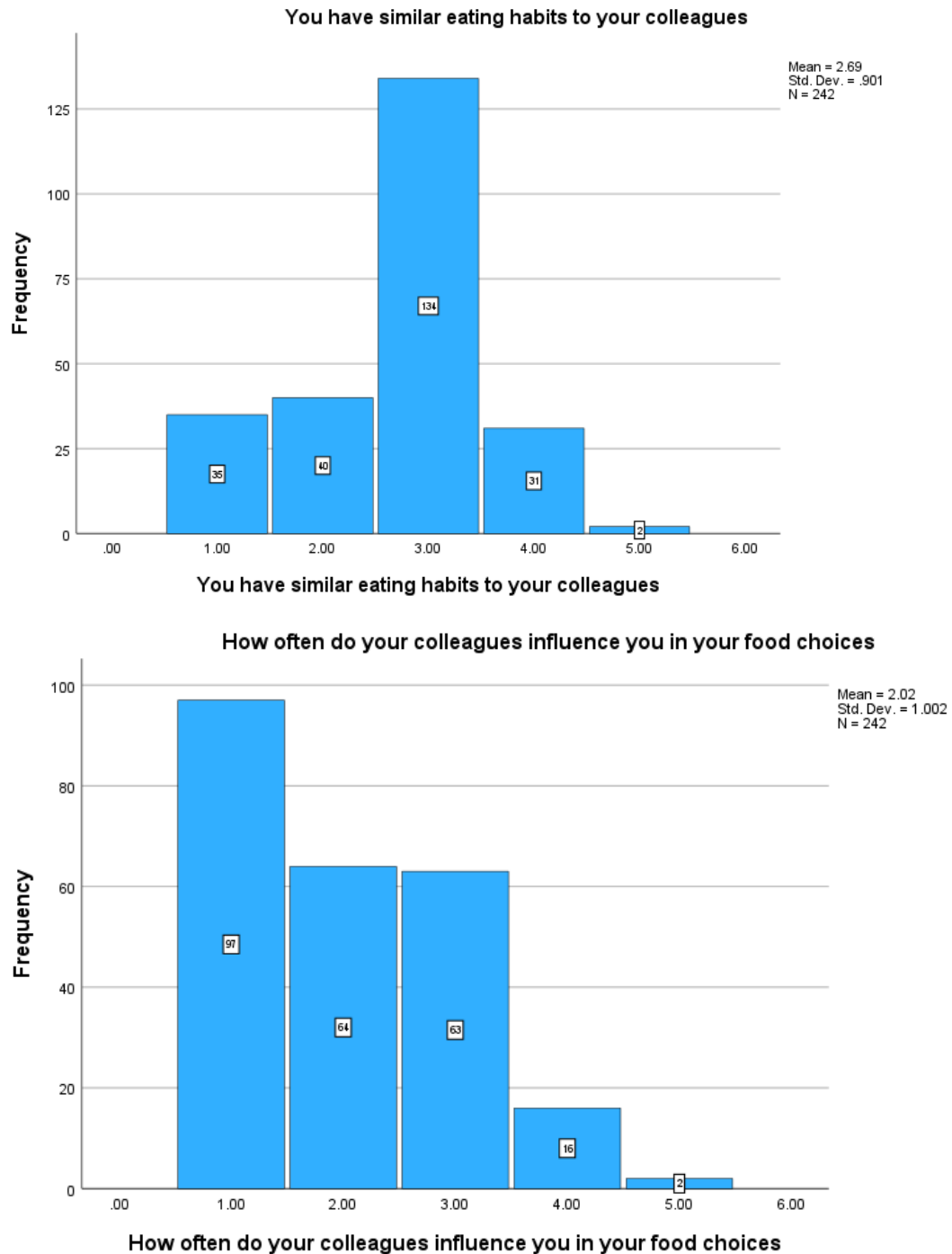
Employees’ Job Satisfaction

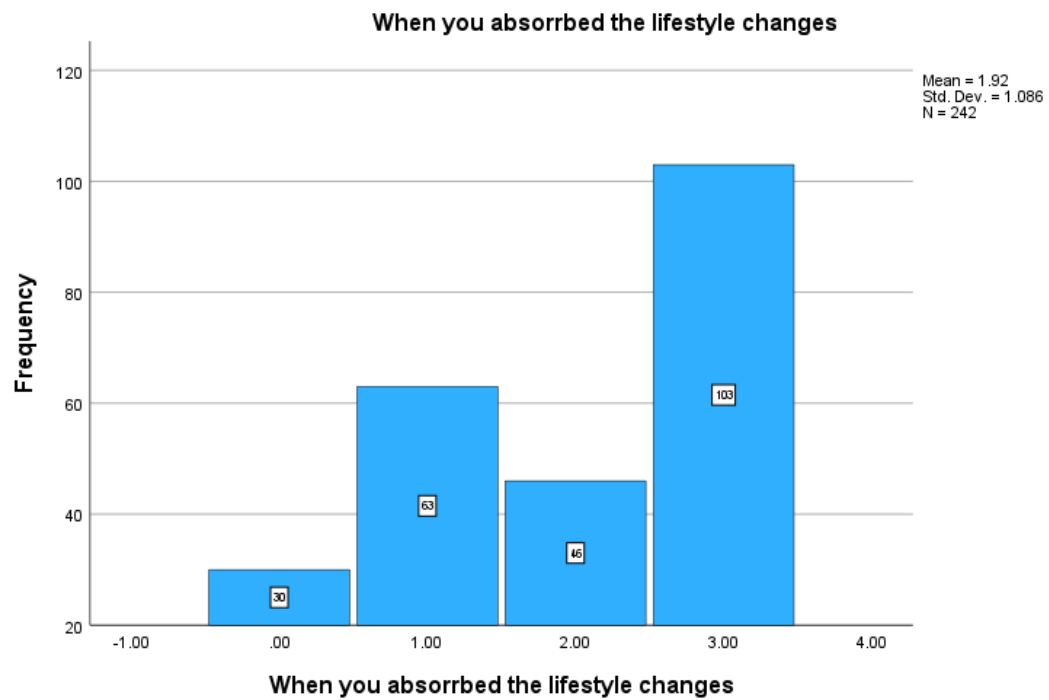
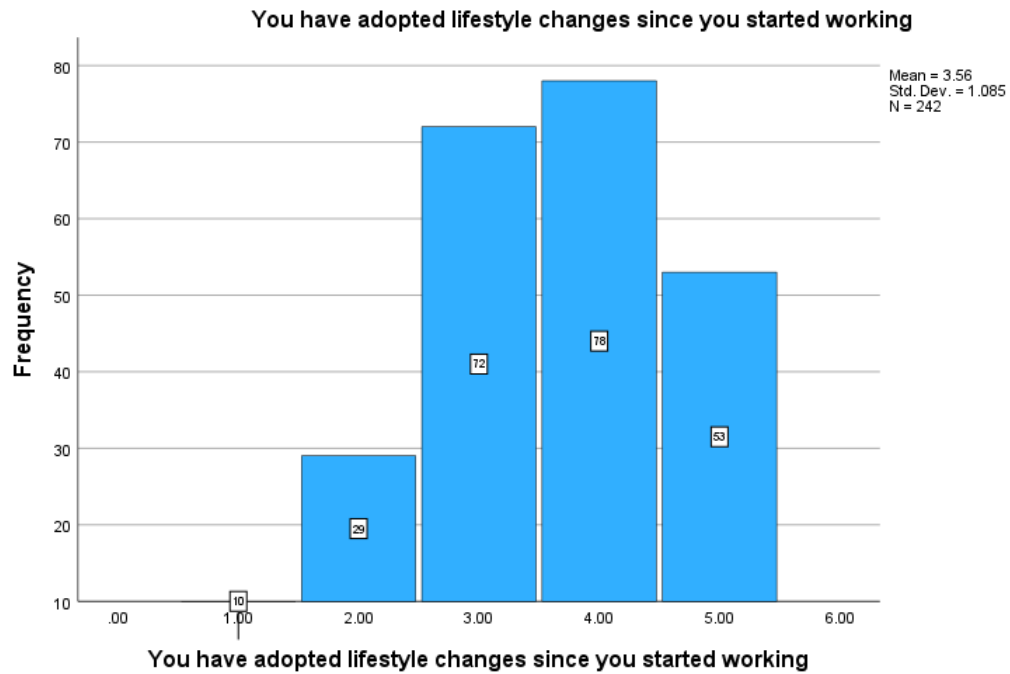


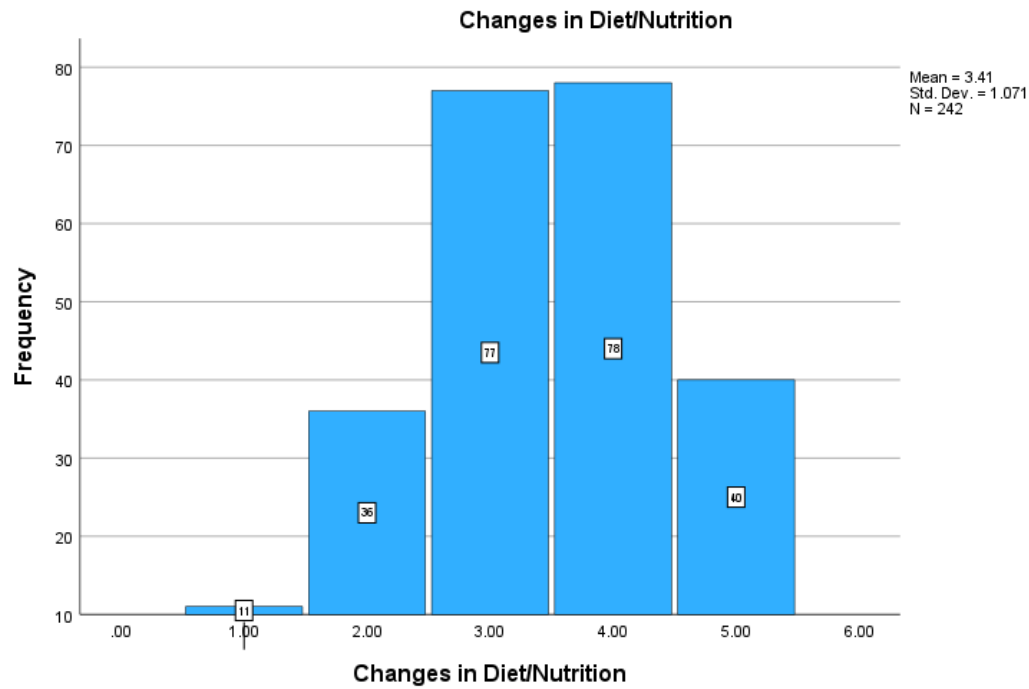
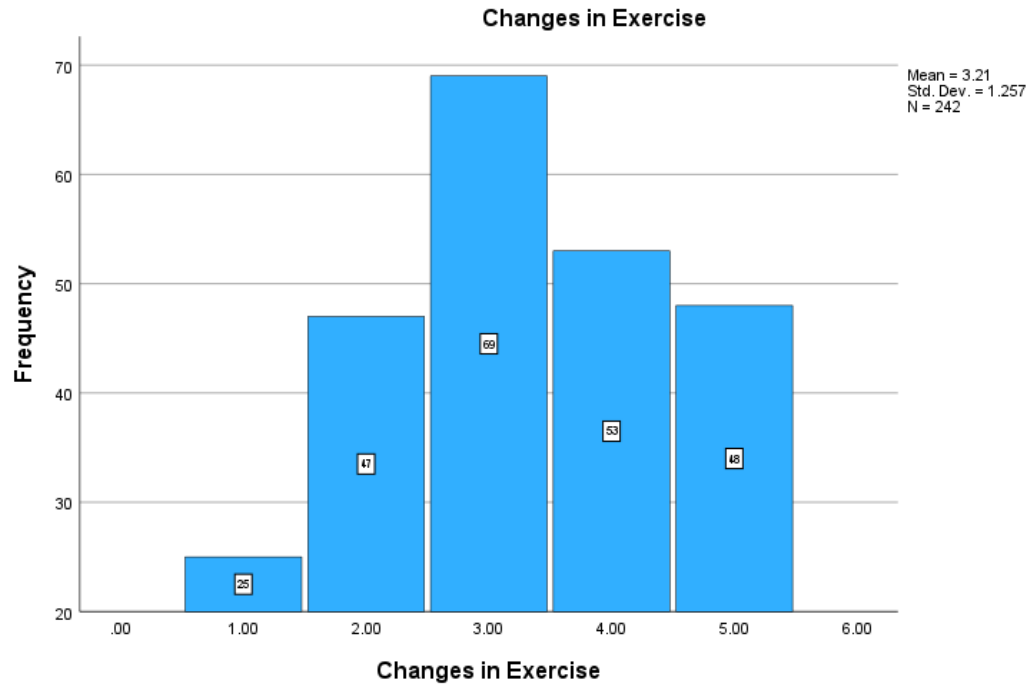


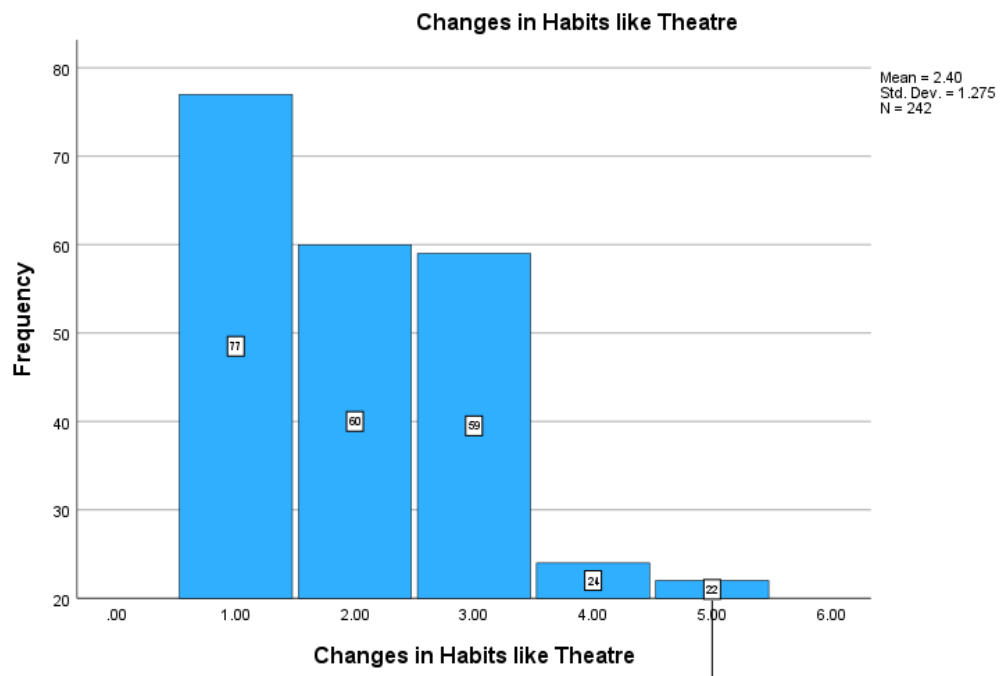
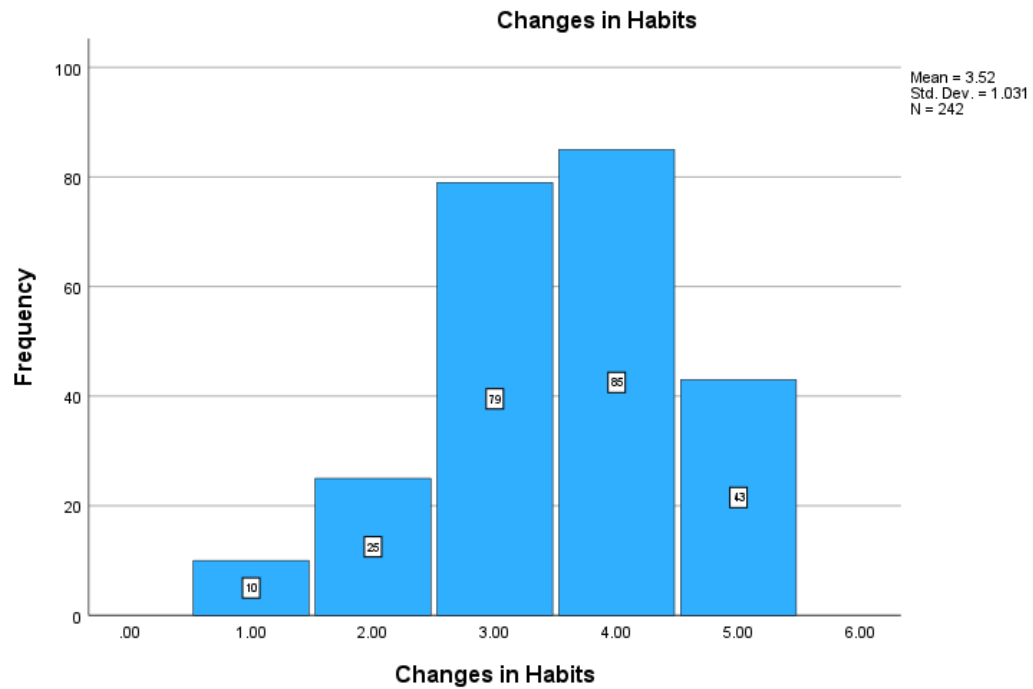
Annex V

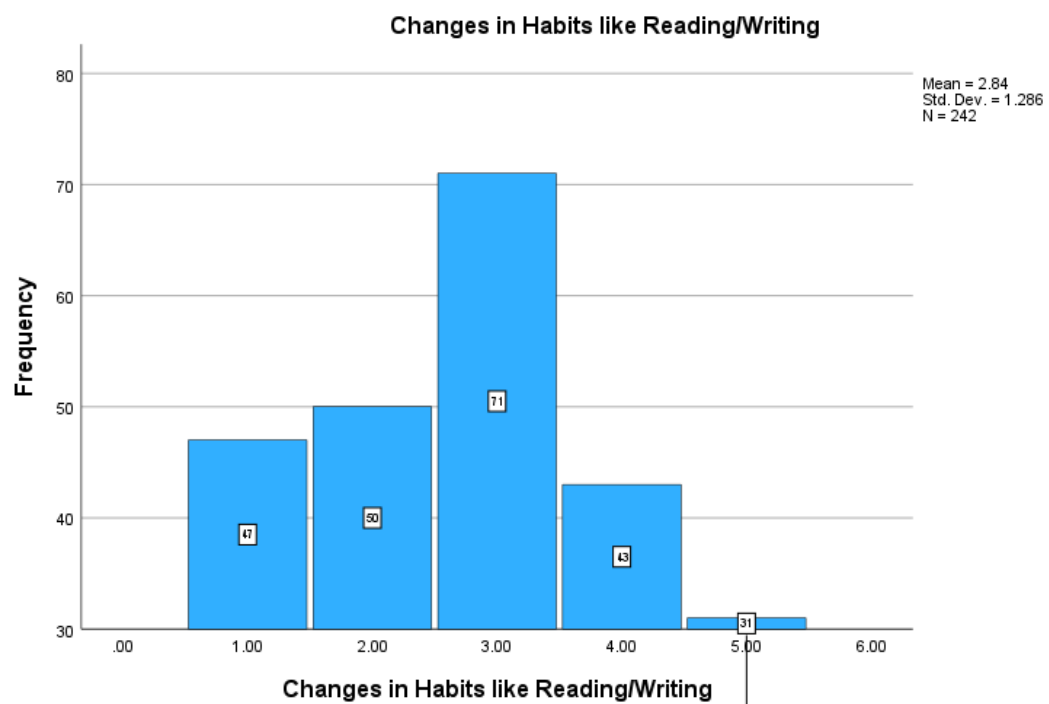
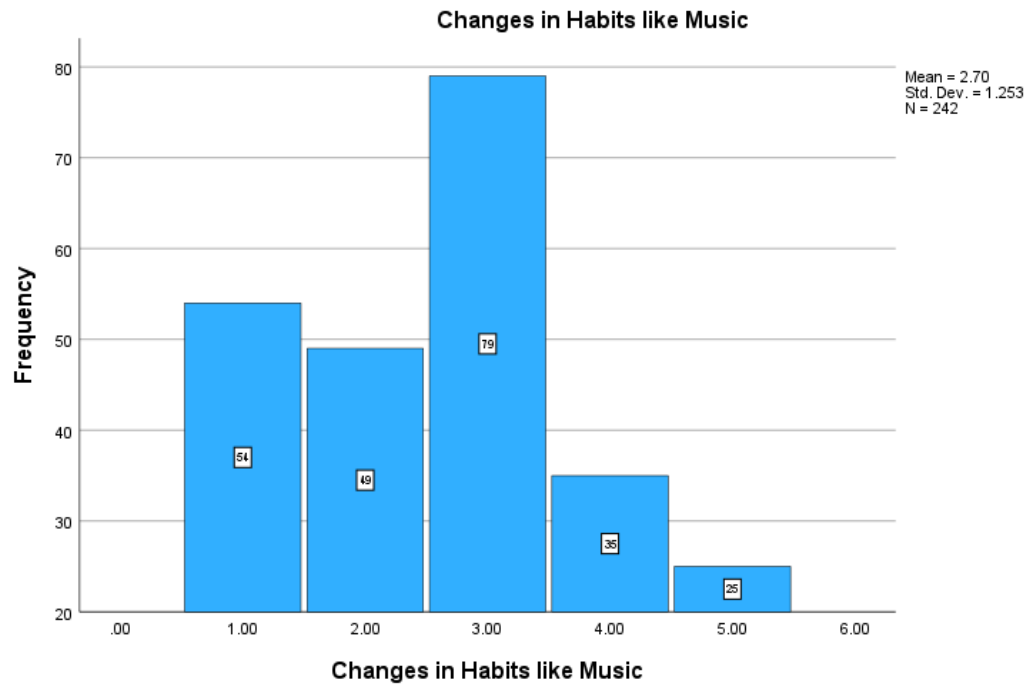
Decision-Making and NHL answers (Addendum)

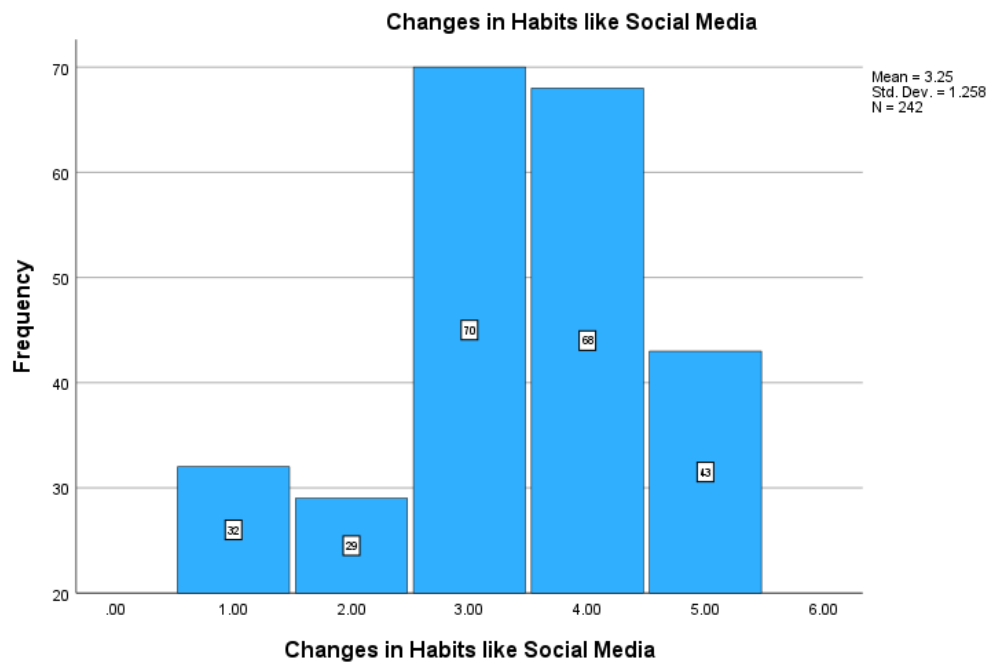
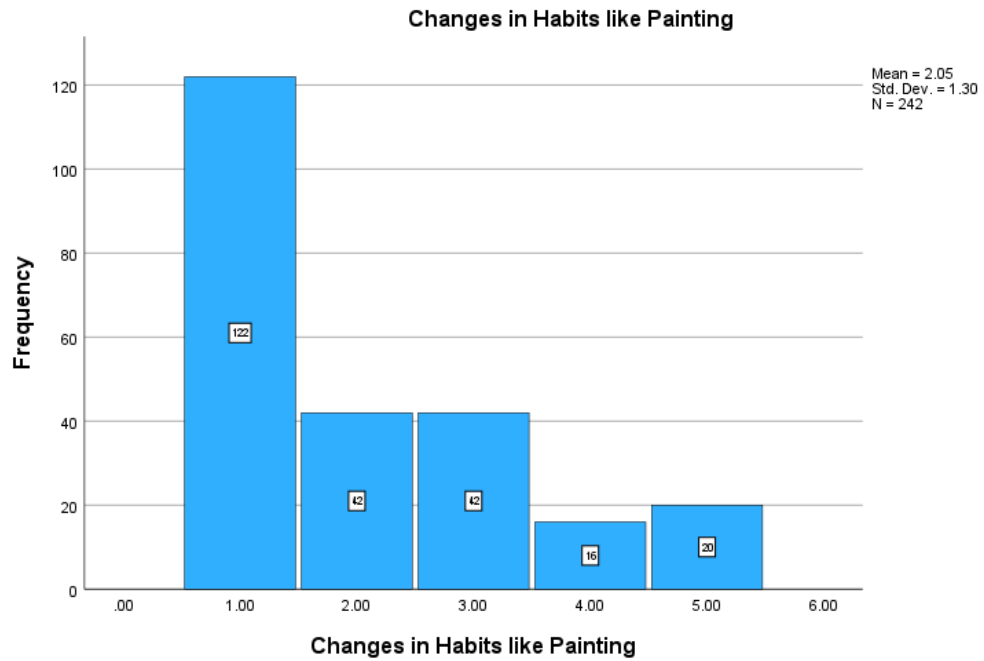


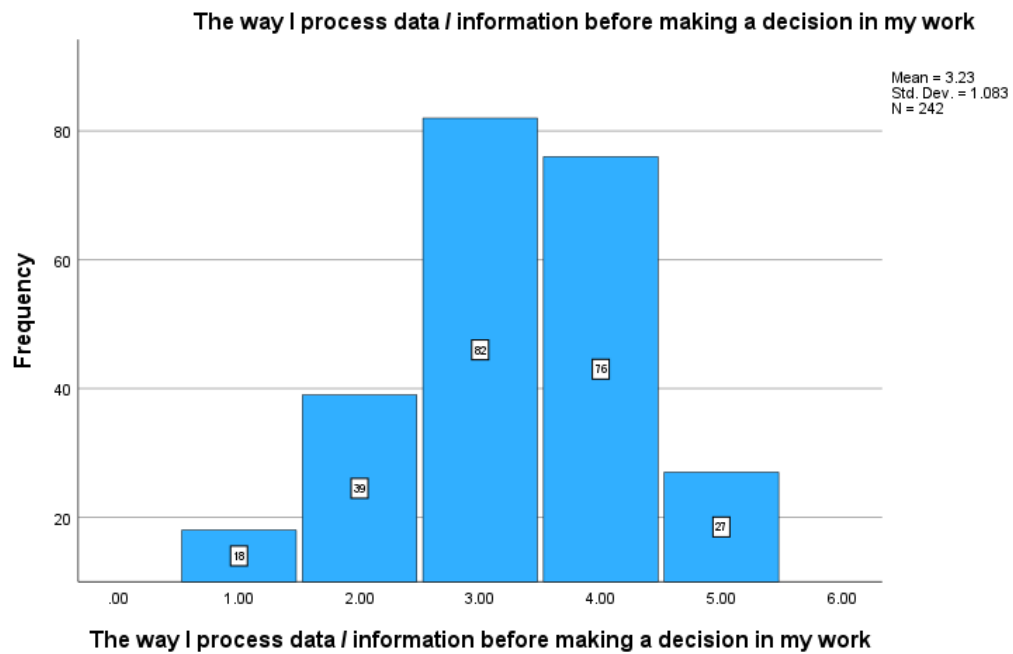
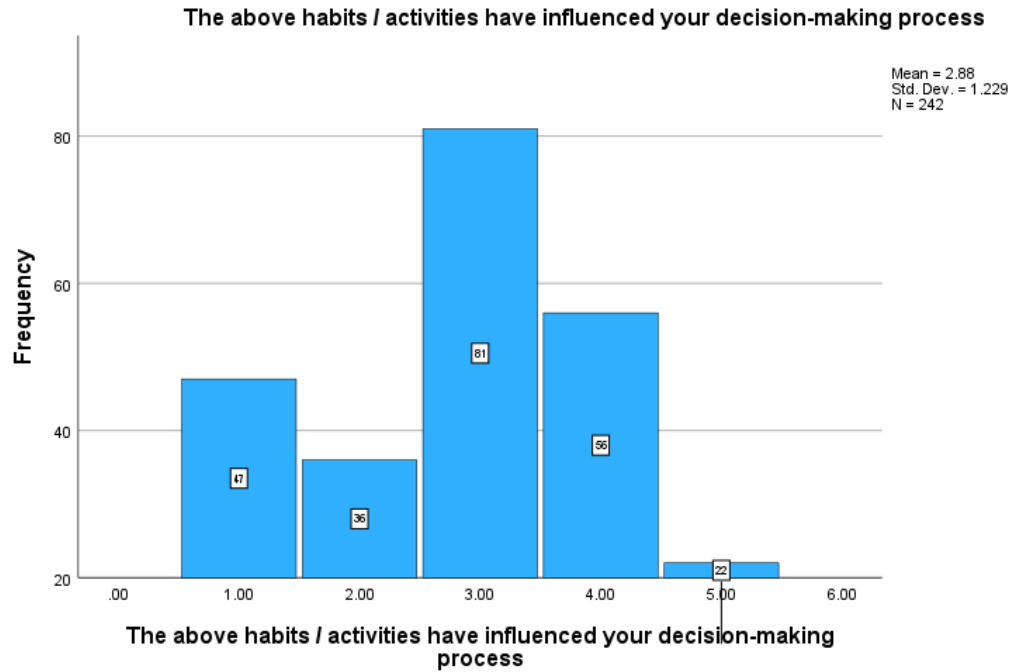


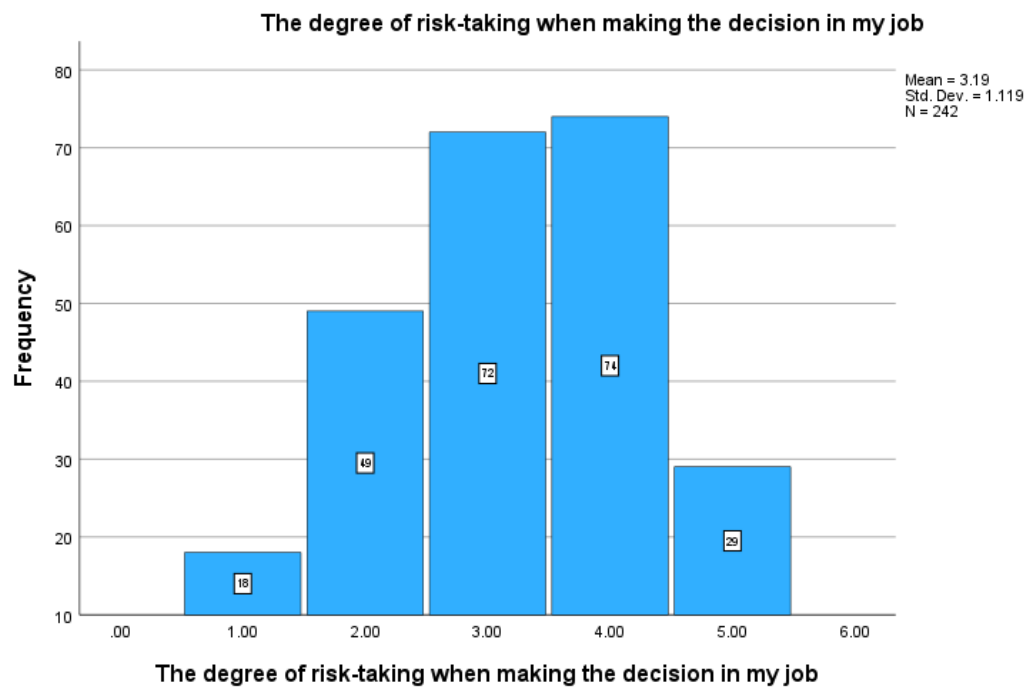
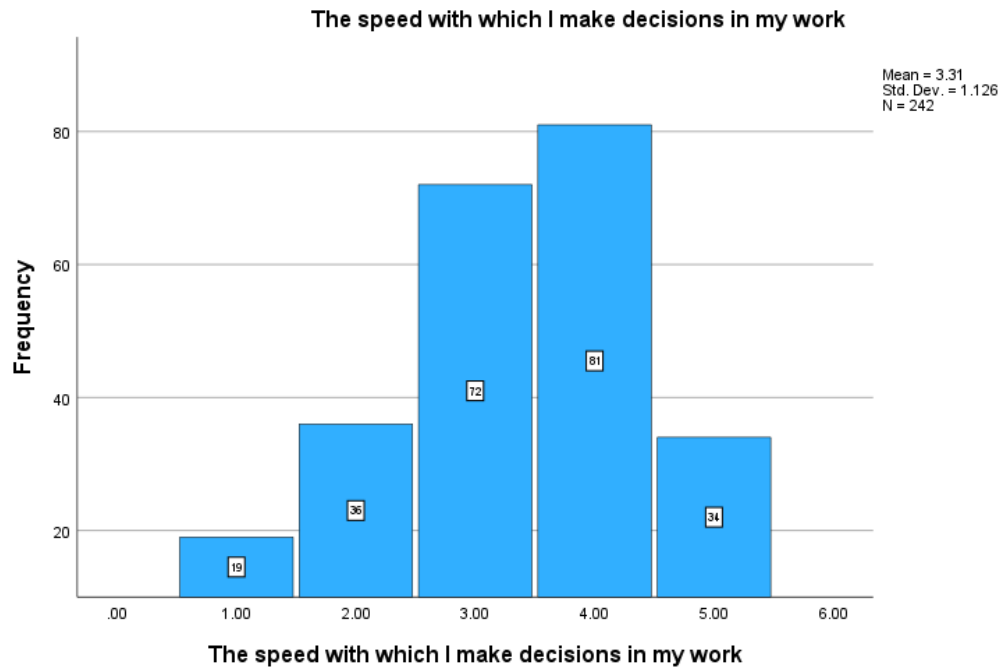




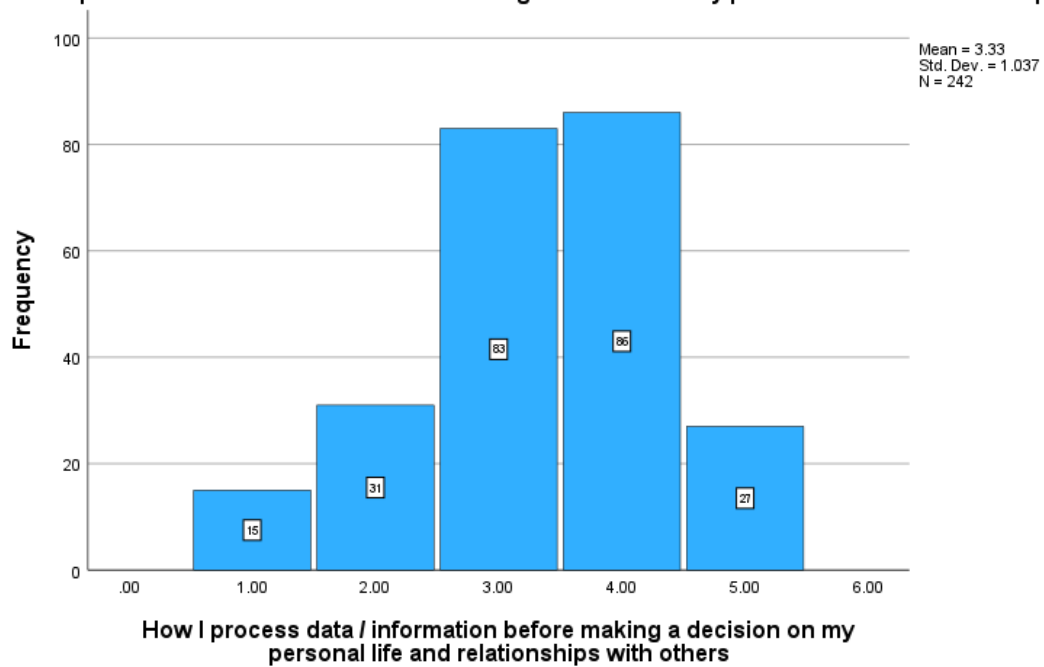








How I process data / information before making a decision on my personal life and relationships with others



The speed with which I make decisions in matters of my personal life and in my relationships with others

