

**Shared Leadership as a Predictor of Team
Effectiveness in Health Care**

by

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Abstract

This study investigated the role of shared leadership in effectiveness of teams in health care sector. The research was performed by conducting both vertical leadership and shared leadership in 17 public and private health care teams as assessed from two sources; team leaders and team members. Team effectiveness was measured as well from the viewpoints of the two sources. Using statistical analysis, team effectiveness was found to be significantly predicted by both vertical leadership and shared leadership, but in a broader aspect by the second one in its three constructs; shared transactional leadership, shared transformational leadership, and shared empowering leadership.

Keywords: shared leadership, team effectiveness, health care

Abstrakt

Ky studim investigoi rolin e lidershit të shpërndarë në efektivitetin e ekipeve në sektorin e kujdesit shëndetësor. Hulumtimi është kryer duke studiuar të dy; lidershipin vertikal dhe lidershipin e shpërndarë në 17 ekipe shëndetësore publike dhe private, të vlerësuara nga dy burime; udhëheqësit e ekipit dhe anëtarët e ekipit. Efektiviteti i ekipit gjithashtu është matur nga këndvështrimet e të dy burimeve. Duke përdorur analiza statistikore, efektiviteti i ekipit rezultoi që të parashikohet në mënyrë të konsiderueshme nga të dy lidershipet si ai vertikal dhe ai i shpërndarë, por në një aspekt më të gjerë nga ky i dyti një në tre strukturat e tij; lidershipi i shpërndarë transaksional, lidershipi i shpërndarë transformues, dhe lidershipi i shpërndarë fuqizues.

Fjalët Kyçe: Lidershipi i shpërndarë, efektiviteti i ekipit, kujdesi shëndetësor

Dedication

To my beloved parents!

Thank you for your continuous support and encouragement...

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Declaration Statement

The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

Drinalda Durmishi

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List of Abbreviations

DL: Distributed Leadership

SL: Shared Leadership

VTL: Vertical Transactional Leadership

VTfL: Vertical Transformational Leadership

VEL: Vertical Empowering Leadership

ShTL: Shared Transactional Leadership

ShTfL: Shared Transformational Leadership

ShEL: Shared Empowering Leadership

TE: Team Effectiveness

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1. Chapter One

1.1. Introduction

In this thesis is studied the effect of shared leadership in team effectiveness. In chapter one are reported the different models that the leadership can be conceptualized. It is notably seen that there has been dissonance among leadership scholars for decades regarding defining leadership. In this study will be studied the leadership in health sector, and how it affects the team effectiveness. The team success in health care is crucial for the patient satisfaction. Following a thorough literature review are analyzed the concepts of leadership, and more in detail the distributed and shared leadership. Health sector is a sector with very complex problems (Plsek & Greenhalgh, 2001) and collaboration of all levels is necessary. From the literature and the findings in the majority of the studies, leadership affects the team performance, the team effectiveness, and consequently the patient satisfaction positively. Besides this it has shown positive effect on job satisfaction and service outcome. Meaning that the leadership in different levels of health care institutions brings increase in job satisfaction, which results in higher degree of patient satisfaction, and consequently rise in service outcome.

In chapter two are presented the theoretical bases of types of leader behavior. Leadership literature as reviewed introduces five types of leader behavior: aversive leadership, directive leadership, transactional leadership, transformational leadership, and empowering leadership (Northouse, 2013; Pearce & Sims, 2002). However, in this work the study is focused on transactional, transformational, and empowering leadership. In order to get a closer view to the extent of the research, there have been explained the representative behaviors of the three leadership types as based on the theory. Further, this section is enriched with studies made in this field.

In chapter three, is presented the methodology used in the study. The sampling procedure was a random selection on the health care personnel. The study was conducted through questionnaires delivered by hard copy. Proceeding with the explanations regarding the measures used, and also there are presented several studies taken as to be referred which have used these measures and have found significance in their results. The measures are: leader behavior, and team effectiveness. The questionnaire formulation method by asking the participants to answer in the same time for their leader and their team members, *double answer*, makes possible to see the vertical leadership and to measure it in its three constructs:

vertical transactional leadership, vertical transformational leadership, and vertical empowering leadership. Similarly, it will be possible to see and measure the shared leadership in its three constructs: shared transactional leadership, shared transformational leadership, and shared empowering leadership. The other measure is team effectiveness, which is the dependent variable to be measured.

In chapter four are reported the findings and the discussion of the results. Using the statistical analysis; t-test and correlation analysis, team effectiveness was found to be significantly predicted by the vertical transformational leadership and the vertical empowering leadership, but not by the vertical transactional leadership. Meanwhile, team effectiveness was found to be significantly dependent on studied three constructs of shared leadership; shared transactional leadership, shared transformational leadership, and shared empowering leadership.

In chapter five, are presented the conclusions of the study and identified the limitations of the work. Besides, there are recommended some academic and managerial implications.

1.2. Literature Review

‘Leadership is a fundamental issue that affects the success and failure of every organization or country’ (Koccolowski, 2010). ‘Leadership is a process whereby an individual influences a group of individuals to achieve a common goal’ (Northouse 2013). Northouse shows in his work that leadership has been studied since 1900. For a period of around 90 years starting from 1900, studies revealed more than 200 different definitions regarding leadership. Leadership scholars themselves come out to like-mindedness that leadership cannot be defined. There are different reasons for this such as effects of growing global influences, generational differences which will arouse different meanings of leadership in different people. It is possible to say that as people perceive leadership, there exist so many ways of defining it. Leadership is positioned besides the other notions like peace, and democracy. Even though we know what we mean by these words, the words can signify different things for different people (Stodgill, 1974).

Rost (1991) studied the evolution of leadership definitions from 1900 till 1990s. He found that in the middle of the century in the 50s, leadership comes closer to the today’s mentality. In the 50s, the continuance of group theory is first theme of leadership. Then, the leadership

evolves to a relationship that develops shared goals. The last theme is the effectiveness which shows the abilities of the leader to influence the group. Deriving from this study, leadership is conceptualized as an influence relationship among leaders and followers who intend real changes that reflect their mutual purposes (Crowe, 2003). Research evidence supports the fact that this relationship beyond the intention to change, it has positive effect in the organizational outcome and learning process (Harris & Spillane, 2008). Leadership is an influence relation that is multidirectional within a group, meaning that influence flows in all directions not just from the top to subordinates (Rost, 1991; Block, 2003; Bennett et al., 2003). And this is the advantageous difference between shared leadership and classic perceptions of leadership (Pearce et al., 2009). At the same time this relationship is characterized by behaviors that are convincing as opposed to dictatorial. Studies made in companies offering public services in different areas such as catering and education sector, have revealed that teamwork and shared leadership have amplified the individual talent of the leader. Concentrating on the leading indicators of success, among which client satisfaction and workmate development can be mentioned, has resulted in good performance of the company (Pearce et al., 2009). Block (2003) considers the followers as active participants in the relationship, and they are engaged in leadership as leaders do. This relation is described in a harmonic way where both parts are interested in effecting real change, and the work to develop reciprocal purposes. In order to achieve a good level of functioning of the structure of the organization as studied in small-scale societies, beyond the material compensation the motivation of the followers coming with the exchange of reciprocal opinions from the two parts would demonstrate a more effective leadership model (von Rueden, C., & van Vugt, M., 2015). These reciprocal purposes and the exchange of reciprocal opinions will lead on the process of building a common mission. Similarly to these concepts, Krishnan (2003) points out that 'leadership stimulates the followers to pursue common or at least joint purposes that represent the values and motivations of both leaders and followers'. Organizations yet have accepted that leadership is no more a technical occupation, but that it includes the managing of people, establishing and developing of the sense of community within the organization (adapted from Brown, 1992; and Conger, 1993). Study in healthcare revealed that involvement of nurses in decision making regarding euthanasia issue has gained broad support from nurses themselves (Inghelbrecht et al., 2009). Nurses are the largest workforce near to the service receivers, and assessing their opinions regarding the usefulness of the immunization program in the scope of public health has been helpful in the functioning of this program (Gilca et al., 2009). Another often encountered problem in health care is nursing

shortage for which in the contrary of transactional leadership, the transformational leadership was found to bring positive effect on communication and team building, resulting the decline of this problem (Thyer, 2003). Research findings represent the significance of involving managers of different levels which results in effectiveness of safety issues in health care (Flin & Yule, 2004). 'Leadership is no longer seen as a function of position or authority. It is fundamentally a 'social good' (Canadian Health Leadership Network, 2014).

Through the decades of the 20th century the definitions are further more detailed and developed. In the 21st century the leadership scholars agree on the impossibility of defining the leadership. Again, Northouse (2013) expresses that leadership can be described, and conceptualized.

Leadership is an important subject of study in organizations which offer public service such as education and health sector. Health sector is a sector with very complex problems (Plsek & Greenhalgh, 2001) and there is no more the 'heroic' leader to solve every problem but collaboration is necessary. A review of literature brings out different concepts of leadership as 'shared', 'collective', 'collaborative', 'distributed' (Currie & Lockett, 2011). In the last decade many scholars have made significant endeavors in research on health leadership (Avolio, Walumbwa, & Weber, 2009). Shared leadership presence is crucial among health care sectors and it should foster new collaborations among individuals who support and manage the research and those who provide, and the ones who receive care (Dougherty & Conway, 2008).

Lovelace et al. (2007) suppose that shared leadership practices can help leaders manage high job demands and rise long-term job control. In their work they study work stress and leadership development, and state that while all employees undergo work stress, leaders tend to have particularly stressful jobs due to the high levels of demands and responsibilities related to the leadership position (Hambrick et al. 2005, Sparks et al., 2001). Accordingly, the researchers emphasize that preparing leaders to manage work stress is an important component of leadership development. And in order to treat this critical issue researchers examine the problem by integrating work stress and self- and shared leadership (Lovelace et al., 2007). By means of sharing leadership much of the work load that can lead to stress from being overwhelmed on the job can be cleared off (Lovelace et.al. 2007, Pearce & Conger, 2003). Furthermore, by emboldening the capacity of followers to some extent to be their own leaders, the potential stress of leadership responsibility can be decreased by time (Lovelace et.al. 2007; Manz & Sims, 2001). Leadership gets an empowered view with the fact that it

can be shared by different people amongst a work unit. The aim to reach the common goals, which have been established by the members of a group or organization, becomes more easily realized by interactive and dynamic influence process among the members of the group. This process is the one to be referred as shared leadership (Lovelace et.al. 2007, Pearce & Conger, 2003).

Shared leadership is considered as a `treatment cure for the stress that might affect the work performance of any leader` (Pearce, 2007; Lovelace, et al., 2007).

This study is intending to find the effect of shared leadership in team effectiveness. Furthermore, in the health sector the effectiveness is expected to enhance the patient satisfaction.

Hierarchical structures in the organizations are being replaced by structures based on `team` concept and consequently shared leadership is coming forward in the observations of the researchers (Avolio, Walumbwa, & Weber, 2009). Other health care studies have come to a decision that working with the sense of a team decreases the intensity of medical failures and inaccuracies (Wilson et al., 2005; Nielsen et al., 2009) and decreases the patient mortality rate (West et al., 2002; Nielsen et al., 2009).

The concepts `team`, `organization`, and `shared leadership` are very tightly connected with each other as seen from the research (Pearce et al., 2009; Kocolowski, 2010; Bolden, 2011). The important point is that the good functioning of this relationship is expected to bring success, which is one of the research aims to the studies (West et al., 2003). Shared leadership has come into prominence in the last years and identified by the scholars as a social process that calls for team leadership from the members likewise from the leader (Pearce et al., 2009).

`Shared leadership for most people is simply counterintuitive: leadership is obviously and manifestly an individual trait and activity` (Kocolowski, 2010; Bolden, 2011; O`Toole et al, 2003). This would be as referring to Gandhi and Luther King, Jr, suggesting that: `when the facts are fully convened even the most legendary `solitary` leaders relied on the support of a team of other effective leaders` (O`Toole et al, 2003). In fact, a presented recommendation states that `theories gain favor because of their conceptual appeal, their logical structure, or their psychological plausibility rather than their empirical accuracy per se` (Bolden, 2011; Astley, 1985; Gioia & Pitre, 1990; Alvesson, 1996).

A search of <http://google.co.uk> on 20 November 2015 yielded 6.880.000 results for the

phrase 'distributed leadership' and <http://books.google.co.uk> returned 538.000 books referring to the topic.

While, searching for 'shared leadership' revealed 32.000.000 results and <http://books.google.co.uk> yielded 498.000 books.

An access in <http://www.scopus.com> on 26 January 2010 provided information regarding the publications on concepts related to distributed leadership (DL) and shared leadership (SL). This search was for the interval from 1980 until 2009 (Bolden, 2011). Regarding this interval search, interest on DL has been increased rapidly since the year 2000, while SL has had interest since the 1980s and the referring publications have been in a consistent trend beginning from the early 1990s. Going further in the research, it comes out the result that SL is noticeably the preferred concept in nursing and medicine; DL is preferred concept in business, management and other social sciences areas. Concretely, %39 of SL articles was found to be published in journals relating health-care; nursing and medicine, in proportion to no DL articles (Bolden, 2011).

Shared team leadership seems to have the potential to come to a very strong position in predicting the effectiveness of the organizations.

2. Chapter Two: Theoretical Development

The transactional leadership behavioral type bases come from the expectancy theory of Vroom, 1964. According to Vroom, 'employees' personal goals can be attained by organizational rewards or work outcomes'. So there exists a relationship between organizational reward or work outcomes and personal goals, and the important point is that to what extent the employee's personal goals are fulfilled and how these rewards are satisfactory for the employee (Northouse, 2013; Parijat & Bagga, 2014).

If the employees are providing higher inputs they are going to get higher rewards (Homans, 1961). Furthermore, employees are being more motivated in case they are getting rewards in fair way (Adams, 1963). So, exchange theory and equity theory as by the respective authors provide another basis to the transactional leadership behavioral type. Vroom (1964) developed the Expectancy Theory, which supports the aforementioned researchers. This theory explains that the employees have personal goals for which they tend to work in organizations. These goals may be accomplished by the organizational rewards or the work outcomes. So, there exists a relationship between personal goals of the employee and the organizational rewards or the work outcomes, and the important point is that to what extent the last two are satisfactory to the employee's personal goals.

The transformational leadership behavioral type bases on Weber's (1947) sociology of charisma, charismatic leadership theory (House, 1977), and transforming/transformational leadership (Bass, 1985; Burns, 1978); (Northouse, 2013). Weber (1947) charisma definition was: 'a special personality characteristic that gives a person exceptional powers, and results in the person being treated as a leader'. It is also important the role followers play as affirming charisma in their leaders. 'Charismatic leaders exhibit the following behaviors with the aim of attaining charismatic effects: impression management, articulation of ideological goals, definition of subordinate roles in terms of ideological values, role modeling, communication of high expectations and confidence in subordinates, and engagement in behavior planned to prompt proper follower motives' (House, 1977; House & Shamir, 1993; Pearce & Sims, 2002; Northouse, 2013).

The studies have been oriented toward followers centered state rather than leaders 'needs in the mid-80s. Burns (1978) introduced the term 'transforming leadership behavior' and clarified its difference from transactional leadership behavior. Bass (1985) extended Burns'

research (1978) by inducing to the model the leader type who is not necessarily to be at highest values.

The behaviors that represent the transformational leadership type are: providing vision, expressing idealism, using inspirational communication, having high performance expectations, and providing intellectual stimulation. These behaviors are included in this study as it can be seen in Appendix A.

The upcoming behavioral type is empowering leadership, which underlines the importance of developing the self-management (self-leadership) skills by the followers. Manz & Sims (2001) named this type of leadership as 'SuperLeadership', in another meaning leading the others to lead themselves (Lovelace et. al., 2007). Several studies have included self-management (self-leadership) study and emphasized its importance for the organizational goals: Huffman & Hipp (2000) studied it in a 5-year national study in education sector; Lovelace et. al. (2007) studied its mediating role in managing work stress; among several other factors, Pearce (2007) studied the importance of self-leadership, in the future of leadership development; Pearce et. al. (2008) gave importance to this notion putting it in the role of the moderator in the enactment of executive corruption; Nielsen et. al. (2009) studied the mediating effects towards job satisfaction in healthcare sector; Pearce et. al. (2009) giving as example a wide range study in 500 different companies once more interrogated the role of self-leadership as a notion in team success; Shuffler et. al. (2010) emphasized the role of self-leadership as a function of shared leadership studying virtual teams.

The theoretical base of empowering leadership is behavioral self-management by Thorenson & Mahoney in 1974 (Northouse, 2013).

'The switch from a single person to a 'shared leadership' model calls for new concepts and methods in order to seize the nature and structure of leadership by teams' (Yukl, 1998). Researchers argue that a social network approach could be helpful to provide a conceptual structure and scientific tools to support a shared leadership aspect. Shared leadership concept takes into consideration the nature and distribution of influence to each of team members as they get leadership responsibilities. Further, the transactional and transformational theories of leadership have been successfully applied in a wide range of organizational contexture, which makes it furthermore effective as structurally. And lastly, the theory provides several leadership aspects which helps to conceptualize shared leadership from a various networks perspective. The model they developed consists of four degrees of shared leadership divided based on the density of leadership network described as high or low, and the decentralization of the leadership network described as high or low (Meindl et.al, 2002).

M. A. West et al., (2003) studying leadership clarity and team innovation in health care, brought to prominence the fact of leadership being or not shared, which would align the team goals, and the coordination of the activities regarding problem-solving (Hartley, et. al., 2008).

2.1 Studies of Shared Leadership Classification

Studying the literature, a classification of the studies conducted on shared leadership can be made. There exists a broad range of fields where it is studied as referring to Kocolowski, 2010. The mentioned studies commence from 1996 until 2008. (Table 1)

Table 1: Studies of Shared Leadership

Field of Study	Author
Healthcare	Jackson, 2000 Konu & Viitanen, 2008 Merkens & Spencer, 1998 Spooner, Keenan, & Card, 1997 Steinert, Goebel, & Rieger, 2006
Education	Boardman, 2001 Hall, 2001 Meyers & Johnson, 2008 Prather, Hartshorn, & McCreight, 1998 Rice, 2006 Wallace, 2001
New ventures	Ensley, Hmieleski, & Pearce, 2006
Road maintenance teams	Hiller, Day, & Vance, 2006
Equipment and engine manufacturing	Anderson, Anderson & Mayo, 2008
Technology	Hsu & Sharma, 2008
Local government	Berman, 1996
Sales teams	Mehra, Smith, Dixon, & Robertson, 2006 Perry, Pearce, & Sims, 1999
Police departments	Steinheider & Wuestewald, 2008
Banks	Walker, Smither, & Waldman, 2008

Source: Kocolowski, 2010

Other studies were reviewed and according to their methodology of study were classified as 'quantitative' and 'qualitative'. (See Table 2 and Table 3)

Table 2: Studies of Shared Leadership (Quantitative)

Field of Study	Author
Healthcare	Nielsen, Yarker, Randall, & Munir, 2009
Education	Huffman & Hipp, 2000 Spillane, 2005 Duignan & Bezzina, 2006
Road maintenance teams	Hiller, 2002
Technology	Liu, Hu, Li, Wang, & Lin, 2014
Consulting teams	Carson, Tesluk, & Marrone, 2007 Hoch, Pearce, & Welzel, 2010
Virtual teams	Shuffler, Wiese, Salas, & Burke, 2010 Hoch & Kozlowski, 2014
Work teams	Meindl, Mayo, & Pastor, 2002 Pearce & Sims, 2002
Online strategy simulation game	Drescher et al., 2014
Privately owned accountancy firm and publicly funded elder care organization	Nielsen & Daniels (2012)

Table 3: Studies of Shared Leadership (Qualitative)

Field of Study	Author
Work stress literature	Lovelace, Manz, & Alves, 2007
Articles review	Pearce, 2007
Literature review	Pearce, Manz, & Sims, 2009 Bolden, 2011 Wang, Waldman, & Zhang, 2014
Historical development of the literature	Fitzimons, James, & Denyer, 2011
Case studies (different organizations)	Crevani, Lindgren, & Packendorff, 2007
Executive corruption (organizational literature)	Pearce, Manz, & Sims, 2008

3. Chapter Three: Methodology

3.1. Sampling

The participants of the research were health care personnel working in private and state hospitals in Tirana and Durres. They were selected randomly. The research intended to study 26 work teams in health care, but only 17 of these teams were possible to study. The teams as from the highest participant number were: General Doctor: 30, Radiology: 25, Cardiology: 13, Lab Practitioner: 13, Pediatrics: 10, Ophthalmology: 9, Surgery: 7, Gynecology: 6, Nursery: 6, Dentistry: 6. The other teams were at a lower respondent rate: Neurosurgery: 3, Orthopedics: 2, Intensive Care: 2, Anesthesiologist: 1, Pneumology: 1, Neurology: 1, Urology: 1. There were 138 respondents. 38.4 % were between 25-29 years old, 16.7% of them were between 30-34 years old, 15.9% were between 35-39 years old, 14.5% of them between 40-45 years old, and lastly 14.5% of them were older than 45 years old.

15.2% of all the participants reported to have worked in their institution as long as for 0-2 years, 29% of them reported to have a length of 2-5 years in their work, the highest percentage of tenure was 30.4 with a time interval of 5-10 years' service, and 23.9% of them reported to have worked for more than 10 years. Out of 138 participants there were 2 missing values in the aspect of tenure.

3.2. Data Collection

The feedbacks of the surveys were collected in the period between December 14 2015 until January 5 2016. The questionnaires were distributed in health care personnel in Tirana and Durres. The distribution was made by hard copy.

3.3. Measures

In this work will be reviewed some of the variables and presented the construct that is used to measure these. All the measures except the team size were gathered with a 5-point scale with the following responses: 1 (definitely not true), 2 (not true), 3 (neither true nor untrue), 4 (true), and 5 (definitely true). The survey was conducted through questionnaires. The questionnaire was adapted from Pearce and Sims Jr., (2002).

3.3.1. Leader behavior

The perceptions of the members regarding the leader behavior, which are manifested by respective team leaders and its members, were obtained with a leader behavior questionnaire. The questionnaire was formulated such that the participants responded to each item twice; firstly for their own team leaders, and secondly for their team members by means of a general

overview of their peers. From the first response of each item the vertical leadership will be observed, from the second the shared leadership will be observed. The questionnaire is provided in Appendix A.

The questionnaire was adapted from Pearce and Sims (2002) in which were developed the leaders behavior questions. Pearce and Sims (2002) initially started with a questionnaire used by Cox and Sims (1996), which was then further finalized by Pearce et al. (2001). 'Shared leadership is most likely to be found in empowered teams' (Pearce et al., 2001). With refer to this cite empowering leader behavior strategy was included in the study. Commencing from the suggestions of Pearce et al. analysis regarding the five leader behavior strategies: aversive, directive, transactional, transformational, and empowering; Pearce & Sims (2002) integrated other items from other leadership researchers, when they judged it was convenient, in order to widen the range of behavior types studied. From the analysis of Pearce et.al, three of the strategies were included in this study: transactional, transformational, and empowering leader behavior strategy. Referring to Yukl's (1994) concept of encouraging self-development, Pearce and Sims (2002) developed another leader behavior measure. While, other leader behavior scales were obtained from R. J. House: (a) having high performance expectations and (b) using inspirational communication. The ensuing leader behavior scales were obtained from B. J. Avolio (1998): (a) managing by exception (active), (b) managing by exception (passive), and (c) giving intellectual stimulation.

The technique of organizing the questionnaire allowed the participants to answer the same question alluding to both to vertical leader behavior (ex: *My team leaders encourages me to...*) and to shared leader behavior (ex: *My team members encourage me to...*). In this way are provided 'leader ratings' and 'team's self-ratings'. Self-rating was used successfully by Krishnan (2003) in order to study the relationship between transformational leadership, transactional leadership, moral leadership, and laissez-faire leadership. The format of double responding has been used successfully in antecedent research with the aim to measure leadership from an external source versus an internal source (Manz & Sims, 1987).

The question: 'How many of team's members execute leadership behaviors that contribute positively', is newly added to the questionnaire with the intent to obtain an approximate level of leadership capacity perceived by the team's own members. Demographic characteristics include gender, age, education, and organizational tenure of the participants.

3.3.2. Team effectiveness

'Team effectiveness is the desired outcome of the teamwork' (Northouse, 2013) (p.298-299). Its crucial functions are performance defined as accomplishment of duty, and development defined as caring continuously about the team. Seeing from this point of view, it can be concluded that team performance is an important step towards team effectiveness. There are considerable studies related to team performance and team effectiveness. Sparrowe et al. (2001) found that social networks as defined in terms of both positive and negative relations are interconnected to both individual and group performance. Pearce and Sims (2002) studied vertical leadership versus shared leadership as predictors of effectiveness, and found both of them significantly related to team effectiveness. Yet, shared leadership came to prominence as a more useful predictor of team effectiveness than vertical leadership. Hiller (2002) found shared leadership as a predictor of supervisor-rated team performance, and further suggested that shared leadership may be an important antecedent of team effectiveness, especially in development and mentoring activities. Ozaralli (2003) besides empowerment measured perceived team effectiveness as it is affected by transformational leadership. Carson et al. (2007) found shared leadership to predict team performance as rated by clients, and suggested that organizations looking from the viewpoint of customers or last users of a team's work should give importance to shared leadership as a critical factor that can improve team performance. Shared leadership predicted team performance by means of age diversity and team coordination as studied by Hoch et al, (2010). Drescher et al, (2014) studying how dynamics and dimensions of shared leadership are related to group performance, and building trust results in enhancing of this performance. Their findings contributed positively to the literature. Hoch & Kozlowski (2014) studied the impact of traditional leadership, structural support and shared leadership on team performance in virtual teams, and found shared team leadership notably related to team performance regardless of the degree of virtuality. Similarly, Wang et al, (2014) found shared leadership strongly connected to team effectiveness, and shared leadership was found to have a stronger effect when the work is more complex.

The dimensions used to assess effectiveness were integrated by Ancona and Caldwell (1992) by gathering process and performance measures, and the effectiveness measures from Manz and Sims (1997). Some of the variables used to assess team effectiveness were: (a) output effectiveness, (b) quality effectiveness, (c) organizing and planning effectiveness, (d) interpersonal effectiveness, (e) value effectiveness, (f) overall effectiveness. These

dimensions can be seen in Appendix A, and were assessed from two sources: (a) team leaders and (b) team self-ratings. Both the two sources responded to the same questionnaire.

4. Chapter Four: Analysis and Results

4.1. Findings

Data Analysis

Firstly, will be identified the three types of Vertical Leadership and three types of Shared Leadership and then will be found out their effect on the team effectiveness. In this study the Vertical Leadership is composed of and measured by three different variables: (i) Transactional, (ii) Transformational and (iii) Empowering and shared leadership is similarly composed.

Vertical/Shared Transactional Leadership is measured by questions 6-9/23-26. The first five questions of the questionnaire collected background data: age, gender, education level, department and length of service (experience).

Vertical/Shared Transformational Leadership is measured by questions 10-16/27-33.

Vertical/Shared Empowering Leadership is measured by questions 17-22/34-39.

1. Vertical/Shared Leadership (17 questions: 6-22)
 1. Transactional (4 questions: 6-9)
 2. Transformational (7 questions: 10-16)
 3. Empowering (6 questions: 17-22)
2. Team Effectiveness (10 questions: 24-33)

There were 138 respondents. 38.4 % were between 25-29 years old, 16.7% of them were between 30-34 years old, 15.9% were between 35-39 years old, 14.5% of them between 40-45 years old, and lastly 14.5% of them were older than 45 years old.

Table 4. Age distribution of the participants

Age	25-29	30-34	35-39	40-45	45-
Percentage	38.4	16.7	15.9	14.5	14.5

Out of 136 respondents, 42 of them were male with a 30.4 %; 94 of them were female with a 68.1 %.

Table 5. Gender distribution of the participants

Gender	Male	Female
Percentage	30.4%	68.1%

According to the valid responds, 15.2% of the participants reported to have been working in health care for a period 0-2 years, other 29% of them were working for a period from 2-5 years, 30.4% have been working for a period from 5-10 years, and 23.9% were working for a period for more than 10 years in health care institution. 2 of the 138 participants didn't report on their length of service.

Table 6. The distribution of the participants based on their experience

Length of service	0-2	2-5	5-10	10-...
Percentage	15.2%	29.0%	30.4%	23.9%

In Table 7 can be seen the situation of the participants how they are distributed among the departments according to their age intervals.

Table 7. The distribution of the participants (Age / Department)

Age/ Dept	Gen Doc	Rad	Card	Surg	Lab	Gyn	Ophth	Ped	Anesth	Pneum	Neur	Neuro surg	Orto	Uro	Nurs	Dent	Intens	Tota l
25-29	11	15	4	3	4	0	3	0	0	0	0	3	1	0	5	2	1	52
30-34	8	4	0	2	3	1	2	0	0	0	0	0	0	0	0	1	1	22
35-39	2	3	1	1	3	3	1	4	0	1	1	0	1	1	0	0	0	22
40-45	5	3	4	0	1	1	1	3	0	0	0	0	0	0	0	2	0	20
45-	4	0	4	1	2	1	2	3	1	0	0	0	0	0	1	1	0	20

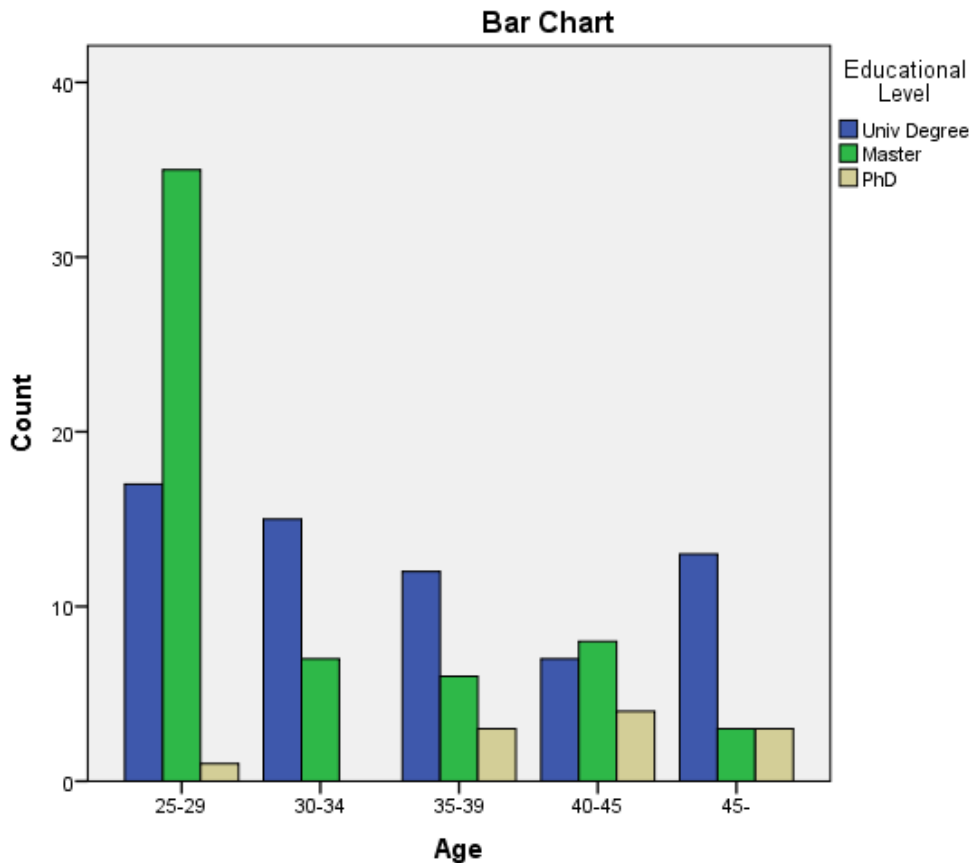


Figure 1. The age and education level of the participants

It can be seen from the chart above that in the age interval of 25-29 there is the highest number of participants who have completed their master degree. Out of 53 participants in this age interval, 35 of them have master degree. There is only one of the respondents who have PhD, and the rest part of 17 respondents report to have a university degree level.

In the age interval of 30-34 there is no one with PhD and out of 22 respondents for this interval 15 of them have a university degree, and 7 of them have master degree.

In the age interval of 35-39 there were 21 respondents, 12 of them with a university degree, 6 of them with a master degree, and 3 of them with PhD.

In the age interval of 40-45 there were 19 respondents, 7 of them with a university degree, 8 of them with a master degree, and 4 of them with PhD.

In the interval of 45 years and older there were 19 respondents, 13 of them with a university degree, 3 of them with a master degree, and 3 of them with PhD.

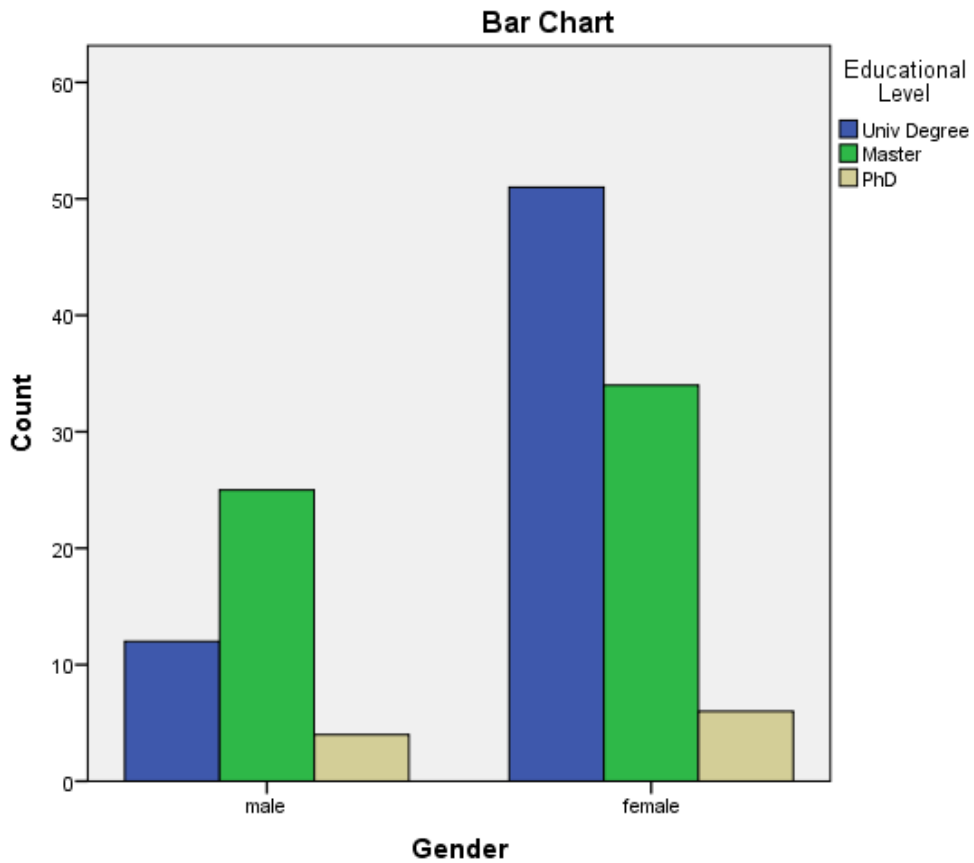


Figure 2. The gender and education level of the participants

Out of 132 respondents, 41 of them were male, 91 were female. 12 of the males had a university degree, 25 of them had a master degree, and 4 of them reported to have a PhD.

Out of the 91 females, 51 of them had a university degree, 34 of them had a master degree, and 6 of them reported to have a PhD.

Table 8. The means and correlations among the variables.

Variable	M	SD	1	2	3	4	5	6	7
1.Vertical transactional	3.41	0.68	--						
2.Vertical transformational	3.85	0.69	.368**	--					
3.Vertical empowering	3.76	0.73	.357**	.778**	--				
4.Shared transactional	3.42	0.70	.589**	.356**	.299**	--			
5.Shared transformational	3.80	0.67	.266**	.660**	.457**	.488**	--		
6.Shared empowering	3.70	0.75	.310**	.462**	.528**	.517**	.757**	--	
7.Team self-ratings of team effectiveness	4.01	0.59	.142	.413**	.392**	.193*	.333**	.334**	--

In the table above are reported the correlations between pairs of seven different variables. In the model that is studied, six of them are independent variables which are in the role of predictor variable, and one is dependent variable considered as criterion variable. The independent variable are: (i) *vertical transactional leadership*, (ii) *vertical transformational leadership*, (iii) *vertical empowering leadership*, (iv) *shared transactional leadership*, (v) *shared transformational leadership* and (vi) *shared empowering leadership*. The dependent variable is the *team effectiveness*. Out of 21 possible pairs, 19 are strongly correlated ($p < .01$), one is significantly correlated ($p < .05$) and one is not correlated at all. The only pair that is not correlated is the *vertical transactional leadership* and the *team effectiveness* ($r = 0.142$). The other pair that is least correlated among the other pairs is the *shared transactional leadership* with the *team effectiveness* ($r = 0.193$). This indicates that the transactional leadership (both vertical and shared) has the least effect on the team effectiveness. The transactional leadership is composed of four factors that are measured by questions 6-9 (vertical transactional) and 23-26 (shared transactional). The transactional leadership includes material rewards and personal reward, and management by exception divided as active and passive. From the tables shown below (Table 9, Table 10) is seen that the team effectiveness is significantly correlated only by factors that are related with personal reward of the vertical leadership ($r = .269$ for vertical leadership) and with personal reward of the shared leadership ($r = .338$ for shared leadership). The higher correlation coefficient for the shared leadership indicates that the *shared leadership predicts a higher variance than the vertical leadership*. It can be observed also that the team effectiveness is more strongly related with the *personal*

reward, and team effectiveness is not related at all with the *material reward*. Personal reward is defined as to receive positive feedback, material reward is described as to be compensated for high quality work.

Table 9. Correlations between 2 of the aspects of VTL and TE

		1	2	3
Leader recommends that I am compensated if I perform well (<i>material reward</i>)	Corr	1	.117	-.056
	Sig.		.189	.525
	N	129	128	129
Leader gives me positive feedback when I perform well (<i>personal reward</i>)	Corr	.117	1	.269**
	Sig.	.189		.002
	N	128	129	129
TE_mean	Corr	-.056	<u>.269**</u>	1
	Sig.	.525	<u>.002</u>	
	N	129	<u>129</u>	138

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

Table 10. Correlations between 2 of the aspects of ShTL and TE

		1	2	3
Member recomm that I am compensated if I perform well (<i>material reward</i>)	Corr	1	.375**	-.061
	Sig.		.000	.501
	N	123	121	123
Member gives me positive feedback when I perform well (<i>personal reward</i>)	Corr	.375**	1	.338**
	Sig.	.000		.000
	N	121	125	125
TE_mean	Corr	-.061	<u>.338**</u>	1
	Sig.	.501	<u>.000</u>	
	N	123	<u>125</u>	138

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

A control for the effect of the (i) *vertical transactional leadership*, (ii) *vertical management by exception leadership* (iii) *vertical transformational leadership* was performed, and of (iv) *vertical empowering leadership* on the *team effectiveness* as well. Vertical management by exception is a construct that is part of the vertical transactional leadership variable and it was analyzed if separately since it was not strongly correlated with the other constructs that make up the vertical transactional leadership.

The team effectiveness is significantly predicted by the vertical empowering leadership and the vertical transformational leadership. There is no significant dependence of the team effectiveness on vertical transactional leadership and on vertical management by exception. VTfL predicts 17% of the variance of the TE, and VEL predicts 15% of the variance of the TE. The variance is calculated as the square of the correlation coefficient. For example, for $r=0.413$ (the correlation coefficient between the vertical transformational leadership and the team effectiveness) we get an $r^2=0.17$, implying a prediction of around 17% of the variance of the team effectiveness by the vertical transformational leadership alone.

In contrast to the analysis of the TE as a function of the vertical leadership, the TE is significantly dependent on the three major shared leadership constructs. ShTfL predicts 11% of the variance, ShEL predicts 11% and ShTL predicts 4% of the variance of the TE. The rating of the team effectiveness has a maximum of 4.01 and seem to have the least variance with a standard deviation of $SD=0.59$.

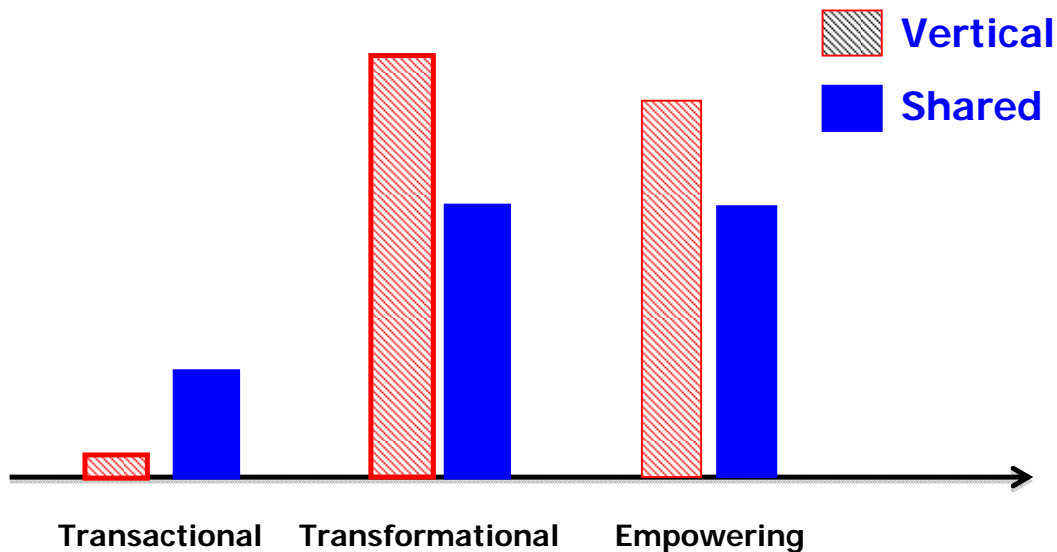


Figure 3. The variance of the team effectiveness that is predicted by the vertical/shared transactional leadership (0% / 4%), the vertical/shared transformational leadership (17% / 11%) and vertical/shared empowering leadership (15% / 11%)

In order to get a better view of the data the variable that measures the number of team members that have a leadership behavior were recoded. Out of 138 there are 43 missing values and out of 95 remaining participants, 30 of them report that their teams are not supportive, and 65 report that their teams are supportive. According to the evaluations of the participants, a non-supportive team is a team that has either none or only one team member that has leadership behavior, whereas a supportive team is a team that has 2 or more members with leadership behavior.

The teams that have a larger number of members that have leadership behavior as evaluated by their colleagues, seem to have higher team effectiveness but the difference is not significant as it is controlled using the t-test.

Table 11. Report of the situation of supportiveness of the teams

how support team is	Mean	N	Std. Deviation
0 (not supportive)	3.8733	30	.61752
1 (supportive)	3.9908	65	.50985
Total	3.9537	95	.54557

Table 12. T-test control of the supportiveness of the teams

		Independent Samples Test					
		Levene test		t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
		F	Sig.				
TE_mean	Equal	1.111	.295	-.975	.332	-.11744	.12045
	No Equal			-.908	.368	-.11744	.12927

In the table above can be seen that the team effectiveness for non-supportive teams is 3.87, and the team effectiveness for the supportive team is 3.99. From the means (averages), is

observed that there is a difference and it intuitively points to the fact that supportive teams have higher team effectiveness. But, in order to conclude this, a t-test must be performed, and the t-test reveals that the difference is not significant because it reports a p-value equal to $p=0.332$. Since this is larger than 0.05, the effect is not significant. So it cannot be concluded that a higher number of members with leadership behavior will predict higher team effectiveness.

It was performed a *t-test* to compare the shared leadership patterns for both levels of supporting; for the one with one or no member with leadership behavior, and for the group with 2 or more members with leadership behavior. It is noticed that in groups with higher number of members that have leadership behavior the ShTL, ShTfL and ShEL are higher (Table 13). The column that reports the significance of the difference between the means has values that are all smaller than 0.01 (checking for the *p-value*) (Table 14).

Table 13. Report of the situation of ShTL, ShTfL and ShEL in the supportive and non-supportive teams

	how_support team is	N	Mean	Std. Deviation	Std. Error Mean
ShTL	0 (not support)	28	3.0446	.70728	.13366
	1 (supportive)	64	3.5938	.63716	.07965
ShTfL	0	28	3.3703	.71178	.13451
	1	64	3.9010	.59440	.07430
ShEL	0	27	3.2259	.72485	.13950
	1	64	3.8880	.66405	.08301

Table 14. Independent Samples Test of ShTL, ShTfL and ShEL in the supportive and non-supportive teams

		Levene's Test		t-test for Equality of Means				
		F	Sig.	t	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
							Lower	Upper
ShTL	Equal	.079	.779	-3.678	.000	-.54911	-.84574	-.25247
	No Equal			-3.529	.001	-.54911	-.86211	-.23610
ShTfL	Equal	1.40	.239	-3.706	.000	-.53064	-.81509	-.24620
	No Equal			-3.453	.001	-.53064	-.84030	-.22099
ShEL	Equal	.439	.509	-4.228	.000	-.66209	-.97324	-.35095
	No Equal			-4.079	.000	-.66209	-.98897	-.33522

Chapter Five: Conclusions

5.1 Conclusions

This research is focused on the study of leadership in health care sector. The field of study, health sector is a very complex problem sector where there is no more the 'heroic' leader to manage the situations, but collaboration of all operative levels is decisive. The aspect of leader behavior which was studied was broad.

Two types of leadership variables were defined and measured: vertical leadership and shared leadership. Each of these variables was composed of three types of behaviors: the transactional leadership, the transformational leadership and the empowering leadership. It comes out from the study that the team effectiveness is more strongly related with the *personal reward*, and team effectiveness is not related at all with the *material reward*. Personal reward was defined as receiving positive feedback, and material reward was defined as to be compensated for high quality work. The personal reward received from the team members, which represents the shared leadership, is more strongly correlated with the team effectiveness than the personal reward received from the team leader which represents the vertical leadership.

The most important result of this study is that all three types; the transactional, the transformational and the empowering shared leadership of shared leadership were found to be significant predictors of team effectiveness, whereas only two types; the transformational vertical and empowering vertical leadership of the vertical leadership were found to be significant predictors of the team effectiveness. This is explained by the variance that is independently predicted by the two types of vertical leadership, respectively 17% and 15% of the variance of the team effectiveness. The representative values of the transformational and empowering vertical leadership are higher than the variance that is independently predicted by any of the three types of the shared leadership. The transactional shared leadership predicts 4% of the variance of the team effectiveness, the transformational shared leadership predicts 11% and the empowering shared leadership predicts 11% of the variance of the team effectiveness.

The respondents were separated in two different sets: one that was not supportive and one that was supportive. The team that was supportive was defined as one with two or more members that have leadership behavior. It was observed that teams that were more supportive

did not have significantly larger team effectiveness, but had a significantly larger (i) shared transactional, (ii) shared transformational and (iii) shared empowering leadership. Obviously, shared leadership is worth of more theoretical study and further research on the conditions and reasons from which it arises.

5.2. Limitations and Recommendations

This study had its own limitations. First, the sample focused on one type of team which was health care teams. Thereby, the results may not be generalized to other types of teams or to other cultures.

The health care sector itself is a difficult one to study for its main reason which is sensitive and fragile. These kinds of teams were engaged with considerably complex and difficult tasks. Thus, study in a longer time interval and in consecutive stages would be more effective to collect further data.

The leader behavior spectrum selected for the research was broad, but it is obviously probable that through more detailed and different leader behaviors diverse results might be provided.

Also, in order to improve the service quality and the team effectiveness the shared leadership concepts have to be instilled and educated in health care service.

5.3. Academic and Managerial Implications

In this research were studied vertical leadership and shared leadership both of them in detail as transactional, transformational and empowering leadership constructs. Team effectiveness came out to be predicted by both vertical and shared leadership. It was predicted by vertical transformational and vertical empowering leadership, but was not predicted by vertical transactional leadership. Meanwhile, team effectiveness was predicted by the three constructs of shared leadership; transactional shared leadership, transformational shared leadership, and empowering shared leadership. It came out from the study that teams who were more supportive in the aspect of leadership behaviors were not much more effective than teams with a lower level of supportiveness. Still, they had notably higher level of shared leadership. These findings implicate further study, firstly in the aspect of including the other leadership behaviors too, which are aversive and directive leadership types. This kind of broader study might bring different results. Secondly, six dimensions of effectiveness were measured from

the sources; therefrom extending these dimensions would provide a more elaborated result and comprehensive evaluation of effectiveness.

Teams operating in health care are occupied with complex and difficult tasks. Therefore, in order to improve the service quality and the team effectiveness managers should pay attention to education process with the intention to instill shared leadership concepts.

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Appendix A

Questionnaire

QUESTIONNAIRE

This questionnaire is addressed to the health care personnel. Your responds will be confidential, and will not be shared to anyone from the organization.

1- Age

- a) 25-29 b) 30-34 c) 35-39 d) 40-45 e) 45-.....

2- Gender

- a) Female b) Male

3- Education

- a) University degree in Medicine b) Master c) Doctoral

4- Department

- a) General Doctor
- b) Radiology
- c) Cardiology
- d) Surgery
- e) Laboratory Doctor
- f) Obstetrics and Gynecology
- g) Ophthalmology
- h) Pediatrics
- i) Anesthesiology
- j) Dermatology
- k) ENT
- l) Toxicology
- m) Pneumology
- n) Oncology
- o) Hematology
- p) Allergology
- q) Neurology
- r) Nephrology
- s) Endocrinology
- t) Gastroenterology

- u) Neurosurgery
- v) Orthopedics
- w) Urology
- x) Nursery
- y) Dentistry
- z) Intensive care

5- For how long have you been working in this organization?

- a) 0-2 years
- b) 2-5 years
- c) 5-10 years
- d) More than 10 years

Please answer the following questions according to: 1 (*definitely not true*), 2 (*not true*), 3 (*neither true nor untrue*), 4 (*true*), 5 (*definitely true*). The left part is for the evaluation of the leader; the right part is for the evaluation of your team members.

6- My team leader (members) will recommend that I am compensated well if I perform well.

1 2 3 4 5

1 2 3 4 5

7- My team leader (members) gives (give) me positive feedback when I perform well.

1 2 3 4 5

1 2 3 4 5

8- My team leader (members) focuses (focus) attention on irregulars, mistakes, exceptions, and deviations from standard.

1 2 3 4 5

1 2 3 4 5

9- My team leader (members) tells (tell) me what I have done wrong rather than what I have done right.

1 2 3 4 5

1 2 3 4 5

10- My team leader (members) expects (expect) me to perform at my highest level.

1 2 3 4 5

1 2 3 4 5

11- My team leader (members) encourages (encourage) me to go above and beyond what is normally expected of one (e.g., extra effort)

1 2 3 4 5

1 2 3 4 5

12- My team leader (members) provides (provide) a clear vision of who and what our

team is.

1 2 3 4 5

1 2 3 4 5

13- My team leader (members) is (are) driven by higher purposes or ideals.

1 2 3 4 5

1 2 3 4 5

14- My team leader (members) shows (show) enthusiasm for my efforts.

1 2 3 4 5

1 2 3 4 5

15- My team leader (members) emphasizes (emphasize) the value of questioning team members.

1 2 3 4 5

1 2 3 4 5

16- My team leader (members) seeks (seek) a broad range of perspectives when solving problems.

1 2 3 4 5

1 2 3 4 5

17- My team leader (members) encourages (encourage) me to treat myself to something I enjoy when I do a task especially well.

1 2 3 4 5

1 2 3 4 5

18- My team leader (members) encourages (encourage) me to work together with other individuals who are part of the team.

1 2 3 4 5

1 2 3 4 5

19- My team leader (members) encourages (encourage) me to search for solutions to my problems without supervision.

1 2 3 4 5

1 2 3 4 5

20- My team leader (members) advises (advise) me to look for the opportunities contained in the problems I face.

1 2 3 4 5

1 2 3 4 5

21- My team leader (members) encourages (encourage) me to develop myself.

1 2 3 4 5

1 2 3 4 5

22- My team leader (members) encourages (encourage) me to seek out opportunities to learn.

1 2 3 4 5

1 2 3 4 5

23- How many of your members execute leadership behaviors that contribute positively?

(Please answer by specifying in figures)

Please answer the following questions according to: 1 (*definitely not true*), 2 (*not true*), 3 (*neither true nor untrue*), 4 (*true*), 5 (*definitely true*).

24- The team delivers its commitments.	1	2	3	4	5
25- The team is highly effective at implementing solutions.	1	2	3	4	5
26- The quality of the team's output is very high.	1	2	3	4	5
27- The team sets goals and priorities for maximum efficiency.	1	2	3	4	5
28- The team has its priorities straight.	1	2	3	4	5
29- The team communicates its progress.	1	2	3	4	5
30- The team keeps everyone informed on its progress.	1	2	3	4	5
31- The team's contribution to the company is very valuable.	1	2	3	4	5
32- The team is highly effective.	1	2	3	4	5
33- The team does a very good job.	1	2	3	4	5

Appendix B

The data analysis output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	138	1	5	2.50	1.481
Educational Level	134	1	3	1.60	.637
Length of service	136	1	4	2.64	1.016
How many members of your team show leadership attitude	95	0	7	2.46	1.549
Valid N (listwise)	94				

Output nr.1 Descriptive for the age, education level, length of service and supportive team scale.

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	42	30.4	30.9	30.9
Valid female	94	68.1	69.1	100.0
Total	136	98.6	100.0	
Missing System	2	1.4		
Total	138	100.0		

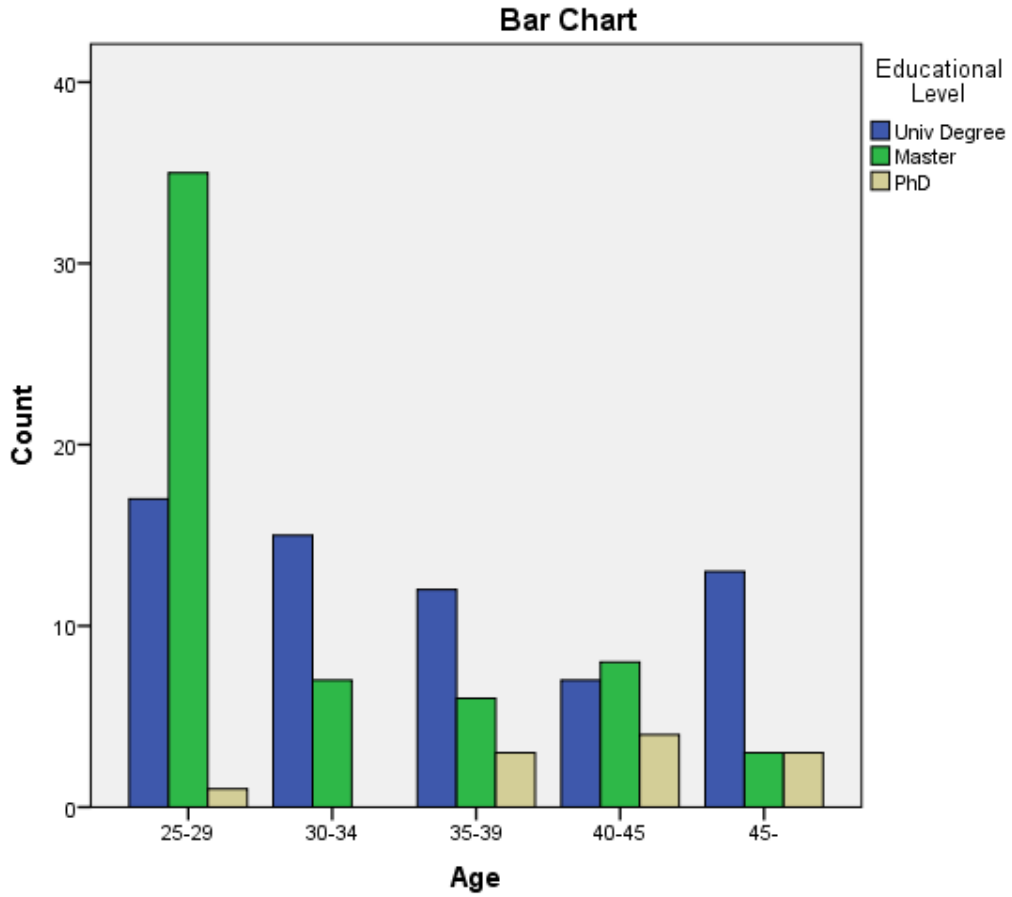
Output nr.2 Descriptive for the gender

Age * Educational Level Crosstabulation

Count

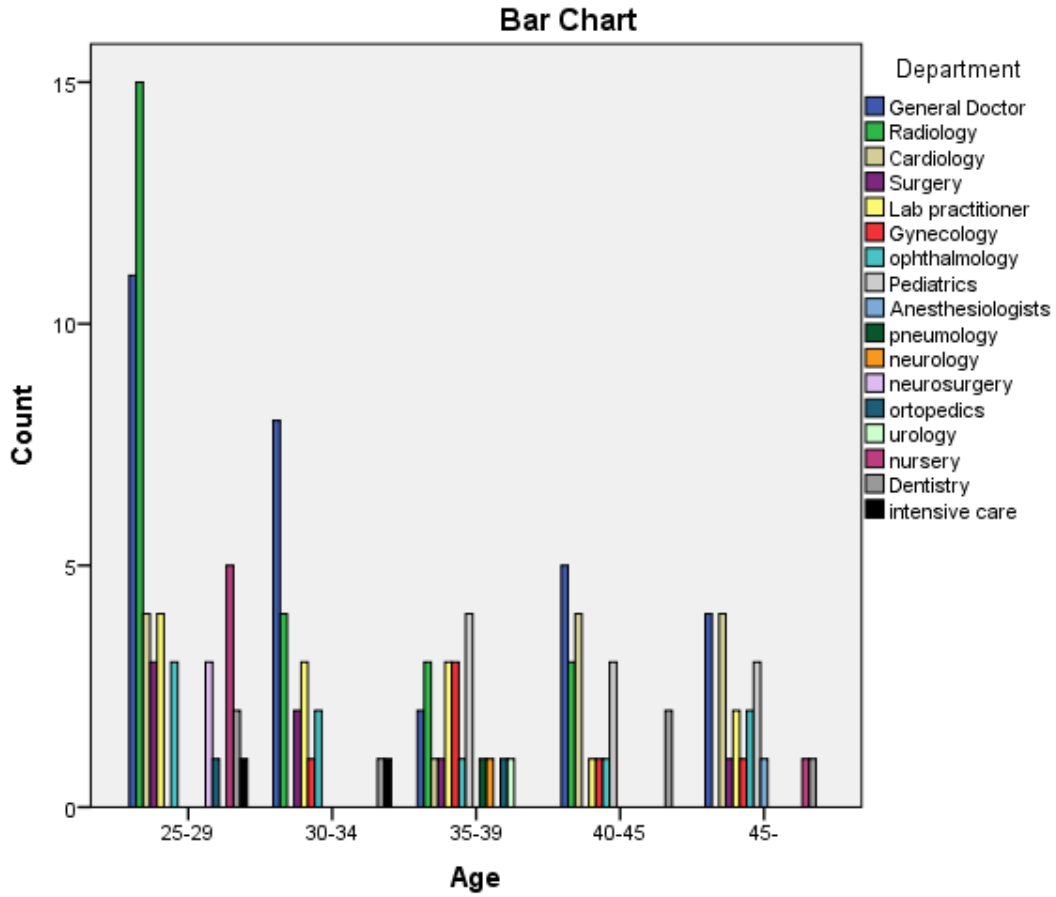
	Educational Level			Total
	Univ Degree	Master	PhD	
Age 25-29	17	35	1	53
Age 30-34	15	7	0	22
Age 35-39	12	6	3	21
Age 40-45	7	8	4	19
Age 45-	13	3	3	19
Total	64	59	11	134

Output nr.3 Descriptive for the age and ed. level Crosstabulation



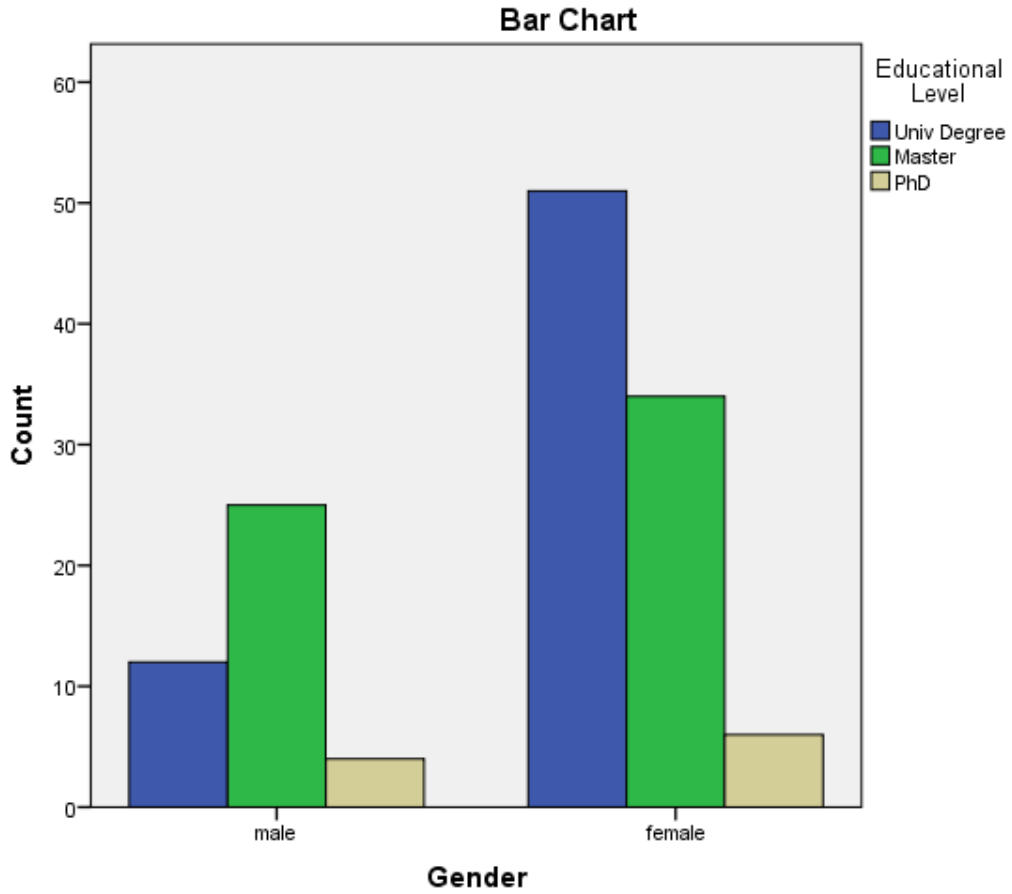
Age * Department Crosstabulation

Count		Department																Tot	
		Gen Doc	Rad	Card	Surg	Lab	Gyn	ophth	Ped	Anes th	pneu m	neu r	neuros urg	orto	uro	nur s	Den t		inte ns
Age	25-29	11	15	4	3	4	0	3	0	0	0	0	3	1	0	5	2	1	52
	30-34	8	4	0	2	3	1	2	0	0	0	0	0	0	0	0	1	1	22
	35-39	2	3	1	1	3	3	1	4	0	1	1	0	1	1	0	0	0	22
	40-45	5	3	4	0	1	1	1	3	0	0	0	0	0	0	0	2	0	20
	45-	4	0	4	1	2	1	2	3	1	0	0	0	0	0	1	1	0	20
Tot		30	25	13	7	13	6	9	10	1	1	1	3	2	1	6	6	2	136



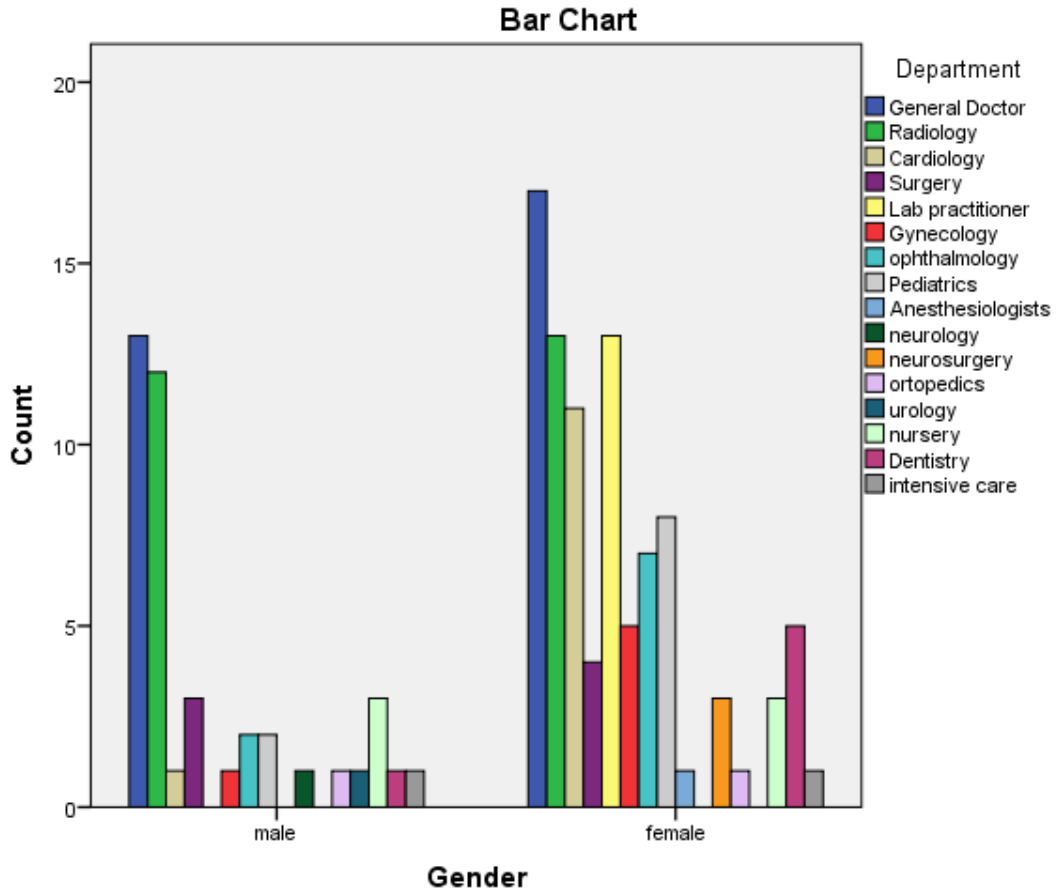
Gender * Educational Level Crosstabulation

		Educational Level			Total
		Univ Degree	Master	PhD	
Gender	male	12	25	4	41
	female	51	34	6	91
Total		63	59	10	132



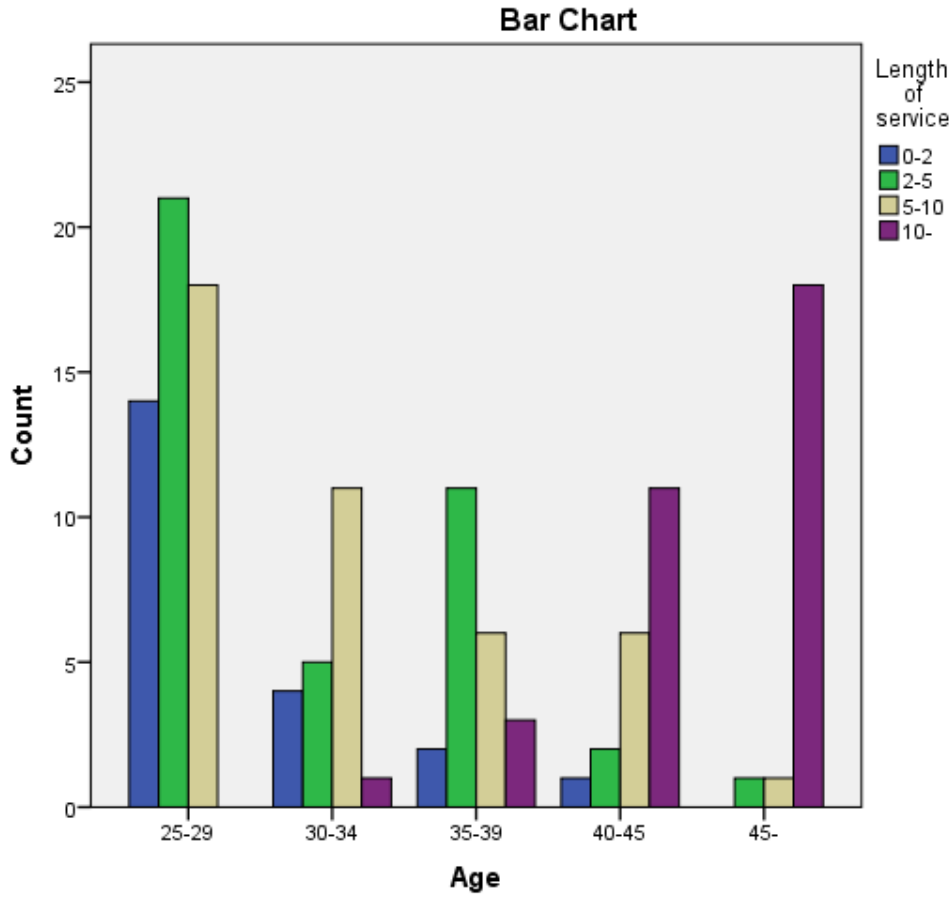
Gender * Department Crosstabulation

Count	Department																Total
	Gen Doc	Rad	Card	Surg	Lab	Gyn	ophth	Ped	Anes th	neur	neuros urg	ortop	uro	nurs	Dent	inte ns	
Gender m	13	12	1	3	0	1	2	2	0	1	0	1	1	3	1	1	42
er f	17	13	11	4	13	5	7	8	1	0	3	1	0	3	5	1	92
Total	30	25	12	7	13	6	9	10	1	1	3	2	1	6	6	2	134



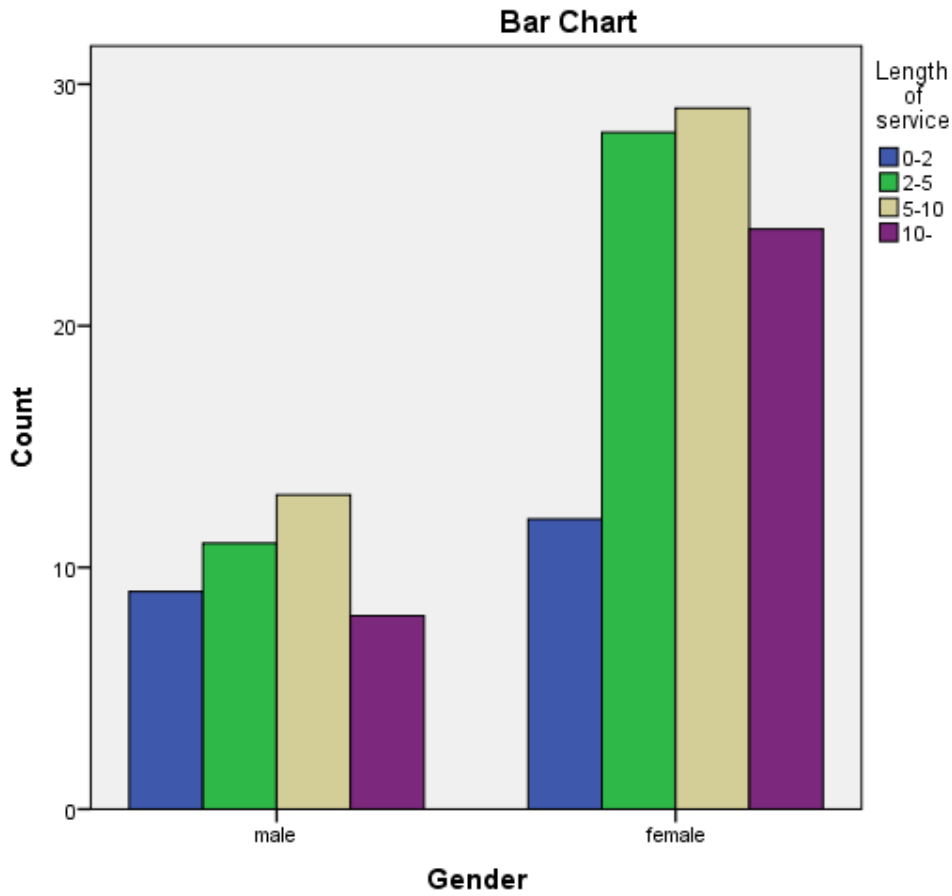
Age * Length of service Crosstabulation

Count		Length of service				Total
		0-2	2-5	5-10	10-	
Age	25-29	14	21	18	0	53
	30-34	4	5	11	1	21
	35-39	2	11	6	3	22
	40-45	1	2	6	11	20
	45-	0	1	1	18	20
Total		21	40	42	33	136



Gender * Length of service Crosstabulation

		Length of service				Total
		0-2	2-5	5-10	10-	
Gender	male	9	11	13	8	41
	female	12	28	29	24	93
Total		21	39	42	32	134



Age

	Frequency	Percent	Valid Percent	Cumulative Percent
25-29	53	38.4	38.4	38.4
30-34	23	16.7	16.7	55.1
35-39	22	15.9	15.9	71.0
40-45	20	14.5	14.5	85.5
45-	20	14.5	14.5	100.0
Total	138	100.0	100.0	

Participants distributed as a function of age.

Department

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid General Doctor	30	21.7	22.1	22.1
Radiology	25	18.1	18.4	40.4
Cardiology	13	9.4	9.6	50.0
Surgery	7	5.1	5.1	55.1
Lab practitioner	13	9.4	9.6	64.7
Gynecology	6	4.3	4.4	69.1
ophthalmology	9	6.5	6.6	75.7
Pediatrics	10	7.2	7.4	83.1
Anesthesiologists	1	.7	.7	83.8
pneumology	1	.7	.7	84.6
neurology	1	.7	.7	85.3
neurosurgery	3	2.2	2.2	87.5
ortopedics	2	1.4	1.5	89.0
urology	1	.7	.7	89.7
nursery	6	4.3	4.4	94.1
Dentistry	6	4.3	4.4	98.5
intensive care	2	1.4	1.5	100.0
Total	136	98.6	100.0	
Missing System	2	1.4		
Total	138	100.0		

Participants distributed as by their departments

Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Univ Degree	64	46.4	47.8	47.8
	Master	59	42.8	44.0	91.8
	PhD	11	8.0	8.2	100.0
	Total	134	97.1	100.0	
Missing	System	4	2.9		
Total		138	100.0		

The participants' education level distribution.

Length of service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-2	21	15.2	15.4	15.4
	2-5	40	29.0	29.4	44.9
	5-10	42	30.4	30.9	75.7
	10-	33	23.9	24.3	100.0
	Total	136	98.6	100.0	
Missing	System	2	1.4		
Total		138	100.0		

Participants distribution as a function of length of service

Checking of the correlation between the questions that measure the Vertical Transactional leadership.

Correlations

		1	2	3	4
L recommends that I am compensated well if I perform well	Pear Corr	1	.117	.059	.020
	Sig. (2-tail)		.189	.514	.828
	N	129	128	124	124
L gives pos feedback when I perform well	Pear Corr	.117	1	.201*	.032
	Sig. (2-tail)	.189		.024	.724
	N	128	129	125	125
L focuses attention on mistakes	Pear Corr	.059	.201*	1	.495**
	Sig. (2-tail)	.514	.024		.000
	N	124	125	126	124
L focuses more on mistakes rather than on well done job	Pear Corr	.020	.032	.495**	1
	Sig. (2-tail)	.828	.724	.000	
	N	124	125	124	126

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

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

We notice that in the *Vertical Transactional Leadership* variable, only the 3rd and the 4th construct (questions) are strongly correlated and the 2nd and 3rd questions are significantly correlated. We would expect that the questions that compose a single variable (or construct) to be strongly correlated among them.

Correlations among questions that measure Shared transactional leadership

		1	2	3	4
M recomm that I am compensated well if I perform well	Pears Corr	1	.375**	.026	-.035
	Sig. (2-tailed)		.000	.779	.707
	N	123	121	121	120
M gives positive feedback when I perform well	Pearson Corr	.375**	1	.034	-.079
	Sig. (2-tailed)	.000		.713	.391
	N	121	125	121	121
M focuses attention on mistakes	Pearson Corr	.026	.034	1	.419**
	Sig. (2-tailed)	.779	.713		.000
	N	121	121	125	121
M focuses more on mistakes rather than on well done job	Pearson Corr	-.035	-.079	.419**	1
	Sig. (2-tailed)	.707	.391	.000	
	N	120	121	121	125

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

Checking the correlation between the questions that measure the Vertical Transformational leadership.

Correlations

		1	2	3	4	5	6	7
Member expects me to perform at my highest level	Corr	1	.355**	.345**	.234**	.065	.228*	.297**
	Sig		.000	.000	.008	.473	.011	.001
	N	127	126	125	126	125	124	124
Member encourages me to go above and beyond of what is normally expected	Corr	.355**	1	.563**	.366**	.429**	.221*	.419**
	Sig	.000		.000	.000	.000	.013	.000
	N	126	128	126	128	126	125	125
Member provides clear vision of what the team capacity is	Corr	.345**	.563**	1	.505**	.516**	.377**	.453**
	Sig	.000	.000		.000	.000	.000	.000
	N	125	126	127	126	125	124	125
Member is driven by high purpose or ideals	Corr	.234**	.366**	.505**	1	.428**	.339**	.460**
	Sig	.008	.000	.000		.000	.000	.000
	N	126	128	126	128	126	125	125
Member show enthusiasm for my efforts	Corr	.065	.429**	.516**	.428**	1	.507**	.474**
	Sig	.473	.000	.000	.000		.000	.000
	N	125	126	125	126	127	125	125
Member emphasizes the value of questioning team members	Corr	.228*	.221*	.377**	.339**	.507**	1	.394**
	Sig	.011	.013	.000	.000	.000		.000
	N	124	125	124	125	125	126	124
Member seeks a broad range of perspectives when solving problems	Corr	.297**	.419**	.453**	.460**	.474**	.394**	1
	Sig	.001	.000	.000	.000	.000	.000	
	N	124	125	125	125	125	124	126

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

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

Correlations among questions that measure Shared Transformational Leadership

		1	2	3	4	5	6	7
M expects me to perform at my highest level	Corr	1	.355**	.345**	.234**	.065	.228*	.297**
	Sig.		.000	.000	.008	.473	.011	.001
	N	127	126	125	126	125	124	124
M encourages me to go beyond expectations	Corr	.355**	1	.563**	.366**	.429**	.221*	.419**
	Sig.	.000		.000	.000	.000	.013	.000
	N	126	128	126	128	126	125	125
M provides clear vision of what the team capacity is	Corr	.345**	.563**	1	.505**	.516**	.377**	.453**
	Sig.	.000	.000		.000	.000	.000	.000
	N	125	126	127	126	125	124	125
M driven by high purpose or ideals	Corr	.234**	.366**	.505**	1	.428**	.339**	.460**
	Sig.	.008	.000	.000		.000	.000	.000
	N	126	128	126	128	126	125	125
M show enthusiasm for my efforts	Corr	.065	.429**	.516**	.428**	1	.507**	.474**
	Sig.	.473	.000	.000	.000		.000	.000
	N	125	126	125	126	127	125	125
M emphasizes the value of questioning team members	Corr	.228*	.221*	.377**	.339**	.507**	1	.394**
	Sig.	.011	.013	.000	.000	.000		.000
	N	124	125	124	125	125	126	124
M seeks a broad range of perspectives when solving problems	Corr	.297**	.419**	.453**	.460**	.474**	.394**	1
	Sig.	.001	.000	.000	.000	.000	.000	
	N	124	125	125	125	125	124	126

From the table above we see that all the pairs among the seven questions are strongly correlated with the single exception of the pair of question 1 with question 5. (Out of 21 pairs among the questions, only one pair is not correlated)

Correlations

		1	2	3	4	5	6	7
L expects me to perform at my highest level	Corr	1	.415**	.259**	.298**	.133	.153	.307**
	Sig.		.000	.004	.001	.140	.090	.001
	N	125	123	123	124	125	123	124
L encour to go beyond expectation	Corr	.415**	1	.556**	.460**	.622**	.421**	.416**
	Sig.	.000		.000	.000	.000	.000	.000
	N	123	125	123	125	125	123	124
L has clear vision of what the team capacity is	Corr	.259**	.556**	1	.591**	.522**	.322**	.502**
	Sig.	.004	.000		.000	.000	.000	.000
	N	123	123	125	124	125	123	124
L is driven by high purpose or ideals	Corr	.298**	.460**	.591**	1	.551**	.349**	.464**
	Sig.	.001	.000	.000		.000	.000	.000
	N	124	125	124	126	126	124	125
L shown enthusiasm for my efforts	Corr	.133	.622**	.522**	.551**	1	.521**	.440**
	Sig.	.140	.000	.000	.000		.000	.000
	N	125	125	125	126	127	125	126
L emphasizes the value of questioning team members	Corr	.153	.421**	.322**	.349**	.521**	1	.247**
	Sig.	.090	.000	.000	.000	.000		.006
	N	123	123	123	124	125	125	124
Leader seeks a broad range of perspectives when solving problems	Corr	.307**	.416**	.502**	.464**	.440**	.247**	1
	Sig.	.001	.000	.000	.000	.000	.006	
	N	124	124	124	125	126	124	126

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

Correlations

		1	2	3	4	5	6
L encour to treat myself to smth I enjoy when I do a task especially well	Corr	1	.410**	.606**	.387**	.417**	.442**
	Sig.		.000	.000	.000	.000	.000
	N	127	122	126	126	124	124
L encour to work together with other team members	Corr	.410**	1	.343**	.419**	.435**	.522**
	Sig.	.000		.000	.000	.000	.000
	N	122	122	121	121	120	120
L encour to search for solutions to my problems without supervision	Corr	.606**	.343**	1	.426**	.441**	.424**
	Sig.	.000	.000		.000	.000	.000
	N	126	121	126	126	124	124
L advises to look for opportunities contained in the problems I face	Corr	.387**	.419**	.426**	1	.561**	.436**
	Sig.	.000	.000	.000		.000	.000
	N	126	121	126	127	124	124
Leader encour me to develop myself	Corr	.417**	.435**	.441**	.561**	1	.698**
	Sig.	.000	.000	.000	.000		.000
	N	124	120	124	124	124	122
Leader encour me to seek out opportunities to learn	Corr	.442**	.522**	.424**	.436**	.698**	1
	Sig.	.000	.000	.000	.000	.000	
	N	124	120	124	124	122	124

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

**Correlations among questions that measure shared
empowering leadership**

		1	2	3	4	5	6
M encour to treat myself	Corr	1	.350**	.414**	.351**	.491**	.538**
to smth I enjoy when I do	Sig.		.000	.000	.000	.000	.000
a task especially well	N	128	125	128	128	127	127
M encour me to work	Corr	.350**	1	.286**	.380**	.468**	.472**
together with other team	Sig.	.000		.001	.000	.000	.000
members	N	125	125	125	125	124	124
M encour to search for	Corr	.414**	.286**	1	.482**	.319**	.372**
solutions to my problems	Sig.	.000	.001		.000	.000	.000
without supervision	N	128	125	128	128	127	127
M advises to look for	Corr	.351**	.380**	.482**	1	.566**	.465**
opportunities contained	Sig.	.000	.000	.000		.000	.000
in the problems I face	N	128	125	128	128	127	127
M encour me to develop	Corr	.491**	.468**	.319**	.566**	1	.688**
myself	Sig.	.000	.000	.000	.000		.000
	N	127	124	127	127	127	126
M encour me to seek out	Corr	.538**	.472**	.372**	.465**	.688**	1
opportunities to learn	Sig.	.000	.000	.000	.000	.000	
	N	127	124	127	127	126	127

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

Descriptive Statistics for questions that measure vertical leadership

	N	Minimum	Maximum	Mean	Std. Deviation
L recomm that I am compensated if I perform well	129	1	5	2.71	1.399
L gives positive feedback when I perform well	129	1	5	4.05	.789
L focus attention on mistakes	126	1	5	3.50	.978
L focus more on mistakes than on well done job	126	1	5	3.41	1.208
L expects me to perform at my highest level	125	2	5	4.23	.794
L encour me to go above what is normally expected	125	1	5	3.70	1.164
L provides clear vision of what the team capacity is	125	1	5	3.65	1.042
L driven by high purpose/ideal	126	1	5	4.01	.899
L enthusiast for my efforts	127	1	5	3.82	1.087
L emphasizes the value of questioning team members	125	1	5	3.60	.950
L seeks a broad range of perspectives when solving problems	126	1	5	3.88	.873
L encour me to treat myself to smth I enjoy when I do a task especially well	127	1	5	3.55	1.125
L encour me to work together with other team members	122	1	5	4.11	.752
L encour me to search for solutions to my problems without supervision	126	1	5	3.31	1.196
L advises me to look for opportunities contained in the problems I face	127	1	5	3.80	.829
L encour me develop myself	124	1	5	3.88	1.041
L encour me to seek out opportunities to learn	124	1	5	3.98	.954
Valid N (listwise)	109				

Analyze → Descriptive Statistics → Descriptives

Descriptive Statistics for questions that measure shared leadership

	N	Minimum	Maximum	Mean	Std. Deviation
M recomm that I am compensated if I perform well	123	1	5	2.80	1.464
M gives positive feedback when I perform well	125	1	5	3.97	.967
M focus attention on mistakes	125	1	5	3.55	.996
M focus more on mistakes than on well done job	125	1	5	3.44	1.125
M expects me to perform at my highest level	127	1	5	4.16	.858
M encour me to go above what is normally expected	128	1	5	3.63	1.011
M provides clear vision of what the team capacity is	127	1	5	3.53	1.133
M driven by high purpose/ideal	128	1	5	3.96	.855
M enthusiast for my efforts	127	1	5	3.58	1.137
M emphasizes the value of questioning team members	126	1	5	3.82	.916
M seeks a broad range of perspectives when solving problems	126	1	5	3.92	.873
M encour me to treat myself to smth I enjoy when I do a task especially well	128	1	5	3.48	1.136
M encour me to work together with other team members	125	2	5	4.12	.839
M encour me to search for solutions to my problems without supervision	128	1	5	3.47	1.170
M advises me to look for opportunities contained in the problems I face	128	1	5	3.80	.882
M encour me develop myself	127	1	5	3.60	1.033
M encour me to seek out opportunities to learn	127	1	5	3.77	1.063
Valid N (listwise)	103				

Analyze → Descriptive Statistics → Descriptives (How to do in SPSS)

Correlations

	1	2	3	4	5	6	7	8	9	10
1 Corr	1	.544**	.422**	.290**	.189*	.321**	.185*	.257**	.434**	.419**
1 Sig.		.000	.000	.001	.027	.000	.031	.002	.000	.000
1 N	138	138	138	138	137	138	136	138	138	138
2 Corr	.544**	1	.577**	.602**	.406**	.483**	.350**	.353**	.634**	.601**
2 Sig.	.000		.000	.000	.000	.000	.000	.000	.000	.000
2 N	138	138	138	138	137	138	136	138	138	138
3 Corr	.422**	.577**	1	.640**	.561**	.521**	.320**	.319**	.653**	.552**
3 Sig.	.000	.000		.000	.000	.000	.000	.000	.000	.000
3 N	138	138	138	138	137	138	136	138	138	138
4 Corr	.290**	.602**	.640**	1	.507**	.538**	.385**	.312**	.600**	.513**
4 Sig.	.001	.000	.000		.000	.000	.000	.000	.000	.000
4 N	138	138	138	138	137	138	136	138	138	138
5 Corr	.189*	.406**	.561**	.507**	1	.450**	.446**	.292**	.506**	.413**
5 Sig.	.027	.000	.000	.000		.000	.000	.001	.000	.000
5 N	137	137	137	137	137	137	135	137	137	137
6 Corr	.321**	.483**	.521**	.538**	.450**	1	.491**	.357**	.561**	.515**
6 Sig.	.000	.000	.000	.000	.000		.000	.000	.000	.000
6 N	138	138	138	138	137	138	136	138	138	138
7 Corr	.185*	.350**	.320**	.385**	.446**	.491**	1	.355**	.394**	.294**
7 Sig.	.031	.000	.000	.000	.000	.000		.000	.000	.001
7 N	136	136	136	136	135	136	136	136	136	136
8 Corr	.257**	.353**	.319**	.312**	.292**	.357**	.355**	1	.438**	.340**
8 Sig.	.002	.000	.000	.000	.001	.000	.000		.000	.000
8 N	138	138	138	138	137	138	136	138	138	138
9 Corr	.434**	.634**	.653**	.600**	.506**	.561**	.394**	.438**	1	.656**
9 Sig.	.000	.000	.000	.000	.000	.000	.000	.000		.000
9 N	138	138	138	138	137	138	136	138	138	138
10 Corr	.419**	.601**	.552**	.513**	.413**	.515**	.294**	.340**	.656**	1
10 Sig.	.000	.000	.000	.000	.000	.000	.001	.000	.000	
10 N	138	138	138	138	137	138	136	138	138	138

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

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

The correlation between the 10 questions of team effectiveness. They are all strongly correlated. This is expected in fact, but a check reveals that 43 out of 45 correlations among any pair are significant to the 0.01 level.

Correlations

		VTL	V_mng_exp	VTfL	VEL	TE_m ean
VTL	Corr	1	.761**	.368**	.357**	.142
	Sig		.000	.000	.000	.107
	N	131	128	127	128	131
V_mng_exp	Corr	.761**	1	.140	.187*	.116
	Sig	.000		.117	.036	.191
	N	128	128	127	127	128
VTfL	Corr	.368**	.140	1	.778**	.413**
	Sig	.000	.117		.000	.000
	N	127	127	127	127	127
VEL	Corr	.357**	.187*	.778**	1	.392**
	Sig	.000	.036	.000		.000
	N	128	127	127	128	128
TE_mean	Corr	.142	.116	.413**	.392**	1
	Sig	.107	.191	.000	.000	
	N	131	128	127	128	138

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

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

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
VTL	131	1.75	4.75	3.4059	.67648
VTfL	127	1.71	5.00	3.8464	.69271
VEL	128	1.50	5.00	3.7609	.73489
ShTL	129	1.50	5.00	3.4244	.70306
ShTfL	129	2.14	5.00	3.8026	.67009
ShEL	128	1.50	5.00	3.7049	.74621
TE_mean	138	1.80	5.00	4.0076	.58779
Valid N (listwise)	117				

The descriptives for the six predictors of the team effectiveness.

Correlations

		ShTL	Sh_mng_exp	ShTfL	ShEL	TE mean
ShTL	Corr	1	.681**	.488**	.517**	.193*
	Sig		.000	.000	.000	.029
	N	129	129	129	128	129
Sh_mng_exp	Corr	.681**	1	.198*	.231**	.123
	Sig	.000		.025	.009	.164
	N	129	129	129	128	129
ShTfL	Corr	.488**	.198*	1	.757**	.333**
	Sig	.000	.025		.000	.000
	N	129	129	129	128	129
ShEL	Corr	.517**	.231**	.757**	1	.334**
	Sig	.000	.009	.000		.000
	N	128	128	128	128	128
TE_mean	Corr	.193*	.123	.333**	.334**	1
	Sig	.029	.164	.000	.000	
	N	129	129	129	128	138

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

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

how_support_team_is

		Frequenc y	Percent	Valid Percent	Cumulative Percent
Valid	0	30	21.7	31.6	31.6
	1	65	47.1	68.4	100.0
	Total	95	68.8	100.0	
Missing	System	43	31.2		
Total		138	100.0		

Report

TE_mean

how support team is	Mean	N	Std. Deviation
0	3.8733	30	.61752
1	3.9908	65	.50985
Total	3.9537	95	.54557

Independent Samples Test

		Levene test		t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
		F	Sig.				
TE_mean	Equal	1.111	.295	-.975	.332	-.11744	.12045
	No Equal			-.908	.368	-.11744	.12927

The teams that have a larger number of members that have leadership behavior (as evaluated by their colleagues) seem to have higher team effectiveness but it is not significant as we controlled using the t-test.

Correlations

		VTL	VTfL	VEL	ShTL	ShTfL	ShEL	TE_me an
VTL	Corr	1	.368**	.357**	.589**	.266**	.310**	.142
	Sig		.000	.000	.000	.003	.001	.107
	N	131	127	128	122	122	121	131
VTfL	Corr	.368**	1	.778**	.356**	.660**	.462**	.413**
	Sig	.000		.000	.000	.000	.000	.000
	N	127	127	127	118	118	117	127
VEL	Corr	.357**	.778**	1	.299**	.457**	.528**	.392**
	Sig	.000	.000		.001	.000	.000	.000
	N	128	127	128	119	119	118	128
ShTL	Corr	.589**	.356**	.299**	1	.488**	.517**	.193*
	Sig	.000	.000	.001		.000	.000	.029
	N	122	118	119	129	129	128	129
ShTfL	Corr	.266**	.660**	.457**	.488**	1	.757**	.333**
	Sig	.003	.000	.000	.000		.000	.000
	N	122	118	119	129	129	128	129
ShEL	Corr	.310**	.462**	.528**	.517**	.757**	1	.334**
	Sig	.001	.000	.000	.000	.000		.000
	N	121	117	118	128	128	128	128
TE_me an	Corr	.142	.413**	.392**	.193*	.333**	.334**	1
	Sig	.107	.000	.000	.029	.000	.000	
	N	131	127	128	129	129	128	138

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

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

Here are presented the correlations between the vertical and shared leadership and their relation to the team effectiveness.