



■ **THESIS - POLYTECHNIC DEGREE** SOCIAL, HEALTH AND
EXERCISE SECTOR

TRE METHOD EFFECTS OF STRESS FOR DISASSEMBLY

Pilot study for employees of psychiatric work at Kuopio
Psychiatric Center and Julkula Hospital

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Education	
Social, health and sports	
Training program	
Degree Program in Nursing	
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Name of the work	
Effects of the TRE method on stress relief	
Date	3/17/2017
Number of pages / Attachments	50/3
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Client / Partner (s) Kuopio Psychiatric Center	
Summary:	
<p>The purpose of the study was to describe the effects of the TRE method on stress relief in psychiatric workers. The aim of the study is to increase the understanding of the TRE method and how it helps to relieve stress. The aim is also to increase employees' knowledge and means of relieving stress. Upon completion of the study, its results will be presented to the employees of the Kuopio Psychiatric Center. It is possible to utilize the research results when planning the development of employees' well-being at work.</p> <p>The study was conducted as an intervention study and used triangulation, ie a combination of both quantitative and qualitative methods. Quantitative methods were analyzed by calculating percentages of change and the qualitative method was analyzed by content analysis. 9 employees participated in the study. They all worked either at the Kuopio Psychiatric Center or at Julkula Hospital as nurses, doctors, psychologists or social workers. Initially, in the autumn of 2016, the quantitative methods in the study were the Firstbeat measurement and the ProQOL quality of life screen. After the measurements, TRE group controls began. Group mentoring took place once a month, a total of six times. The subjects undertook to participate in the group guidance of the TRE method and to use the TRE method independently. In the spring of 2016,</p> <p>There were several positive results in the results of the firstbeat measurements. The most important of the Firstbeat measurement figures is the one describing the quality of recovery. This figure describes the functioning and dysfunction of the autonomic nervous system, such as poor recovery. In the results, the recovery of the subjects had improved by an average of + 10%. ProQOL quality of life scores had risen by an average of + 17%. The largest positive change had occurred as an improvement in trauma scores with an average of + 22%. According to the answers to the open-ended questions, the positive changes were a decrease in stress, a decrease in the level of activation, an improvement in sleep quality, and an increase in physical-mental well-being. The negative effects of the method in Firstbeat measurements were an increase in the proportion of stress reactions by + 9% and a decrease in the rate of recovery by -4%. In the ProQOL sieve, the scores had improved on average, but there were individual negative changes in values. In open-ended questions, the challenges of the method were perceived as either mental, physical, or scheduled. The study also found that not everyone has experienced challenges with the method. The study suggests that the TRE method is useful for psychiatric nursing workers in identifying and relieving stress.</p>	
Keywords	
Stress, psychiatric nurse, TRE, triangulation	

Field of Study Social Services, Health and Sports			
Degree Program Degree Program in Hospitality Management			
Author Henna Talvinen			
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Date	3/17/2017	Pages / Appendices	50/3
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Client Organization / Partners Kuopio Psychiatric Center			
<p>Abstract '</p> <p>Stress is defined as a situation that overtaxes a person's assets. People working in social and Health care suffer more than average from stress experienced through work. TRE is a variety of stress relieving exercises and it's meant for removing stress and trauma. The method relaxes and mobilizes muscles tensioned by stress and traumatic experiences.</p> <p>The purpose of the research was to describe the effects of the TRE method on stress relief among Psychiatric healthcare employees. The aim of the research is to increase the understanding of the TRE method and how it helps with releasing stress. The goal is also to increase employees' knowledge and ways to relive stress. Once the research is completed, the results are going to be presented to the employees of the Kuopio Psychiatric center. The results of the research can be used while planning to improve the well-being of the employees at work.</p> <p>The research was carried out as an intervention research and triangulation was used in it, which means both quantitative and qualitative methods were combined. The quantitative methods were analyzed by counting the percentage between the starting point and the results and the qualitative methods were analyzed with content analysis. Nine employees participated in the research. They all worked in either Kuopio Psychiatric center or Julkula hospital as nurses, Doctors, psychologists or social workers. In Autumn 2016, at the beginning of the intervention the quantitative methods used in the research were the Firstbeat-measurement and the ProQOL (Professional Quality of Life Scale). The TRE group practices started after the measurements. The group practices took place once a month, six times altogether. The examinees committed themselves to participating in the group practices of the TRE-method and to practice the TRE-method individually. In Spring 2016 after a six month intervention, the second Firstbeat-measurement and ProQOL-scale took place as well as the completion of the measurements with qualitative questions.</p> <p>In the results of the Firstbeat measurement there were many positive outcomes. The most important number in the Firstbeat-measurement results was the number describing the quality of recovery. The number describes the function and malfunction of the autonomic nervous system, for example a poor recovery. In the results of the examinees' recovery was increased by the average + 10%. The points of the ProQOL were increased by the average of + 17%. The biggest positive change had happened as an increase in the trauma points by the average + 22%. Positive changes that were found from the answers to the open questions were a decrease in stress levels, a decrease in the level of activation, an increase in the quality of sleep and increasing in the physical and psychical well-being. The negative outcomes of the method were an increase in stress reactions in the Firstbeat-measurements by the average of + 9% and a decrease in the amount of recovery by the average of -4%. The points in the ProQOL-scale were increased as an average but there were found individual negative changes in the numbers. In the open questions the challenges of the method were seen as either psychical, physical or there were issues with schedules. It was also found in the research that every participant hadn't found challenges in the method. The research points out that the TRE-method is beneficial for Psychiatric healthcare employees when it comes to acknowledging stress and releasing it. The points in the ProQOL-scale were increased as an average but there were found individual negative changes in the numbers. In the open questions the challenges of the method were seen as either psychical, physical or there were issues with schedules. It was also found in the research that every participant hadn't found challenges in the method. The research points out that the TRE-method is beneficial for Psychiatric healthcare employees when it comes to acknowledging stress and releasing it. The points in the ProQOL-scale were increased as an average but there were found individual negative changes in the numbers. In the open questions the challenges of the method were seen as either psychical, physical or there were issues with schedules. It was also found in the research that every participant hadn't found challenges in the method. The research points out that the TRE-method is beneficial for Psychiatric healthcare employees when it comes to acknowledging stress and releasing it.</p>			
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1 INTRODUCTION

Stress is defined as a situation in which a person is subject to expected or unexpected significant demands for which he or she does not have sufficient resources to deal with. Any negative or positive thing can be stressful. One cannot name a particular stressful situation or stimulus, but the reaction depends on one's current resources as well as attitudes and perspectives. (Mattila 2010) National In Finland, 20-25% of employees in all sectors experience quite or very much stress at work (Mattila 2010, Kivekäs and Ahola 2012). The social and health care sector suffers more than average from the mental load of work and the stress it brings (Blaug, Kenyon & Lekhi 2007; Pirskanen, Pietilä, Rytönen & Varjoranta 2010; Palmunen 2011; Work and health in Finland 2012). The stressful experience is mental, but its effects on the body can be physical. Symptoms of stress can include headache, dizziness, upset stomach, the flu-twist, and back problems. Mental symptoms can include irritability, anxiety, aggression, depression, sleep disturbances, and memory problems. (Mattila 2010; Vichealth 2012) In Finland, about half of those working had repeatedly experienced some mental symptoms such as insomnia and fatigue during the past month (Finnish Institute of Occupational Health 2013). Even those who suffer from stress for a short time have more difficulties in old age related to their ability to function and move, for example washing and dressing (Kulmala, von Bonsdorff, Stenholm, Törmäkangas, von Bonsdorff, Nygård, Klockars, Seitsamo, Ilmarinen & Rantanen 2012) flu thread as well as back problems. Mental symptoms can include irritability, anxiety, aggression, depression, sleep disturbances, and memory problems. (Mattila 2010; Vichealth 2012) In Finland, about half of those working had repeatedly experienced some mental symptoms such as insomnia and fatigue during the past month (Finnish Institute of Occupational Health 2013). Even those who suffer from stress for a short time have more difficulties in old age related to their ability to function and move, for example washing and dressing (Kulmala, von Bonsdorff, Stenholm, Törmäkangas, von Bonsdorff, Nygård, Klockars, Seitsamo, Ilmarinen & Rantanen 2012) flu thread as well as back problems. Mental symptoms can include irritability, anxiety, aggression, depression, sleep disturbances, and memory problems. (Mattila 2010; Vichealth 2012) In Finland, about half of those working had repeatedly experienced some mental symptoms such as insomnia and fatigue during the past month (Finnish Institute of Occupational Health 2013). Even those who suffer from stress for a short time have more difficulties in old age related to their ability to function and move, for example washing and dressing (Kulmala, von Bonsdorff, Stenholm, Törmäkangas, von Bonsdorff, Nygård, Klockars, Seitsamo, Ilmarinen & Rantanen 2012) Vichealth 2012) In Finland, about half of working people had repeatedly experienced some mental symptoms such as insomnia and fatigue during the last month (Finnish Institute of Occupational Health 2013). Even those who suffer from stress for a short time have more difficulties in old age related to their ability to function and move, for example washing and dressing (Kulmala, von Bonsdorff, Stenholm, Törmäkangas, von Bonsdorff, Nygård, Klockars, Seitsamo, Ilmarinen & Rantanen 2012) Vichealth 2012) In Finland, about half of working people had repeatedly experienced some mental symptoms such as insomnia and fatigue during the last month (Finnish Institute of Occupational Health 2013). Even those who suffer from stress for a short time have more difficulties in old age related to their ability to function and move, for example washing and dressing (Kulmala, von Bonsdorff, Stenholm, Törmäkangas, von Bonsdorff, Nygård, Klockars, Seitsamo, Ilmarinen & Rantanen 2012)

According to the Nurse Ethical Guidelines (1996), the nurse must empathize with the patient's story and the interaction between them must be open. This can lead to prolonged stress or even surrogate trauma through emotional stress. Prolonged stress, without recovery, may increase the incidence of various diseases, such as coronary artery disease and metabolic syndrome. As stress prolongs, mental disorders such as depression are common (Ahola & Hakanen 2007; Stahl & Goldstein 2011; Vichealth 2012; National Institute for Occupational Health 2013) and can also predispose to compassionate stress and exhaustion. Talking about the touch of nursing is still taboo in the health sector, and both compassion stress and exhaustion are still unknown terms (Palmunen 2011).

Stress relief is part of stress management, so this study will use both concepts in parallel for stress relief as well as stress management and it is important to note their different meanings. Stress relief manages stress. Stress prevention and treatment is one of the key challenges facing healthcare today. In particular, primary health care, occupational health care and specialist psychiatric care need to find new ways to relieve stress and support its management. (Lönnqvist 2009). There are several ways to manage stress in the workplace; for example, exercise, social networking and sick leave, but there are not many ways to relieve stress. One method of relieving stress is, for example, job supervision. In work supervision, the employee's resources are made available, which helps in stress management (National Institute of Occupational Health 2014). This work focuses on the lesser-known use and study of the TRE or Trauma Releasing Exercises method.

The Patients Act obliges employees to maintain good personal health. The Act on the Status and Rights of Patients (17.8.1992 / 785) states that "Patients have the right to good quality health care and medical care." Good treatment related to the quality of care means, for example, vigorous behavior in care situations. Stressed sleep and memory problems can cause problems in achieving good treatment as part of a patient's rights. According to a study (Karhula, Puttonen, Vuori, Sallinen, Hyvärinen, Kalakoski & Härmä 2011), long-term work stress in nursing is associated with weaker memory. Stress management is not only the responsibility of employees but also the employer must take care of the health of the employee. It is not merely a moral obligation but a legal obligation under Framework Directive 89/391 / EEC "The employer shall, in accordance with his obligations, take the necessary measures to protect the safety and health of workers, (Eur-LEX 1989) Dealing with stress is also profitable for the organization. According to the Vichealth report, up to 40-60% of employee absenteeism can be estimated to be due to stress or the symptoms it causes. information and training and the provision of the necessary arrangements and resources. " (Eur-LEX 1989) Dealing with stress is also profitable for the organization. According to the Vichealth report, up to 40-60% of employee absenteeism can be estimated to be due to stress or the symptoms it causes. information and training and the provision of the necessary arrangements and resources. " (Eur-LEX 1989) Dealing with stress is also profitable for the organization. According to the Vichealth report, up to 40-60% of employee absenteeism can be estimated to be due to stress or the symptoms it causes.

TRE means stress relief movements in Finnish. The method is intended as a bodily means to eliminate stress and trauma itself. TRE is a set of exercises that relaxes and mobilizes muscles that are stressed and tense experiences of traumatic experiences. Exercise triggers a natural recovery mechanism that occurs as muscle vibration. When the body's resources are restored, it is often felt to improve well-being and sleep and quality of life, often immediately or after a few times. TRE is designed to be used, for example, by victims of rape and violence, firefighters, police, the military in the war zone, and first aid personnel and others who face crisis situations at work. (Berceli 2013; Traumaprevention 2013)

This study was commissioned by the Kuopio Psychiatric Center, which is currently planning to use the TRE method to increase well-being at work. The purpose of the study is to describe the effects of the TRE method on stress relief in psychiatric nursing workers. The aim of the study is to increase the understanding of the TRE method and how it helps to relieve stress. The aim is also to increase employees' knowledge and means of relieving stress. Upon completion of the study, its results will be presented to the employees of the Kuopio Psychiatric Center.

2 STRESS AND ITS RELEASE

Stress is an alarm state of the body where the external and internal requirements of the body do not meet (Finnish Mental Health Association 2010). Stress is not only dependent on a person's characteristics, but stress arises when the load produced by the environment exceeds the individual's resources (Jokinen & Vikman 2007). In psychology, stress is understood as the sum of many variables and is really complex compared to the concept defined by physics. In physics, stress can be measured, but not in psychology, because the determination of stress is a subjective or personal interpretation, after all, the object of measurement is the person and his perception and experience of the matter. (Jokinen & Vikman 2007)

Prolonged stress can lead to burnout, somatic illnesses and reduced quality of life (Ruotsalainen 2007; Korkeila 2008; Vichealth 2012). Exhaustion, on the other hand, is a chronic disorder that can, at worst, predispose to disability (Ahola & Hakanen 2010). Exhaustion at work is classified as advanced depression if fatigue, along with other symptoms of depression, is not relieved during holidays or vacations (Huttunen 2015). Studies (Ahola & Hakanen, 2007; Viinamäki, Lehto, Palimo, Harvima, Valkonen-Korhonen, Koivumaa-Honkanen, Hintikka, Honkalampi & Niskanen 2012) showed that work stress, burnout and depression have a reciprocal relationship. Work stress predisposed to depression and burnout predicted later depressive symptoms. Common symptoms of depression include insomnia, fatigue and depressed mood, often accompanied by a decreased ability to feel pleasure. Ability to work depends on the severity of the depression. A mildly depressed person is usually able to cope with their job responsibilities, while a moderately depressed person is clearly dysfunctional and sick leave is often necessary. A severely depressed person is usually incapacitated and may need hospitalization. (Huttunen 2015). According to a study of 13 million European workers, the relative cost of mental illness in the EU is estimated at 135 billion (Kirsten 2010). One of the biggest problems affecting the health of people of working age is mental health problems (Pirkanen, Pietilä, Rytönen &

2.1 Origin and physiology of stress

To be able to understand how stress affects the body, we need to understand the physiology of stress and the functioning of the autonomic nervous system. The autonomic nervous system functions involuntarily, regulating vital functions such as the brain, respiration, heart, and many internal organs. It is composed of the sympathetic and parasympathetic nervous systems (Fig. 1), which have opposite, complementary functions. In a situation to be construed as a threat **sympathetic nervous system** activates and accelerates a variety of physiological changes such as increased heart rate, increased blood pressure, and superficial respiration. At the same time, less important functions such as digestion or reproductive functions are slowed down or stopped temporarily. **Parasympathetic nervous system** is activated when the threat is interpreted as so serious that there is no point in reinforcing vital functions. The role of the parasympathetic nervous system is to lower blood pressure and heart rate. This can immobilize the body and save energy. (Stahl & Goldstein 2010, 52 - 53)

A person's feelings and thoughts also have effects on both health and illness. The mere experience of a sense of threat and the actual existing threatening situation elicit the same physiological response in both situations. For this reason, hearing patients' stories can lead to, for example, the same physical symptoms as patients (Jokinen & Vikman 2007; Stahl & Goldstein 2010).

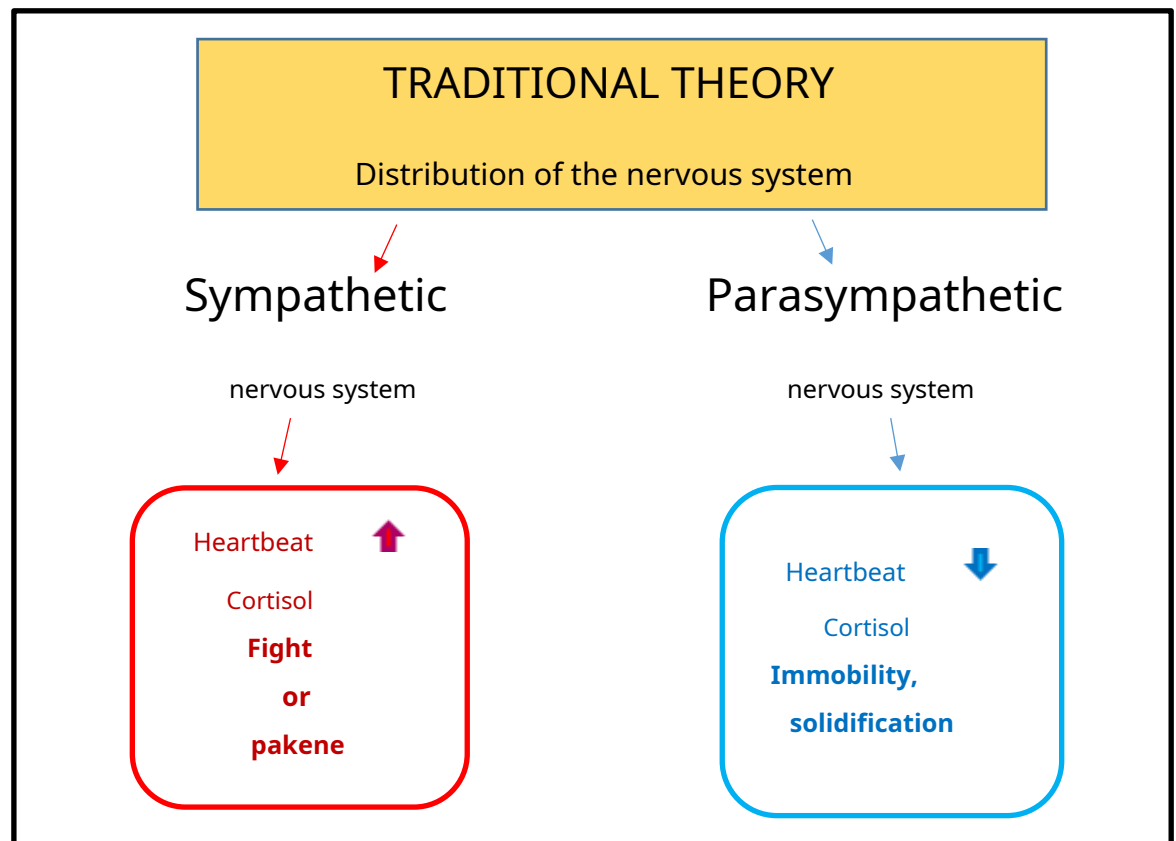


Figure 1. Distribution of the nervous system (Adapted from Stahl & Goldstein 2010)

2.2 Means and management of stress relief

Relieving stress is part of stress management. **Stress management** requires that a person recognize their emotions and develop ways to deal with them (Stahl & Goldstein 2010). There are many ways to manage stress. There are basically three different stress management strategies. First, stressors can be eliminated or avoided, for example, by sick leave due to work-related stress. Second, external demands on people can be minimized by getting to know their own resources and their limits. Third, one can develop one's own abilities to withstand stress, including in one's profession. This means gaining a sense of life control through, for example, exercise, rest, diet and social networking. Developing your own skills can also help you manage work stress. (Lönnqvist 2009)

Stress-induced reactions are usually subconscious patterns of action that have usually been learned from experience and past challenges. These learned habits also include self-harming means of relieving stress, such as smoking and self-inflicted rush. These means are not empowering but can lead to both mental and physical stress. (Stahl & Goldstein 2010, 53)

With a conscious presence and a conscious search for grievances, subconscious habits and habits can be noticed and new choices that promote well-being can be made (Stahl & Goldstein 2010). For example, relaxation can reduce employee stress and the resulting symptoms (Ruotsalainen 2007). Good results have been obtained in the care sector with methods involving employees (Ahola & Hakanen 2010). To prevent, identify, relieve, and manage stress, it is important to combine both individual-strengthening and environment-modifying measures. Ways to strengthen the individual include, for example, relieving the emotional burden using various methods. (Ahola & Hakala 2010)

2.3 Stress in psychiatric nursing

In Finland, 20-25% of employees in all sectors experience quite or very much stress at work. Although, according to an international comparison, the overall level of burnout in Finnish nurses was low (Kanste 2006), the social and health care sector suffers more than average (42%) from all mental workload and stress (Kanste 2006; Ahola & Hakanen 2010; Mattila 2010; health 2012). In the ESENER-2 business survey (European Agency for Safety and Health at Work 2014), around 80% of European business leaders in all sectors expressed concern about stress in the workplace, but only less than 30% had some method of stress relief in place.

Psychiatric workers are at risk of suffering from work-related stress (Zerach & Shalev 2015). In mental health work, the relationship with patients and the workload cause the most stress for staff (Ahola & Hakola 2010). Patient-related stress can lead to dissatisfaction, mental and physical symptoms, and mental strain (Heponiemi, Sinervo & Elovainio 2009). This may be because the caregiver is not immune to the patient's suffering. Nevertheless, the employee must control any unfavorable feelings that have arisen in himself. This professional behavior can give rise to professional dissonance, that is, a mismatch between actual and demonstrated emotions. This has been found to be associated with the development of burnout. (Ahola & Hakola 2010) Although the right to work supervision as part of psychiatric nursing is enshrined in the Mental Health Act, and there is evidence of its benefits for employees' coping (Koivu 2013; Kärkkäinen 2013), it seems that work supervision alone is not enough. Young age and a lower level of education are also associated with greater work stress and exhaustion (Laijärvi, Välimäki, Pääkkönen & Pukuri 2006, Heponiemi, Sinervo & Elovainio 2009). Stress at work experienced by those working in the social and health sector has decreased in the 21st century, but has remained unchanged since 2009 (Oksanen 2012; Labor and Health 2012). Despite this, the number of people experiencing mental symptoms has increased (Work and Health 2012).

Matters arising from work or organization alone may not alone cause stress. Economic problems in private life, changes in human relationships, illnesses and stressful lifestyles, such as alcohol consumption, can also increase stress and thus enable an increase in work-related stress (Koskinen 2014). Occupational well-being in Finland is slowly rising with active development

as a result. Still, the costs of sick leave, invalidity pensions, accidents at work and related medical care and reduced working capacity are in the order of EUR 40 billion per year. Social and health workers tend to have slightly more sick leave days than in other sectors. (Work and health in Finland 2012) These costs are exactly what can be affected by well-being at work, for example by developing stress relief measures. Well-being at work will continue to play an even more important role, and strengthening the resources of people and work communities will become more important (Work and Health in Finland 2012).

2.4 Empathy and emotional stress

Empathy is a state of the autonomic nervous system that tends to conform to the state of the autonomic nervous system of another person (Rothschild & Rand 2010, 53). In addition to professional skills, a social and health worker uses his or her empathy. Empathy makes it easier for an employee to identify with a patient's story, but it also exposes them to emotional stress. Empathy is not only a mental but also a physical or somatic phenomenon. Somatic empathy manifests itself in motor nervous system function and is detected through the five senses of the sensory nervous system (extraceptors) as well as the sense of balance, internal senses, and postural senses (interoceptors). It can manifest itself as various changes in the nervous system, such as an increase in heart rate. (Rothschild & Rand 2010) That is, empathy is broader than a mere cognitive or emotional mechanism.

The most promising explanation of the neurosciences for empathy is mirror neurons, i **mirror cells**. Mirror cells are brain cells that mirror the brain cells of another being. For example, a visual stimulus generated by a patient activates the corresponding nerve cells in a worker. Even if an employee feels the other is working, the employee's neurons act as if he or she is doing the same movements themselves. (Iacoboni 2008; Rothschild & Rand 2010, 51 - 52) In reality, our bodies react to another body and emotional states all the time. According to numerous studies, we constantly mirror the expressions and attitudes of others, both consciously and unconsciously. For example, when we see someone yawning, it is almost impossible to arrest their own yawn. This bodily reaction is an example of somatic empathy. (Rothschild & Rand 2010, 54) Empathy is an essential skill for species development and has enabled human development. It has made it possible to form couples and groups and to care for the offspring. (Rothschild 2010, 43)

All emotions, such as grief and happiness, are characterized by somatic manifestations, such as certain facial movements (Rothschild & Rand 2010; Nummenmaa, Glerean, Hari & Hietanen 2013). Each emotion also has a typical autonomic nervous system function, such as an increase in heart rate. Mimicking emotionally related muscle changes triggers autonomic nervous system reactions. Unconscious mirroring also elicits an autonomic nervous system reaction. The function of brain mirror cells contributes to unconscious imitation. That is, when imitating another's emotional position, people are likely to adopt the same feeling. For this, the word empathy substitute experience is used. (Rothschild & Rand 2010) For example, (Figure 2) when a patient feels fear, his heart rate rises and his body is in a certain position.

in the patient (fear). However, it can have negative effects on the thoughts of the unconscious party, in this example the employee. Unconscious mirroring of another's emotions can lead to emotional stress (Toivola 2004; Rothschild & Rand 2010; Palmunen 2011).

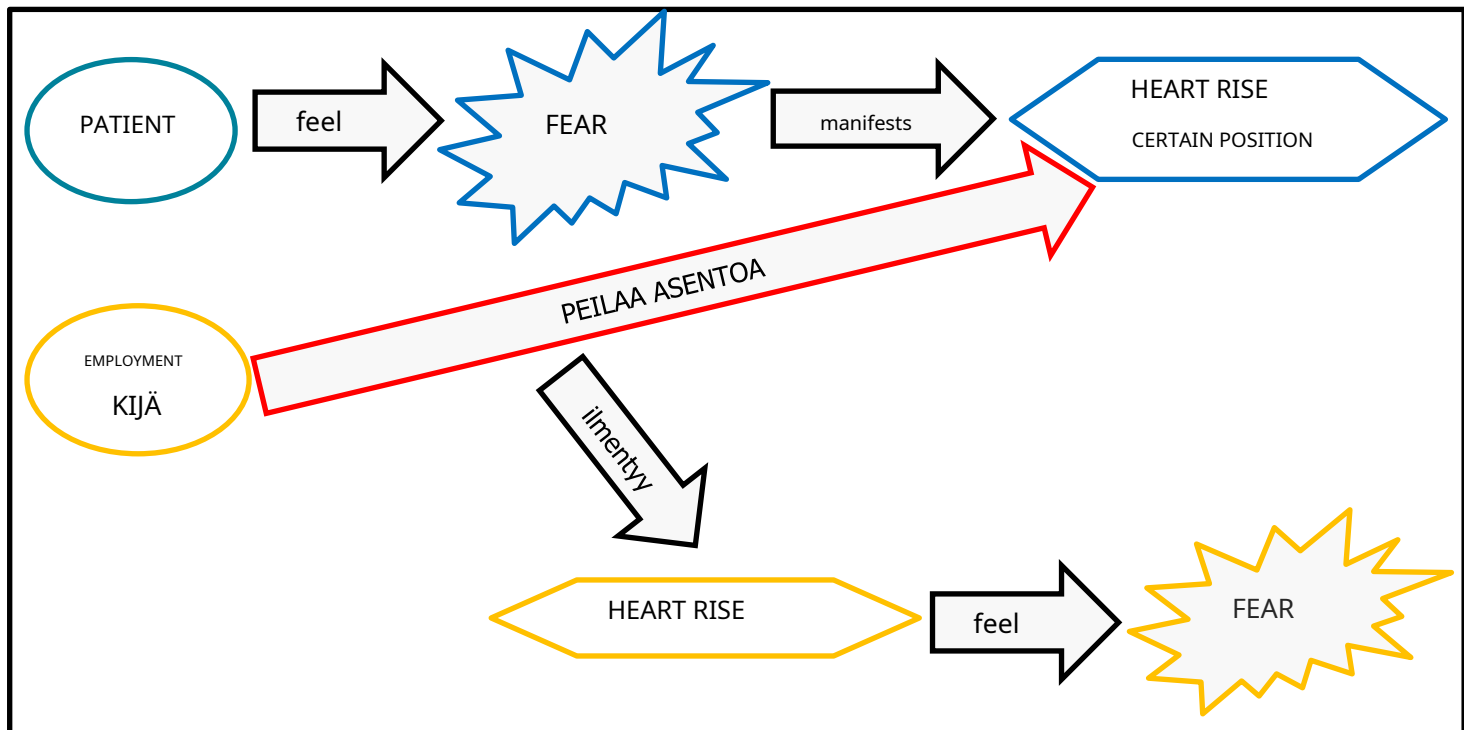


Figure 2. Empathy substitute experience (Adapted from Rothschild & Rand 2010)

In the social and health sector, workers are generally satisfied with their work. Satisfaction is usually based on the joy and pleasure produced by patient work. Despite job satisfaction, the biggest challenges in the industry are related to the mental workload, so empathy also seems to have its downsides. (Kanste 2006; Work and Health in Finland 2012) According to current knowledge and research, trauma work and especially long-term work focused on the care of severely traumatized people can lead to emotional stress due to somatic empathy, which is also referred to as compassionate stress. (Project Report 2009 - 2012. 99 - 104.) According to a Japanese study (Komachi, Kamibeppu, Nishi & Matsuoka 2012), 90.3% of nurses working in the hospital experienced compassionate stress. The employee may feel compassionate stress when exposed to a traumatic story told by the client. Although stress symptoms are physical, they are due to the employee's ability to empathize and reflect the client's feeling. Compassion stress is part of the daily lives of social and health professionals and is not related to a lack of professional skills but is part of the content of the job. (Palmunen 2011) If an employee is not aware of the effects of his or her work on his or her own body, compassion stress can lead to surrogate trauma and empathy (Palmunen 2011; Project Report 2009 - 2012. 99 - 104).

Substitute traumatization is not a single event, but changes are happening little by little. Usually, in surrogate trauma, the employee's own image of people and the world, as well as beliefs about life and humanity, become more negative. At worst, substitution traumatization is seen in the employee as hopelessness. (Bell 2008; Mäkinen 2012) Fatigue of compassion is a consequence of surrogate trauma. Symptoms of empathy are almost similar to those of trauma

with stress disorder (PTSD). The symptom has a similar neurobiological background in traumatization, whether the person himself has been in a direct traumatic event or has gone through it through another person. Brain function changes so that the emotional content of memory traces is not combined with cognitive material. This manifests as various flashback and somatic symptoms. (Toivola 2004; Huttunen 2014; Palmunen 2011) Others are structurally more susceptible to empathy, but due to the high amount of exertion, everyone can get symptoms. An employee's own untreated life situations can also predispose to empathy. (Toivola 2004, Bell 2008) Risk factors for empathy include the employees' strong emotional life in the patient's stories. Encountering traumatized people in particular is emotionally challenging. (Bell 2008, Mäkinen 2012) Empathy for compassion is a significant work-related risk that can cause disability and problems in private life. However, admitting the problem is even perceived as shameful, so preventive measures play an important role. (Toivola 2004; Bell 2008; Palmunen 2011)

2.5 Neurophysiology of empathy and its relation to stress

To understand another emotional surrogate experience, one must understand the neurophysiology of empathy, i.e., the structure and function of the human nervous system. The human nervous system consists of the central nervous system, which includes the brain and spinal cord, and the peripheral nervous system, which includes nerve output from the central nervous system (Figure 3). The brain sends information to the body and the body sends information to the brain, understanding this two-way system helps to understand the surrogate experience of empathy. The peripheral nervous system consists of two parts, the sensory and the motor. The sensory nervous system is also further divided into two parts, the exoreceptive and the interoceptive part. The motor nervous system continues to branch into the autonomic and somatic parts. (Rothschild & Rand 2010, 45 - 46)

The sensory nerves in the peripheral nervous system carry information from the periphery of the body to the brain and spinal cord. The sensory nerve is divided into two parts, extrareceptors and interoceptors. Exoreceptors carry five different senses: sight, hearing, taste, touch and smell. The interoceptive part consists of three main senses: the balance sense (vestibular sense), the posture sense, the proprioceptive sense, and the inner senses. One hypothesis is that emotional experiences consist of body sensations that arise in response to various stimuli - these also include stimuli that evoke empathy. Any sense can elicit an empathic reaction. The sense of hearing, sight and touch are very sensitive. For example, a certain scent can elevate images of a particular place. This is a somatic sign of emotion. (Rothschild & Rand 2010,

The autonomic part of the motor nervous system is involuntary. For example, the sympathetic part causes the heart rate and cortisol level to rise and the parasympathetic part causes the heart rate and cortisol level to decrease. (Rothschild & Rand 2010. 46 - 47; MacDonald 2014) The somatic part of the motor nervous system is voluntary. It is made up of the nerves in the skeletal muscles of the body. Stimulation into the somatic nervous system causes the muscles to contract. (Rothschild & Rand 2010. 46 - 47; Health Library 2016) The somatic nervous system is made up of efferent nerves that carry command from the brain and spinal cord to the muscles. Sometimes nerves from the spinal cord can control movement without a brain command. For example, when touching hot, sensory feedback from the hand causes the person to pull

hand out at lightning speed. In this reflex, the spinal cord ignores a command from the brain. The somatic and sensory nervous systems are constantly interacting with each other. Voluntary movement from the somatic nervous system would not be possible without the sensory nervous system to produce sensory feedback. (Rothschild & Rand 2010. 46 - 47)

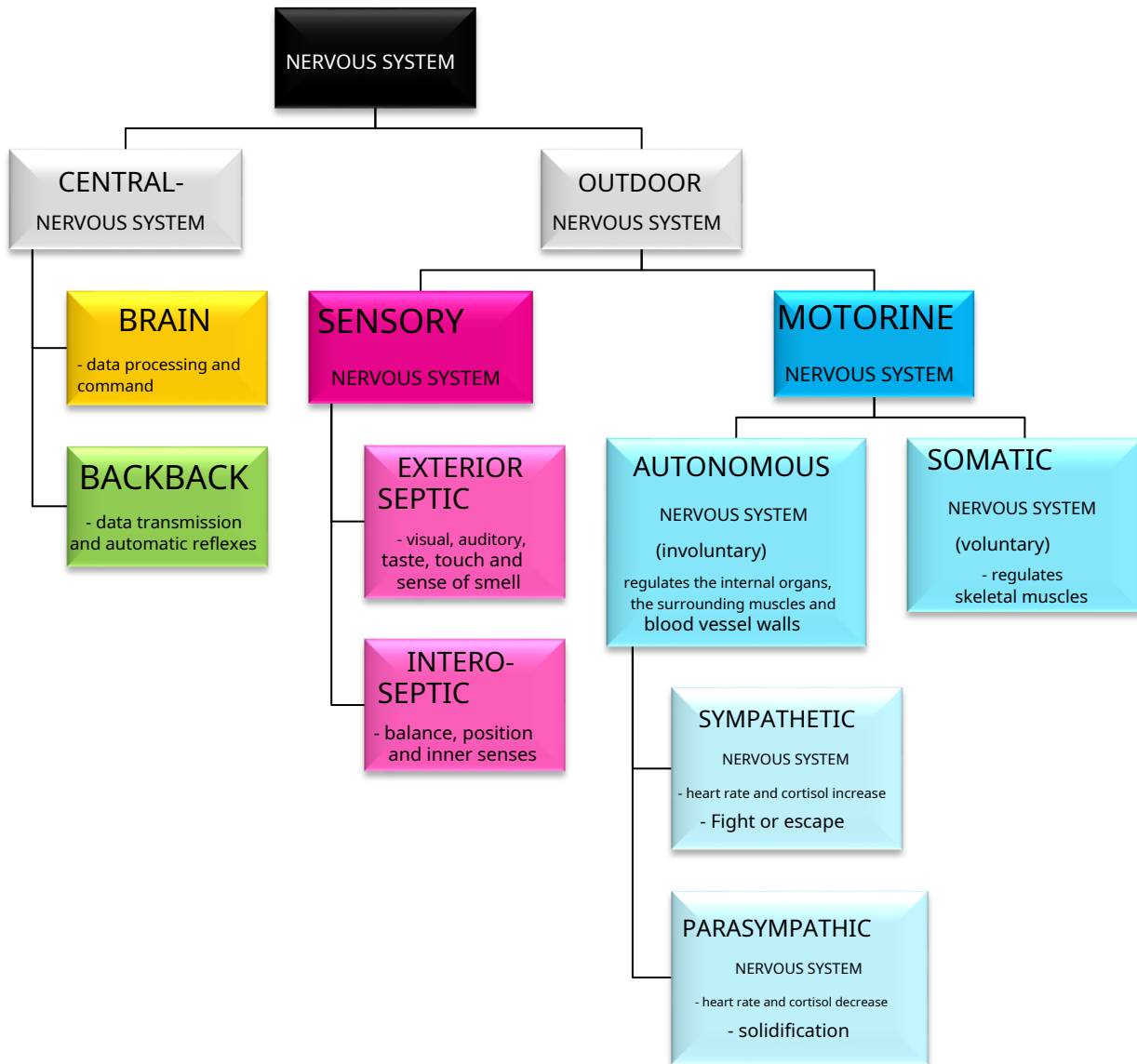


Figure 3. Nervous system. (Adapted from Leppäluoto et al. 2007)

3 TRE METHOD IN STRESS MANAGEMENT

3.1 History and development of the TRE method

Trauma Releasing Exercises, which is abbreviated **TRE**, means stress relief movements in Finnish. The TRE method can relieve stress and therefore also manage it. According to method developer Berceli (2013), people have the ability to improve themselves. All emotions always lead us to the mind and body. It means that what affects the mind also affects the body and vice versa. The human body cannot and will not change without affecting the mind. The natural mechanism of cooperation of body and mind has protected us during evolution and the same mechanisms heal us. TRE is intended as a bodily means to eliminate stress and trauma through neurogenic vibration (Berceli 2013; Traumaprevention 2013). In medicine, vibration is considered to be a matter to be treated, either physiological or pathological. It is usually treated with medication, albeit with poorer responses.

Developing the TRE method, Berceli, working with traumatized people in war zones in Africa and the Middle East, found that local people recover from trauma with the support of family and loved ones. Based on experience, Berceli began to consider whether there could be another method in place of generalized individual therapy in which loved ones could be a part. He realized that a new way of thinking was needed to approach trauma and traumatization in order to meet the enormous need of large numbers of people. (Berceli 2014)

Berceli has designed TRE for use by, among others: victims of rape, victims of violence, firefighters, police, the military in the war zone, and first aid for staff and other workers who face traumatized people at work. People with PTSD (Traumatic Stress Disorder) in particular have also benefited from the use of the method (Berceli 2013, Traumaprevention 2013, TREuk 2017). TRE has been used for more than 15 years by people from different cultural backgrounds and has been found to increase people's confidence in their own strengths as well as eliminate stress. According to a study by McCann (2011), the TRE method, and in particular neurogenic vibration, can reduce stress and anxiety. The TRE method has been found to improve the overall quality of life (Berceli, Salmon, Bonifas & Ndefo 2012) The method works above all for those people who are currently going through a traumatic experience or recovering from trauma and the symptoms it causes. (Berceli 2013, Traumaprevention 2013) The most common trauma reactions are depression, anxiety and substance abuse (Aalto-Setälä 2006) and there is a perceived threat or threat situation, such as loss of a family member, abuse or natural disasters (Levine 2012, 64 - 65; after which the body and mind are to recover. If the restoration process is inhibited, trauma will result. Obstruction is not directly due to the event, but excess energy is stuck in the nervous system (Levine 2012, 30). (Berceli 2013, Traumaprevention 2013) The most common trauma reactions are depression, anxiety and substance abuse (Aalto-Setälä 2006) and there is a perceived threat or threat situation, such as loss of a family member, abuse or natural disasters (Levine 2012, 64 - 65; after which the body and mind are to recover. If the restoration process is inhibited, trauma will result. Obstruction is not directly due to the event, but excess energy is stuck in the nervous system (Levine 2012, 30). (Berceli 2013, Traumaprevention 2013) The most common trauma reactions are depression, anxiety and substance abuse (Aalto-Setälä 2006) and there is a perceived threat or threat situation, such as loss of a family member, abuse or natural disasters (Levine 2012, 64 - 65; after which the body and mind are to recover. If the restoration process is inhibited, trauma will result. Obstruction is not directly due to the event, but excess energy is stuck in the nervous system (Levine 2012, 30). Current care recommendation 2014) After a trauma event, the body and mind are to recover. If the restoration process is inhibited, trauma will result. Obstruction is not directly due to the event, but excess energy is stuck in the nervous system (Levine 2012, 30). Current care recommendation 2014) After a trauma event, the body and mind are to recover. If the restoration process is inhibited, trauma will result. Obstruction is not directly due to the event, but excess energy is stuck in the nervous system (Levine 2012, 30).

3.2 Physiology of the TRE method

Berceli noticed similarities in people's positions against the threat protected. When protecting, the person pulls his legs hooked and rounds his back (fetal position). This position protects the most important areas of the body, including the abdomen. A person applies this position instinctively when he perceives a threat or suffers severe pain, for example. Based on the findings, Berceli concluded that certain muscle groups (hip flexor muscles and psoas) cause posture and that relaxing these muscles can relieve stress. (Berceli 2015)

In severe or prolonged stress reactions, the hip flexor muscles are chronically tense and the tension can be reflected as pain from the lower back up to the occlusal muscles of the head. The autonomic nervous system responses to stress previously described in the physiology of stress clarify the extent to which stress affects the functioning of the whole body and mind. TRE restores the body's natural balance, or homeostasis, through neurogenic vibration. When deep muscle tension is released, the body strives for overall well-being, which, in addition to relieving muscle tension, unifies the body's sensations, emotions and thinking. As a result, the method can initiate a process that is also helpful in relieving and managing stress. As the body's balance is restored, it is often felt that general well-being and sleep and quality of life are improved, often immediately or after a few times. It is recommended that you learn the basics of TRE with a certified TRE instructor in a basic course or in individual instruction, after which the method can also be used as self-care. (Berceli 2013, Traumaprevention 2013)

The initial movements of the TRE method are intended to warm and stretch the muscles of the pelvic area and lower body. The main part is the iliopsoas, or hip flexor muscle. Initial movements prepare the body for static vibration to produce neurogenic vibration. After initial movements and vibration, it is important to ground. Finally, any feelings, thoughts and memories that may have arisen during the exercise are reviewed with the instructor. This is one of the most important elements of the method to get things seen. (Berceli 2013)

The TRE method can be compared to exercise performance, so it is not suitable without medical consultation for people with significant physical or mental ailments. These may include, for example, cardiovascular disease, epilepsy, untreated hypertension, musculoskeletal disorders, cancer, or mental health problems. It is also not recommended to start the method during pregnancy because there are not enough data on it. The method can produce pleasant sensations, but too long or too frequent vibration can cause side effects such as anxiety and fear states. Symptoms can come up to a couple of days late after training. Symptoms are relieved when you stop exercising. Exercise should be interrupted due to physical pain or emotional discomfort. (Berceli 2013)

3.3 TRE method based on polyvagal theory

The autonomic nervous system is accustomed to split into sympathetic and parasympathetic nervous systems (Fig. 1). In TRE, in contrast to the usual model, the autonomic nervous system is divided into three distinct parts according to polyvagal theory (Fig. 4). Porges (2011) developed polyvagal theory in the 1980s when

found that respiratory sinus arrhythmia (RSA) is a measure of vagus nerve (circulatory nerve) activity (Firstbeat Technologies Ltd 2014). Paradoxically, he found that the vagus nerve both increased and decreased the heart rate. In polyvagal theory, the parasympathetic nervous system is divided into two parts located at anatomically different locations and with opposite physiological effects: the ventral and dorsal vagus parts. The ventral-vagal part is myelinated and can only be found in mammals. The dorsal vagal part is non-myelinated and can also be found in reptiles.

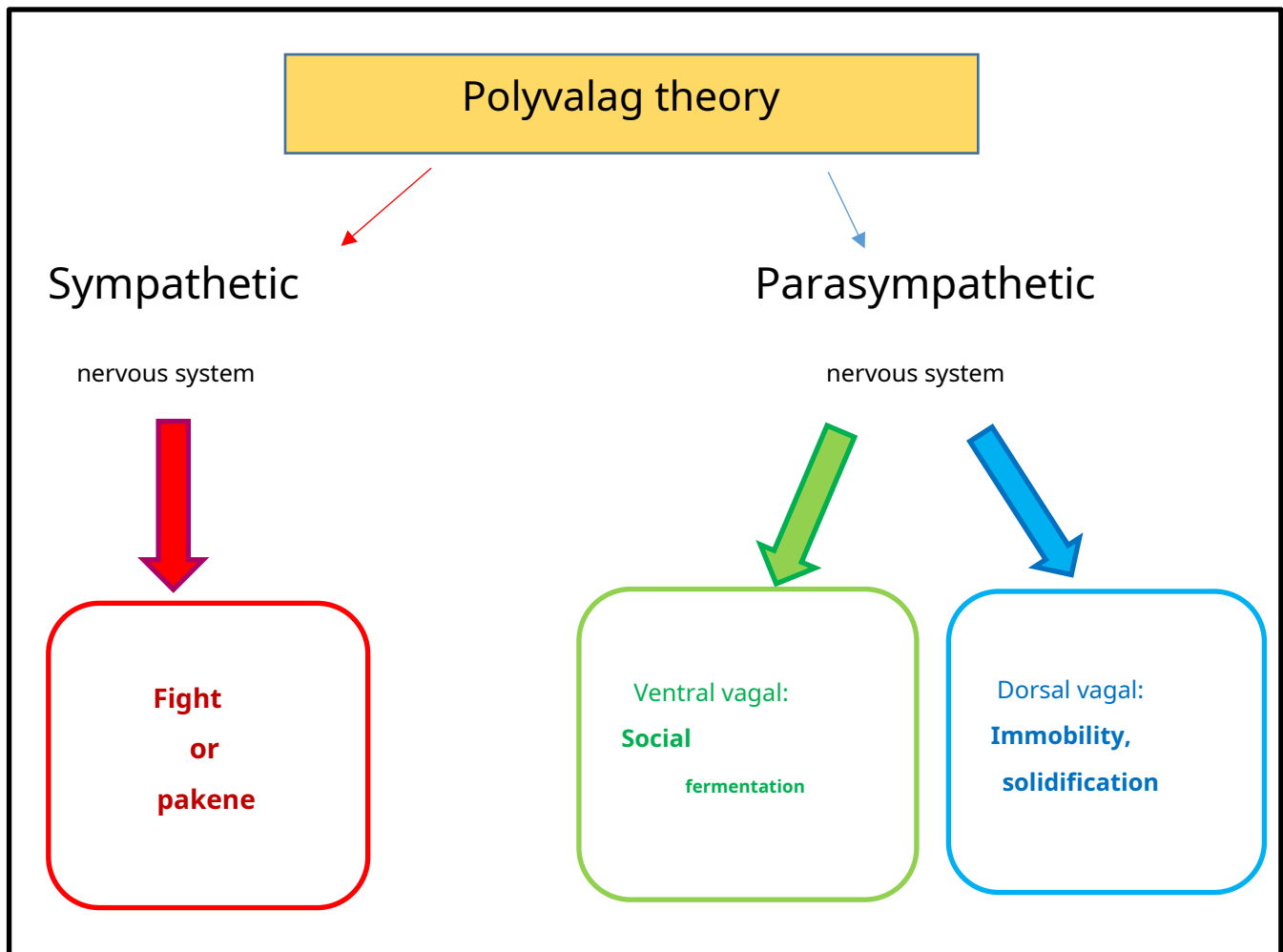


Figure 4. Polyvalag theory. (Mukaillen Porges 2011)

Compared to the traditional division, polyvagal theory has a hierarchical and stepwise operating principle (Figure 5). In principle, an evolutionarily earlier model is introduced in a situation where the newer one proves ineffective. Polyvagal theory emphasizes the social side of mammals compared to reptiles. In order for a species to survive, mammals must be able to have adequate contact with their fellow species and take care of others. The (ventral-vagal) part of the social connection consists mainly of sensory and motor parts. This allows the mammal to be in contact with others. When the social situation is safe, the vagal brake prevents the sympathetic nervous system from functioning. TRE activates the ventral vagal part and vagal activation has also been found to relieve inflammation in the body (Ji, Rabbi, Labis, Pavlov, Tracey & Ghia 2013). When there is danger, the ventral-vagal part recedes and the sympathetic nervous system takes over and

there will be a fight or escape reaction. If a fight or escape is impossible, the sympathetic nervous system recedes and the dorsal-vagal part becomes active. For example, it causes the heart rate to slow down, even stop. In animals, this phenomenon is called false death. In humans, the situation is called surrender or freezing. Reptiles tolerate bradycardia, or small heartbeat, but it is dangerous to humans for a long time. (Porges 2011; Leikola, Mäkelä & Punkanen 2016)

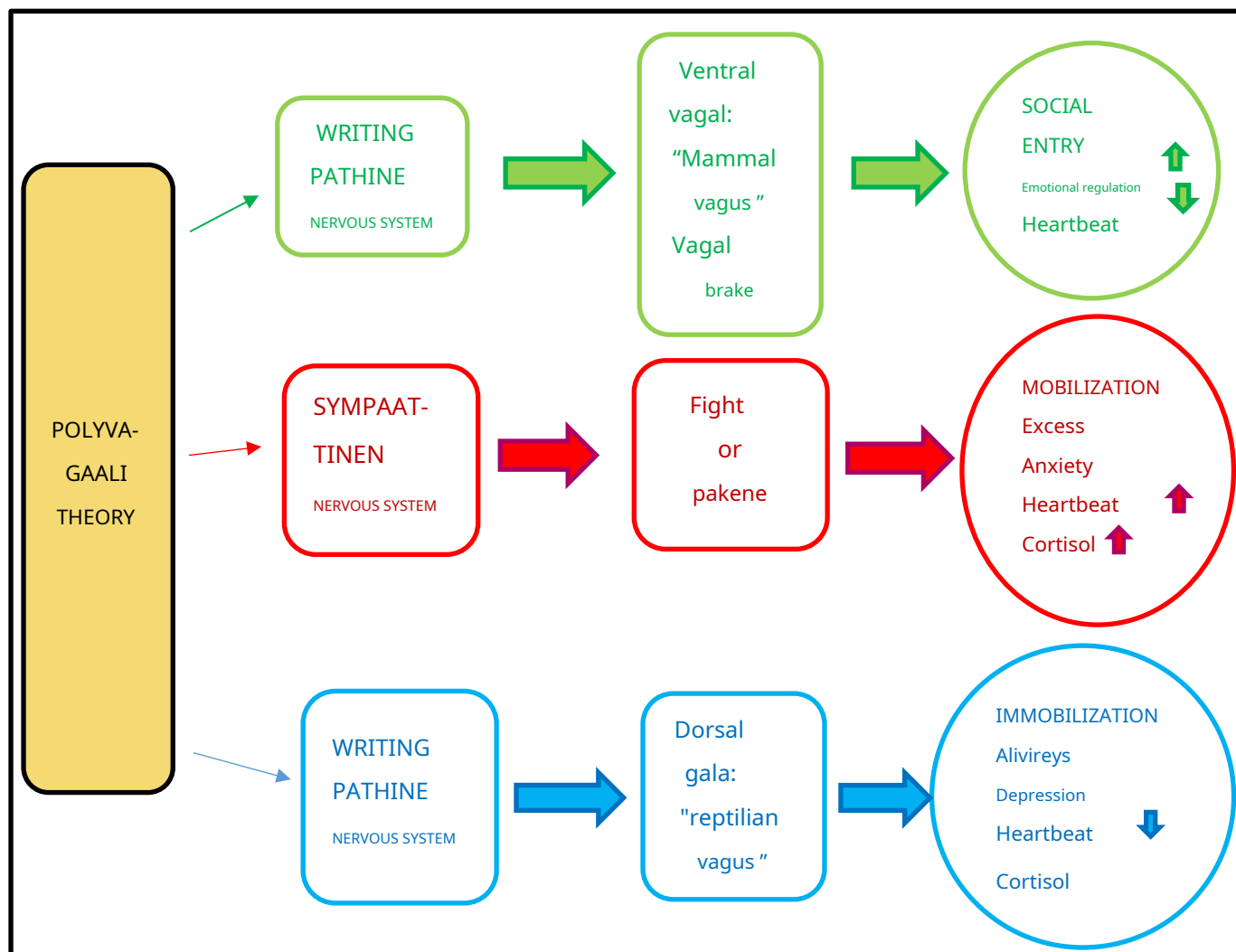


Figure 5. Hierarchical order. (Adapted by Leikola, Mäkelä & Punkanen 2016)

4 PURPOSE, OBJECTIVE AND RESEARCH QUESTIONS OF THE RESEARCH

The purpose of this pilot study is to describe the effects of the TRE method in relieving stress in psychiatric workers. The goal is to increase understanding of the TRE method and how it helps relieve stress. The aim is also to increase employees' knowledge and means of relieving stress. Upon completion of the study, its results will be presented to the employees of the Kuopio Psychiatric Center.

Research questions:

1. What positive effects has the use of the TRE method had on employees?
2. What negative effects has the use of the TRE method had on employees?
3. What are the challenges associated with the use of the TRE method in stress management?
4. What other changes did the use of the TRE method bring about?

5 IMPLEMENTATION OF THE STUDY AND INSTRUMENTS USED

The design of the pilot study began with the selection of the research topic and its delineation (Figure 6). The choice of research topic was easy because the author was himself familiar with the TRE method and was interested in the topic. Development as a future (psychiatric) nurse was also important in the choice of topic and had to be timely. Because the nurse's own coping is challenging in psychiatric work, stress relief using the TRE method has been selected as the research topic. Due to the unknownness of the method, finding a client could have been difficult, but the Kuopio Psychiatric Center was interested in the method and they got excited about the research topic.

The search for theoretical information took place between spring 2015 and spring 2016. Most of the studies were obtained from the Internet through various databases (e.g., CINAHL, PubMed, and Medic). The keywords were, for example, "stress", "empathy", "nurse", "psychiatric", "stress", "empathy", "nurse", "Psychiatric". The same words have also been searched on Google, but the information obtained has yet to be verified from some reliable source, such as PubMed. The studies are usually selected to be no more than 10 years old. This can help to assess the reliability of the study. The languages of the studies were Finnish and English due to their usability. Due to the poor availability of TRE method studies, different and innovative information retrieval methods had to be used; for example, the social service Facebook. Through various TRE groups on Facebook, for example, "TRE Forum", "TRE Finland Certified" and "TRE Finland" sought information on research on the TRE method. Some of the groups were Finns and some foreigners. The language of communication was Finnish or English. A few new studies were obtained through groups of foreigners.

In the early autumn of 2015, a bulletin about the study was sent by e-mail to the employees of KPK and Julkula Hospital. It reported on the pilot study and asked those willing to register. Little intervention research has been carried out on this subject, which led to a pilot study with a limited number of participants. The maximum group size was 10 people, as 10 Firstbeat gauges were available. There were 10 people willing, one of whom had to opt out right after the start. Thus, the final set of subjects consisted of nine individuals. The implementation of the study from the selected target group required research permits from their employers, ie the City of Kuopio and Kuopio University Hospital. Permits were applied for after the work plan was completed.

The measurements of the study began with Firstbeat well-being analysis measurements before the use of the TRE method began in autumn 2015. The ProQOL quality of life survey was also conducted at the same time. After the measurements, the intervention, or TRE group controls, began. The first and last group guidance sessions took place at the time of the Firstbeat measurements. TRE group guided tours took place a total of six times, once a month on Friday afternoons from 2 to 4 p.m. The employers of the subjects were allowed to participate in the guidance during working hours, so the guidance was the least detrimental to work. The location of the group steering was KPK's group space. The KPK employee arranged the space for the space so that the space was then only available to members of the research team. The subjects undertook to participate in the group supervision of the TRE method for six months and to use the TRE method independently.

The study combined both quantitative and qualitative research methods. The quantitative methods of the study were the Firstbeat and Quality of Life Meter (ProQOL R-IV) and two volume-based questions. The data collection method for the qualitative study was six open-ended questions. In this study, it was decided to use both research methods, ie method triangulation (Kankkunen & Vehviläinen-Julkunen 2009), in order to obtain a more comprehensive description of the effectiveness of the TRE method in relieving stress.

5.1. Quantitative research and methods used

Quantitative research describes the phenomenon on the basis of numerical data (Kankkunen & Vehviläinen-Julkunen 2009). Quantitative measurement is based on measuring variables, using statistical methods and examining the relationships between variables (Kankkunen & Vehviläinen-Julkunen 2009). This study was conducted as an intervention study. The intervention study looks at the evaluation of effectiveness. (Kankkunen & Vehviläinen-Julkunen 2009). The study participation rate was 100% throughout the study. In longer-term studies, maturation can also be a challenge. Maturation refers to changes in the subjects that can affect the results. (Kankkunen & Vehviläinen-Julkunen 2009)

Assessing the quantitative quality of this study is challenging because there are not many previous quantitative studies of the method available. The starting point of quantitative research is the validation of existing information and the easy reproducibility of the research (Kankkunen & Vehviläinen-Julkunen 2009). For this reason, a quantitative approach was chosen in this study.

The reliability of a quantitative study is assessed by looking at validity and reliability. Validity means whether the study measured what was intended. External validity refers to how well the results of a study can be generalized to a non-study population. (Kankkunen & Vehviläinen-Julkunen 2009) In this study, external validity may mean the generalizability of the study to, for example, somatic nurses. Reliability means the permanence of the results, for example, how parallel results the meter produces.

5.1.1 Firstbeat meter

The Firstbeat meter measures heart rate variability (HRV) (Figure 7) and physical activity. Heart rate variability describes the functioning of the sympathetic and parasympathetic nervous systems. At rest, heart rate variability increases and decreases with stress. The amount of heart rate variability varies from day to day based on external factors such as exercise and stress. Variation is also influenced by internal factors such as diet, alcohol and illness. (Keränen Katja 2013; Firstbeat 2017) Measuring heart rate variability is a good measure of the condition of a healthy adult's autonomic nervous system; slight variation in rest may be a sign of autonomic dysfunction, i.e., overactivation of the sympathetic portion in general. Minor variability has been found to be associated with certain risk factors, such as hypertension.

(Firstbeat 2017). The Firstbeat meter provides an accurate method for measuring long-term heart rate variability (Parak & Korhonen 2013; Firstbeat Technologies Ltd 2014). The results of the study by Brenner, Korhonen & Laakso (2011) suggest that the reproducibility of Firstbeat tests is good. The Firstbeat meter is a widely used meter. It has been used in more than 50 universities and research institutes in North America, Australia and Europe. (Firstbeat 2017)



Figure 7. Cardiac heart rate variability. (Firstbeat 2015)

Tuula Koponen from Occupational Health Care guided the use of the Firstbeat meter to the subjects. Tuula also used the Firstbeat program and printed the analyzes on paper. Before starting the measurement, the subjects put personal background information on their Firstbeat page. These included age, weight, height, time to start measurement, and medication. The Firstbeat meter (Figure 1) was held in the body by two electrodes for 3 days. The meter could not be kept in water, so in the shower, sauna and swimming the meter had to be disconnected. The measurement does not work even when changing the electrode labels. The subjects also marked on their own pages working and sleep time and the points they wanted (for example, a meeting at work, a food break, exercise, etc.). Working and sleep times are significant for the study. Others were familiar to the subjects themselves and that information was not used in the study. Subjects received their own Firstbeat measurement results for themselves immediately after the measurement.



Figure 1. Firstbeat meter. The person is not involved in the study. (Firstbeat 2015)

The meter is not recommended for people with, for example, a pacemaker or thyroid disorder, which is not in the treatment balance, as the results may be unreliable. Fever or flu can also skew the results. (Firstbeat 2016) The subjects were not asked about the underlying diseases for the measurements, but the contraindications to the practice of TRE, ie the contraindications, were certain diseases and no one brought them.

out. Some also had to wait for their well-being to improve with the Firstbeat measurements, so for this reason the measurements of the subjects could not be performed all at the same time.

The meter provides information about the subject both graphically (Figure 8) and numerically. The graph shows how stress occurs during the measurement day. When the subject enters his or her night and sleep periods into the analysis, it is also possible to obtain an estimate of sleep. The color red indicates the activity of the sympathetic nervous system, but does not differentiate between stress and enthusiasm. The color green indicates the recovery of the body. The numerical results do not take into account the intensity of the reactions but how they occur over time. (Firstbeat 2016) This study did not specify individual Firstbeat measurement days, but looked at averages over three-day periods. Other figures in firstbeat measurements (e.g., exercise points and energy consumption) have not been considered in this study.

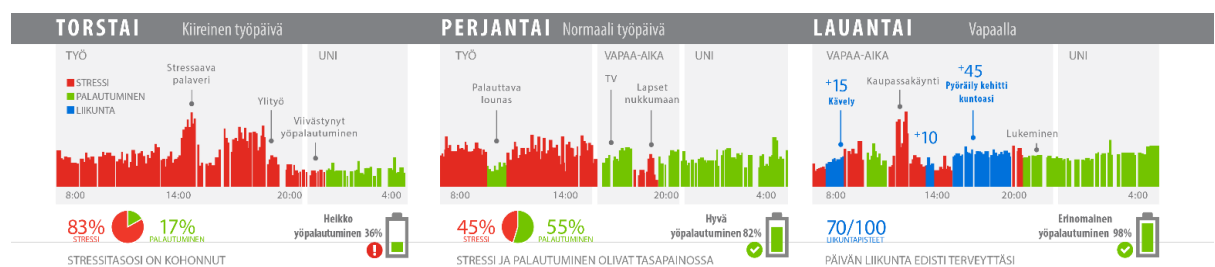


Figure 8. Meter result charts. The results are model images. (Firstbeat 2015)

5.1.2 ProQOL quality of life

One of the measures used in the study was the Professional Quality of Life Meter (ProQOL R-IV), which is intended for people working in interpersonal work. The meter has been used for more than 15 years and has been proven to be a reliable meter (Kortetmäki 2011). However, the meter is not a psychological or medical test, ie it is not possible to make diagnoses based on it (Kortetmäki 2011). Quality of life is a multidimensional mental, physical, and social phenomenon, making it difficult to measure. Quality of life can also vary at different times, for example illness can change the world of values and perceptions of quality of life. (Karlsson M. 2013) In this work, the quality of life measure was used to measure three parts of employees: compassion satisfaction, exhaustion, and compassion exhaustion. (Palmunen & Ruuska 2006)

ProQOL is a Likert-scale survey, the points of which are not calculated separately, but the points of each part are calculated separately. The questions on the parts are confused on the form. The score is 0-5. The maximum score for each part is 50. There are a total of three different parts; compassion satisfaction, exhaustion, and compassion. Compassionate satisfaction measures an employee's satisfaction with their own work. It is reflected, for example, in a positive attitude towards one's own abilities to help the work community. A higher result reflects higher job satisfaction. The exhaustion section measures feelings of hopelessness. A higher score in this section may be a sign of exhaustion. The compassionate exhaustion section measures surrogate traumatization. A high score indicates a high risk of surrogate trauma and compassion. (Palmunen, H. 2011)

5.2. Conduct of qualitative research and methods used

A qualitative research approach seeks to understand the phenomenon and describe it verbally (Kankkunen & Vehviläinen-Julkunen 2009). Central to the research method is the research phenomenon and what you want to know about it. These determine what means the researcher should use. (Kankkunen & Vehviläinen-Julkunen 2009) There is little research on the TRE method, so the use of a quantitative method alone is not appropriate in this study. Nowadays, also in nursing science, the juxtaposition of quantitative and qualitative methods has begun to be avoided and used in parallel in the same study. (Kankkunen & Vehviläinen-Julkunen 2009)

The most important and demanding part of the qualitative research approach is the analysis of the data (Kankkunen & Vehviläinen-Julkunen 2009). In this study, inductive content analysis has been used to review the results. Inductive or data-driven content analysis is intended to describe the phenomenon extensively through treatment classifications. The challenges of content analysis are irregularity. There are no simple descriptions of it, so the method challenges the researcher to think for himself. The analysis of the data proceeds according to reduction (reduction), grouping (clustering) and conceptualization (abstraction) (Kananen 2008, 94.). An inductive starting point should be used when there is not much information on the subject or previous information is fragmented. (Kankkunen & Vehviläinen-Julkunen 2009)

The research method is determined by what you want to know (Kankkunen and Vehviläinen-Julkunen, 2010, 54; Heikkilä 2014, 15 - 17). It is recommended to use fully open-ended questions only when there is a compelling reason to use them (KvantiMOTV 2010). Firstbeat and the quality of life measure did not answer all the questions in this study, so it was decided to use open-ended questions as an adjunct. They provide deeper information about the phenomenon under study (Kankkunen & Vehviläinen-Julkunen 2009). When preparing a survey, it must be taken into account that the length of the survey may affect whether or not the survey is answered. The questions must be unambiguous and comprehensible. (KvantiMOTV 2010) The open-ended questions in this study were formulated to complement the results of quantitative measurements. Open questions were asked at the end of the IP. The open-ended questions mapped the subjects' experiences and ideas about TRE training. The questions were analyzed by qualitative inductive content analysis, which is a suitable method of analysis for qualitative data (Kankkunen & Vehviläinen-Julkunen 2009).

The qualitative data of the study consisted of nine ($n = 9$) responses. Content analysis began with the spelling of the answers, ie writing it clean (Kankkunen & Vehviläinen-Julkunen 2009). The spelling was done in a format that made it easier to manage and analyze the responses with a word processor. After spelling, responses were reduced to facilitate analysis (Table 1). Reducing the responses and merging gave subcategories. And combining these yielded upper categories. The upper categories formed the results of the qualitative part of the study (Table 2). Positive and negative experiences of employees emerged from the data. The remaining tables are in the study appendices.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
<i>"The TRE method has helped me relax what I've experienced in a better night's sleep."</i>	My night's sleep is better.

Table 1. Example of response reduction

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
My night's sleep is better Sleeps better even though sleep is weaker. Good dreams Better slept, but there may be various reasons for a night's sleep to be improved	My night's sleep improved	Improving sleep quality	Positive experiences of employees
It is easier to fall asleep Getting rid of sleeping pills It is easier to fall asleep	Falling asleep easier		

Table 2. Example of creating categories.

6 RESULTS OF THE INVESTIGATION

6.1 Background information on participants in the pilot study

The number of participants in the pilot study depended on the number of Firstbeat metrics and participants were selected according to their willingness. A total of 9 people registered and were examined. They all work in psychiatry as nurses, doctors, psychologists, and social workers. The study population consisted exclusively of women. (Table 3) With the exception of a few subjects, participants have not previously used the TRE method in a supervised or independent manner. Some of the subjects work in the city of Kuopio and some in Kuopio University Hospital.

Background variable	of	%
Sexual		
Woman	9	100
Man		
Age		
under 40 years	2	22.22
40 - 49 years	4	44.44
over 50 years	3	33.33
Examination		
Matriculation examination	3	33.33
College	1	11.11
Bachelor's degree lower	4	44.44
Bachelor's degree	0	0
University	4	44.44
(there may be more than one option)		
Made TRE before		
No	7	77.78
Yes	2	22.22
Many times alone	2	22.22
Guided many times	2	22.22

Table 3. Background variables

Firstbeat measurements were taken in autumn 2015 and spring 2016. At both time points, the measurement lasted 3 days. Of the measurements, two were weekdays (working days) and one day off. One day with both measurements was TRE group control. Due to illnesses, some of the subjects performed the measurement at a separate time. Otherwise, the measurements were performed simultaneously on all subjects. In the studies, heart rate data were missing from the mean in only 3% of all measurements.

During the study, subjects performed TRE independently on average 38 times (Table 4). The variance was between 3 and 75 times. Under supervision, the multiplier averaged 6.1 times. The variance was between 5 and 11 times. There were 6 joint group guides during the study and the subjects had the opportunity to visit other places under TRE guidance.

During the study, done TRE	ka.
Narrator independently	38
Narrator guided	6.1

Table 4. Training amounts

6.2. Negative effects of the TRE method

Negative results of firstbeat measurements	
Proportion of stress reactions per day	+ 9%
Amount of recovery per day	- 4%

Table 3. Negative effects of measurements

The six-month Firstbeat measurement follow-up revealed that the proportion of stress reactions per day had increased by + 9% and the rate of recovery had decreased by -4% (Table 6).

ProQOL Quality of Life in the Screen The overall scores in both each section and the screen in general were improved. But individual changes in values to negative had occurred. Compassion scores had deteriorated in one (n = 9) of the subjects. Exhaustion scores at three (n = 9) had deteriorated. In the survey, trauma scores had deteriorated in two (n = 9).

In their written descriptions, subjects presented negative effects as challenges that were perceived as either mental, physical, or scheduled challenges. Some of the respondents indicated that they had not experienced any challenges in using the method (Appendix Table 5) and some indicated that they had not noticed any changes in the stress level (Appendix Table 6).

Mental challenges

Subjects experienced the method **inconspicuous changes** mixed **the small benefits perceived** difficulty in continuing to use the method. Also **frustration** progress was revealed. The general challenge of the method became apparent when **method activates** old traumas. (Appendix table 6)

"One of the challenges is also the lack of perceived benefits, which has not helped to maintain systematic training."

"Some degree of frustration with progress and feelings of frustration / irritation, but no permanent or ongoing negative."

"For myself, TRE didn't stick to my own daily life, as the exercises start to activate traumatic symptom, functional seizure symptom, and I became cautious about using TRE."

Physical challenges

Physical challenges emerged both during and after the method. **My own physical limitations make it difficult** making initial movements as well as causing **increase in physical pain**. (Appendix table 6)

"The sore knee and ankle have been bothered by the vibration against the wall along the way, so I've ended up doing the exercises mostly for a long time."

"Currently, pain in the sciatic nerve."

Scheduling challenges

The schedule was one of the major challenges in using the method. The subjects revealed that **making the method a routine** was awkward. The method **exercise without a group** and **finding time** there were major challenges in practicing the method. Finding and reserving your own time in the middle of the day was hashish. In the evening, remembering the method was also challenging. (Appendix table 7)

"The only problem is that it would be remembered in every hurry to introduce it regularly so that it would be useful."

"TRE has not become a natural part of routines and everyday life, so it has been difficult to do, remember and start with."

"(The challenge was) the end of the group."

"You should be tempered and remember to do the exercises."

"Relieving the stress of the day is timed for my evening, during the day, at least for the time being, I couldn't take my own peaceful time, when I could shake for a shorter time."

6.3. Positive effects of the TRE method

Although the number of stress reactions had increased, the rate of recovery during the work period had increased by + 121% (Table 5). The length of the sleep period (+1%) and the amount of recovery during the sleep period (+0.6%) had also increased during follow-up. The most important of the measurement figures is the figure describing the quality of recovery. The quality of recovery describes the functioning of the regulatory system of the autonomic nervous system and also inoperability, such as poor recovery. During the follow-up, it became clear that the quality of the subjects' recovery had improved by an average of + 10%. There were large individual differences in the quality of recovery. For this reason, it was worth making a comparison primarily between the own measurements under study. The change in the quality of recovery of the subjects compared to their own previous measurement varied between -35.6% and +58%.

Positive results from firstbeat measurementsAmount	
of recovery during the work period The length of the	+ 121%
sleep period	+ 1%
Amount of recovery during the sleep period	+ 0.6%
Quality of recovery per day	+ 10%

Table 5. Positive effects of firstbeat measurements

In the ProQOL quality of life screen, all scores were improved by an average of + 17% (Table 6). Compassion scores had improved by an average of + 5%. In the first survey, the scatter of compassion points was between 24 and 45 and in the second between 24 and 46, 37 being the international average. These scores were elevated in five (n = 9), unchanged in three (n = 9), and deteriorated in one (n = 9). Exhaustion scores had improved by an average of + 7%. The variance was between points 13 and 36 in the first survey and between 15 and 28 in the second, with 22 being the international average. In the survey, five (n = 9) scores had risen, one (n = 9) remained unchanged, and three (n = 9) had deteriorated. Trauma scores had improved by an average of + 22%. The scatter was between 6 and 19 points in the first survey and between 4 and 21 points in the second. A lower number indicates better job satisfaction and more than 17 points may indicate a risk of substitution trauma. In the survey, trauma scores had improved in seven (n = 9) and worsened in two (n = 9).

ProQOL results	
Compassion points	+ 5%
Exhaustion points	+ 7%
Trauma points	+ 22%
Ka.	+ 17%

Table 6. Positive results of ProQOL

When comparing the empathy exhaustion scores and the quality of recovery, the average change in recovery from those who received less than 15 points on the empathy exhaustion meter for the first time was more than +3%. Of the five individuals who scored more than 15 points on the meter for the first time, the mean change in the quality of four recovery was + 26%. The international average of a sympathy fatigue meter is 12 and over 17 can mean something scary at work.

In their written descriptions, the subjects pointed out that the positive changes were either mental or physical. Psychological positive changes included decreased stress, decreased activation levels, improved sleep quality, and increased physical-mental well-being. The responses also revealed positive future plans for the TRE method.

Mental changes

Reduction of stress was the most significant factor, which emerged from the responses of the subjects. Subjects showed varying degrees of stress reduction. Although there was no difference in stress in the Firstbeat measurements, the subjects themselves found themselves to be less stressed. (Appendix table 1)

Relieving stress using the TRE method was considered by the subjects to be a viable means. They felt that they had been more stressed in the past, of course it can be affected by several things. Stress recognition had improved and, if the method could not be remembered to be used, subjects noticed it as an increase in stress levels. Dealing with various traumatic situations with the method had also been found to work.

"I think the method is a great stress relief method."

"In November, I had a small accident with the car, which scared me a lot. When I did the TRE exercise that night, the vibration was really great and I felt relieved to cope. "

Subjects experienced detachment from work issues and general work stress through a relieved method. Cynicism about one's own opportunities to help had diminished and work issues were not remembered to rotate after a day of work. Enthusiasm for one's own work had increased.

"I've been less busy this spring, although there is the same amount of work, but I can't say if it's related to TRE, because there are a lot of influencing factors ..."

"The changes may have come little by little, that there is no such strong change, but I remember being very much more stressed last autumn, maybe the work situation is different now."

"I'm more enthusiastic about work and less cynical about my own ability to help."

"Compared to last spring, I'm more excited about the work."

"Work things often don't come to mind after a day's work."

In their descriptions, the subjects revealed the general **calculation of the activation level**. They noticed the matter right after the training and it usually lasted that day. (Appendix Table 2.)

Relaxation was the most common sign of a decrease in activation levels. Although a feeling of relaxation was experienced after the exercise, the subjects showed that otherwise the method was not particularly useful. A longer workout was experienced as a longer feeling of relaxation.

"After a really deeply relaxed workout."

"The training itself is quite pleasant and relaxed, but I can't say anything else."

"It brought relaxation at least to that day, but I didn't notice any particular major changes or benefits."

Another sign of a decrease in the level of activation was feeling more at ease. Overall, a more relaxed feeling was felt. Briefly, the vibrations tense the states of tension and made me feel a little calmer.

" Feeling calmer overall. "

"In short, by vibrating the states of tension to a lesser extent."

Although the amount of sleep studied was good by metrics, they emerged in the descriptions of open-ended questions **improvement in sleep quality**. As well as falling asleep it was easier that the night's sleep had improved. (Appendix table 3)

Making it easier to fall asleep was one of the things that affected sleep quality. Falling asleep was even felt so much easier that it has become possible to get rid of sleeping pills.

"Falling asleep is easier and I don't wake up so often during the night."

"I've gotten rid of sleeping pills, it's easier to fall asleep and I don't wake up so often during the night."

A better night's sleep is crucial for improving sleep quality. Subjects felt they slept better. Due to the relaxation brought by the method, the subjects felt that their night's sleep had improved.

"The TRE method has helped me relax what I've experienced in a better night's sleep."

"Improving night sleep."

"I've slept a little better during the spring, but there may be many reasons for that, including TRE."

Increase in physical-mental well-being has already become apparent from the above descriptions. In addition, there is an increase in self-confidence reported by the subjects. Focusing on oneself was also seen as a good thing. (Appendix table 4)

" Confidence in oneself has grown. "

"During the exercise, I have felt good that I have only been able to focus on myself and work and home affairs have been left behind.

Physical changes

Positive physical changes were an aid to the method for chest pain.

"I feel that the method has also been helpful for chest symptoms, which bothers at night."

Plans for the future

The method had been useful and the subjects intended to continue using the method in the future. If there was no intention to continue using the method itself, then it was believed to be beneficial to someone and they were going to recommend the method to co-workers or patients.

"I can and have recommended the method to my colleagues."

"An interesting method and I find it definitely useful for someone, even though for me the six months of experience were pretty neutral."

"Even though TRE training was short for me, I plan to start it again, my hope would be that with TRE, my trauma symptoms could be left behind forever. "

7 THINKING

7.1 Ethics and reliability of research

The first ethical question related to research is the choice of topic (Kankkunen & Vehviläinen-Julkunen 2009). When choosing a topic, you need to consider whether it is useful to research the topic. In Finland, 20-25% of employees in all sectors experience quite or very much stress at work and even more in the social and health sector (Mattila 2010; Kivekäs and Ahola 2012). A record number of asylum seekers have arrived in Finland and Europe in the next few years (Finnish Immigration Service 2017). Three out of four refugee backgrounds have been the subject of a traumatic event, such as violence, war or torture (THL 2017), and have symptoms caused by traumatic experiences for which they may seek help (Kukkonen 2016). This can pose a new kind of challenge for the nursing worker when faced with a traumatized immigrant. There are many ways to manage stress, but there are not many ways to relieve stress. For this reason, it was ethically justified to study the functionality of the TRE method to relieve stress.

Research work must be conducted with honesty and general diligence. In research, good scientific practice is expected of the researcher, which means that the researcher follows ethically sustainable data acquisition and research methods. (Research Ethics Advisory Board 2014; Vilkkä 2015, 41.) The documentation and justification of the research has been done in such a way that an external reader can be sure of the reliability of the information. From the point of view of quality and reliability, a critical examination of sources is important (Vilkkä 2007, 34.). In order to increase the reliability of the work, the material has been collected from reliable sources and sources less than 10 years old have been used, unless the same thing has come to light before. As the literature search progressed, it became apparent that reliable information from the TRE method was scarce, so secondary sources had to be resorted to.

One of the best known ethical norms is to prevent the identification of those who are blocked. This protects the subject from negative consequences and perhaps provides more honest answers. (Kuula 2006, 201) The small number of subjects made blocking identity challenging. Identity is ensured by the personal code of each subject, on the basis of which the measurements and queries are marked. The researcher did not have the opportunity to find out the connection between the codes and the subjects.

The validity and reliability of research are part of research ethics (Heikkilä 2014). In this pilot study, existing indicators (ProQOL and Firstbeat) have been used, which measure what was intended and give, on average, correct answers and are reproducible with the same results. Of course, a small amount of sampling can affect validity and reliability.

Criteria for evaluating qualitative research are used through credibility, transferability, confirmability, and reflexivity. *Credibility* means the credibility of the research and its demonstration. That the results of the studies should correspond to the subjects' views on the phenomenon under study

(Kylmä & Juvakka 2007, 128; Kankkunen & Vehviläinen-Julkunen 2009, 160). The credibility of this study has been reinforced by the fact that the content analysis is accurately visible. *Portability* in order to evaluate, the researcher must carefully describe the situations and environment related to the research (Kylmä & Juvakka 2007; Kankkunen & Vehviläinen-Julkunen 2009, 160). To ensure portability, the study has sought to describe the criteria for selecting subjects, their background, and data collection. *Verifiability* requires that the research be recorded thoroughly and logically so that the reader can follow the progress of the research (Kylmä, Vehviläinen-Julkunen & Lähdevirta 2003, Kylmä & Juvakka 2007, 129). The validation of this study can be verified, for example, by content analysis. Direct quotations also confirm the accuracy of the research results. Validability is a problematic criterion because another researcher may end up with a different reality. This does not necessarily impair reliability, but increases understanding of the phenomenon under study (Kylmä & Juvakka 2007, 129). *Reflexivity* requires the researcher to identify his or her own starting points and record them (Kylmä & Juvakka 2007). As a researcher and TRE-trained, I have already had the opportunity to question my own thoughts on the TRE method before doing this research. While I know it's an effective method, I also know it doesn't help everyone. So I think I was able to look at the research objectively.

Although in a qualitative study, quantity does not matter and there are no random errors, the reliability of the quantitative part of the study must be considered differently. The quantitative reliability of the study is enhanced by the fact that the study participation rate was 100% throughout the study. All subjects participated in all measurements, group controls, and practiced the method independently. All also answered the supplementary questions in the qualitative section. This was facilitated by the possibility to answer both the quality of life meter and open-ended questions on paper or by e-mail. This made it easier to think of answers at a time that suited them, and the answer was not tied to a specific time or place of the day. Of course, it can affect the results by causing random quantitative errors.

The aim was to increase the reliability of the quantitative part of the study through objectivity. The study was read by both professionals and lay people. Thesis supervision was also actively used to increase reliability. Although the subjects were not limited to a specific organization or employer, the sample was relatively small and selected according to those interested in the method. Thus, research results may be distorted due to the interest of those willing and may not be generalizable to all psychiatric workers. Of course, the study was a pilot study that sought to test how the intervention works. In this case, the use of the TRE method in stress relief was investigated. The aim was to obtain basic information about the functionality of the method among people doing psychic work. Sampling was decided because the population is large and the study using many different methods is complex. No generalizations can be made about the results. Despite the shortcomings in the study, the results are indicative and can be put into practice.

The reliability of the quantitative section of the results may have been affected by the fact that the group of subjects consisted mainly of colleagues who knew each other. The method may elevate all sorts of emotions and memories and one of the important aspects of the method is sharing things with others and the instructors after practice. Group counseling revealed that subjects did not want to share things with each other. Subjects might have benefited more from the method if they had dared to share, sometimes sore, things with other group members or even instructors. Of course, this is just one element of the method, so it could not have affected the whole result.

7.2 Review of results

Based on the overall result of the study, it is possible to relieve stress with psychiatric work using the TRE method. The result cannot be generalized to all psychiatric workers, but it does tell us how well the method works among those who participated in this study. It can be stated that those working in psychiatric work suffer from stress and are at risk of burnout. The measurements revealed that employees need different tools to relieve stress because almost everyone of the subjects experienced stress during the working day. This raises the question of whether stress relief methods are sufficient. As it prolongs, stress can affect an employee's attitudes toward their own opportunities to help. This can be a barrier to getting client help and therefore stress needs to be addressed before it lasts longer. Insomnia has increased in the working age population. In 1990, insomnia occurred in only about 20%. In 2008, the corresponding figure is 33-38%. The use of sleeping pills has also tripled in thirty years. (Karhula et al. 2011) The most common symptom of work stress is insomnia. The responses showed that the sleep quality of the subjects did not improve significantly according to the indicators, but they felt that the quality of sleep had improved.

Experiencing stress is individual and the differences are significant. So different conclusions can be drawn from the results. The first conclusion is that the TRE method did not relieve stress because the proportion of stress reactions had increased and the rate of recovery per day had decreased. Another conclusion is that the TRE method can be used to learn to recognize and relieve stress. Thus, there can be more stress once you have learned to recognize it better. In terms of stress management, it is more important to have the ability to deal with stress than the amount of stress. (Kataja 2004; Stahl & Goldstein 2014) The results showed that the subjects' ability to handle stress had improved, although the amount of stress had not improved. Another contradictory and interpretation-prone result was the trauma-activating part of the method. This result can be interpreted as either negative or positive. The negative result is in the sense that the method activates trauma symptoms. Positive again because, this way the trauma memory can be caught and perhaps deleted. Exacerbation of physical pain was a negative effect of the method. Admittedly, provoking pain does not necessarily mean worsening it, but changes have taken place in the body and their activation has triggered the pain. Prolonged use of the vibration caused by the method and the physical and mental changes it brings could have helped to eliminate the pain once and for all. This raises the question of whether TRE could be beneficial for physical pain? Admittedly, provoking pain does not necessarily mean worsening it, but changes have taken place in the body and their activation has triggered the pain. Prolonged use of the vibration caused by the method and the physical and mental changes it brings could have helped to eliminate the pain once and for all. This raises the question of whether TRE could be beneficial for physical pain?

The written descriptions revealed that the six-month period is too short to internalize the method into everyday life. The descriptions also found that training alone was perceived as challenging. This could be reflected in the scatter of training sessions between 3 and 75 times. If the number of internships had been the same, the results could have revealed something more. An improvement as a suggestion to facilitate the internship turned out to be that they would like the guided group to continue so that they could more easily continue to do the internship. These suggest that, for example, regular group counseling in the workplace helps employees to use the method. Although the employer has a duty to take care of the employee's well-being at work, so, ultimately, it is the responsibility of each employee to take care of well-being at work and thus patient safety. The resources used to relieve stress are both remedial treatment and prevention. Taking into account all the costs caused by stress, identifying, relieving stress and thereby preventing problems is also socially cheaper than not addressing it.

Substitute trauma is still little known and identified in patient work, but anyone who does patient work, especially with traumatized people, is at risk of being traumatized themselves. Substitute traumatization can lead to unrecognized empathy and thus depression and other illnesses, so this is a real risk for psychiatric workers. The results suggest that the TRE method has the potential to identify and prevent this. Symptoms of empathy are almost similar to PTSD (Toivola 2004; Palmunen 2011) and TRE has been used in PTSD sufferers with good results (Berceli 2013, Traumaprevention 2013, TREuk 2017). A surprising unexpected result emerged when comparing compassion recovery points at the beginning and percentage changes in the quality of recovery. The subjects with compassion exhaustion scores initially above 15 points, the percentage change in recovery quality is significantly greater than the mean of the whole set. Thus, the results suggest that those suffering from empathy will benefit more from the use of the TRE method than others.

The methods used work well in this study. The study provided a wealth of new, unpublished information by triangulation, ie by combining both quantitative and qualitative research methods. Importantly, several new research and development targets were found. The significance of the results in the development of psychiatric nursing is obvious. First, there is little research data on stress relief for psychiatric workers using the bodily method. Second, the results of the study revealed that employees experience stress that should be addressed and had been relieved by the TRE method. Developing psychiatric care with the TRE method could even reduce treatment errors and feelings of urgency, as well as increase well-being at work.

7.3 Exploitation of results

Stress is in the body, so the method used to relieve it must be bodily. Little is known about the TRE method in Finland, so researching new methods and making them available to employees can reduce employee stress and thus increase well-being at work. The movements of the TRE method are easy to learn, so it is also suitable as a self-care method. The study will be presented to KPK employees so that they both know about stress and its effects on the body and the means

stress relief would increase. The results gave indications that the well-being of employees at work has improved, so the research can be used to support the development of well-being at work at the Kuopio Psychiatric Center.

The results of the quality of life survey revealed a high number of trauma scores for some employees. This may indicate that work is causing compassion. The results suggested that the well-being of those working in psychiatric work needs to be monitored. In order to ensure that the quality of care is not affected by employees' own well-being, those in management should pay more attention to preventive action. This should not be limited to mapping employee well-being at work, but should include consistent tools to increase employee well-being.

The usability of the research is increased by its timeliness. Many experience stress at work. According to Firstbeat measurements, all subjects experienced varying amounts of stress during working hours. After the intervention, Firstbeat measurements showed that the amount of recovery during the work period as well as the length of the sleep period had improved. The amount of recovery from the sleep period as well as the most significant, i.e. the quality of recovery, had improved. The scores for all sections of the ProQOL survey had risen. All measurements were considered as the group mean, so at the individual level the change could have been different. The subjects' ability to recognize stress had improved and, consequently, they were better able to eliminate it as well. Research suggests that the TRE method can be a good tool for increasing well-being at work. The functionality of the TRE method to increase well-being at work could be ensured as group guidance during working hours. According to the research results, using the method without group guidance was challenging and group guidance was perceived as a facilitator in using the method.

Those working in the field of somatic nursing also suffer from the stress of nursing and face dramatized patients, so they are equally at risk of suffering from stress-induced symptoms or, in the worst case, of developing exhaustion through surrogate rheumatization. The results of the study can also be utilized among those working in the field of somatic nursing. The results of the study and the method used in the study can be utilized in all nursing work. Research provides information and through this provides tools for stressful and traumatic work.

This study is published on traumaprevention.com and on Firstbeat Technologies Oy's firstbeat.com websites. In addition, an article will be written about the research results in a scientific journal in collaboration with Päivi Maaranen.

7.4 Own professional growth

Learning during the thesis process can be assessed through the nurse's professional competence areas (Eriksson, Korhonen, Merasto and Moisio 2015). When choosing the topic of my research, I definitely wanted the TRE method to be part of the topic, because of its novelty and self-interest. Combining stress made the topic topical. While conducting the study, I gained authentic information about employees' experiences of stress and its elimination. With this knowledge, I gained reinforcement of my expertise in promoting health and well-being.

Young caregivers suffer more from stress than older ones. So just in preparation, this knowledge can be salvation when I can prepare for it. I feel that through research, I have gained an understanding of well-being prevention. Also, the knowledge of the vibrations of the alert states will help me in my future profession. So I feel that my clinical skills have been strengthened with the research.

When I did the research myself for several years, I can say that I have made quite a trip to the stress that affects my well-being at work, doing the research, and myself as a caregiver. While working alone is sometimes hard, it can also be really rewarding. Practicing the collaborative skills of a prospective nurse is challenging when working alone. Fortunately, working with partners, such as a supervising teacher, provided experiences to develop their own interaction and collaboration skills. With the research, confidence in one's own research and development expertise has increased. As a result of the process, the research mindset, the ability to solve problems, and the understanding of the use of evidence-based information have also increased. These are the most important areas of the thesis learning process (Heikkilä 2014, 22 - 23)

7.5 Further research proposals

According to the current project of the National Institute of Occupational Health (2017), in the public debate in Finland, there are clear changes in the requirements of working life from physical strain to psychosocial risks. The mental demands of work are becoming more challenging, which is in direct line with the increase in stress and burnout in Western countries. There are several studies on stress, including those related to caregiver stress, but there are few studies on different stress relief methods, both nationally and internationally. The study showed that the TRE method works in relieving stress in those performing psychiatric nursing, so a similar study with a larger sample should be done and occupational health should be included. An external position on health change would be interesting. Various laboratory tests should also be added;

Although there is a lot of new Finnish research data on care work and conditions in the social and health care sector, compassion stress or empathy in connection with nursing has not been studied in more detail. There are also no studies at the international level on compassion stress in nursing. (Palmunen 2011) Stress and emotional stress are one of the factors reducing the job satisfaction of social and health care workers. According to current knowledge and research, trauma work, and especially long-term work focused on the care of severely traumatized people, leads to burnout through compassion and substitutional rheumatism, at least if the worker is not aware of the effects of his work on his own body. (Project Report 2009 - 2012. 99-104.). A further research proposal would also be to further investigate the equivalence of ProQOL compassion points and the usefulness of the TRE method. The similarities between those who had the most changes in the quality of recovery should also be examined in the future. These could provide a more accurate screen for who could benefit from the TRE method. The Tre method is little known and used in Finland, so researching new means and perhaps making them available to employees is more than desirable.

"Also, a researcher should not conduct scientific research only for his or her client, organization, or himself or herself. The openness of science, the controllability of results and the discussion of them within the scientific community are an inalienable part of the process through which results are transformed into scientific ones." (KvantiMOTV 2010) There are still a lot of taboos and unrecognizable things associated with well-being at work, and physical stress is one of them. I hope the research will provoke a lot of thought and discussion on the subject.

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APPENDIX 1 PROQOL R-IV QUALITY OF LIFE SCREEN

Professional Quality of Life Scale Compassion Satisfaction and
Exhaustion Meter: Revised Fourth Edition

[Helping] people puts you in direct contact with people's lives. As you have probably experienced, your compassion for those you [help] has both positive and negative aspects. We would like to ask you about your positive and negative experiences [as a helper]. Evaluate the following statements that apply to you and your current situation. Choose the number that truthfully corresponds to how often you have experienced that trait in the last month.

0 = No / Never 1 = Rarely 2 = Sometimes 3 = Quite often 4 = Often 5 = Very often

1. I am happy.
2. I think of more than one [to be helped].
3. I feel satisfied that I can [help] people.
4. I feel connected to others.
5. I jump or startle with unexpected sounds.
6. I feel refreshed after working with [my helpers].
7. I find it difficult to separate my private life from my work role [as a helper].
8. I lose my sleep due to the traumatic experiences of the [person being helped].
9. I think the stress of [those being helped] may have taken hold of me as well.
10. I feel trapped for my job
11. I have found myself at the 'extremes' of several things because of [my help work].
12. I like my job [as a helper].
13. I experience depression as a result of my [helping] work.
14. I feel like I'm going through [traumatized] traumatic experiences.
15. I have beliefs that strengthen me.
16. I am pleased with my ability to keep up to date with [assistance] technicians and contracts.
17. I am the person I have always wanted to be.
18. My job makes me happy.
19. I feel exhausted because of my [helping] work.
20. I have positive thoughts and feelings about [being helped] and my abilities to help them.
21. I drown in the amount of my work or [work] cases.
22. I believe I can make an impact through my work
23. I avoid certain types of activities or situations because they remind me of [my help] scary experiences.
24. I am proud of what I can do [to help].
25. As a result of [my help work], I have penetrating, frightening thoughts.
26. I feel trampled in place because of the system.
27. I think I'm really good [as a helper].
28. I cannot remember important parts of my work with trauma victims.

29. I am a very sensitive person.
30. I am happy that I chose this job.

Test usage:

The test may be freely copied when (a) the factor has been expressed, (b) no changes other than those listed below have been made, and (c) the test has not been sold. You can replace the appropriate target set with [helper] in square brackets if helping is not the best term to describe the target set. For example, when working with teachers, replace [helper] with [teacher]. Word changes can be made to any word in square brackets so that the measurement runs smoothly for the target group.

Prohibitions:

The information provided in this form is for guidance only. It does not invalidate any medical information provided. Do not use the result of the scale in a diagnostic sense and do not use it to treat health problems without consulting health / mental health professionals. If you have any concerns about the subject area of the form, contact your doctor, occupational health service, mental health office or local health center, for example.

Scoring if the scale is used as a self-assessment test:

1. Answer all questions

2. At some points the result should be reversed: (0 = 0, 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1). Post the translated result next to your answer. Invert the result in the following five statements: 1, 4, 15, 17, and 29. Note that the value 0 is not inverted and its value always remains zero.

3. calculate the following points for evaluation:

(a) add up the following ten statements: 3, 6, 12, 16, 18, 20, 22, 24, 27, 30. These statements constitute **Compassionate satisfaction scale** (compassion Satisfaction)

(b) add up the following ten statements: 1, 4, 8, 10, 15, 17, 19, 21, 26, 29. These statements constitute **exhaustion scale** (burnout)

(c) add up the following ten statements: 2, 5, 7, 9, 11, 13, 14, 23, 25, 28. These statements constitute **Trauma / Compassion Scale** (compassion fatigue)

4. Calculate your results on each scale (S, B, F) separately.

S-score (Compassion Satisfaction) = _____ B-score (Burn Out) = _____
F-score (Trauma / Compassion) = _____

5. Now compare the values you get with the theoretical estimates given

International theoretical reference values for ProQOL scales:

Compassion satisfaction scale (compassion Satisfaction) = **S score**

Average 37 points (SD 7). About 25% of people get a score higher than 42 points and about 25% of people get a score lower than 33 points. If you get a high score, you will probably get plenty of professional satisfaction from your job. If you get less than 33 points you may have a problem with your job or the situation may be affected by some other reason, such as getting your satisfaction outside of work.

Exhaustion scale (burnout) = **B score**

Average 22 points (SD 6). About 25% of people get a score higher than 27 points and about 25% of people get a score lower than 18 points. If you get a lower score than 18 points you will probably have positive thoughts regarding your ability to be effective in your work. If you get a score higher than 27 points you may be wondering what in your work makes you experience inefficiency. Your results may reflect your emotional state: you may have had a 'bad day' at work or need time to rest. If the high score persists in the future or it reflects other concerns, it may be necessary to seek help for the situation.

Trauma / Compassion Scale (compassion fatigue) = **F score**

Average 12 points. About 25% of people get a score lower than 8 points and about 25% of people get a score higher than 17 points. If you get more than 17 points you may be wondering what in your job is scary for you or whether some other reason has raised your points. High scores don't necessarily mean a problem but they do suggest that you might be wondering how your job and work environment feel. You can talk to your supervisor, colleague, or health care professional, for example.

Copyright:

© B.Hudnall Stamm, 1997-2005. Professional Quality of Life: Compassion Satisfaction and Fatigue Subscales,

R-IV (ProQOL). <http://www.isu.edu/~bhstamm>. Translated by H. Palmunen, T. Ruuska, 2006.

ANNEX 2 QUESTIONNAIRE AFTER HALF YEARS OF USE OF THE TRE METHOD

1. Research code:
2. Many times during the six months you practiced the TRE method independently:
3. Many times during the six months you practiced the TRE method under supervision:
4. What positive has the use of the TRE method brought to you?
5. What negative has the use of the TRE method brought to you?
6. How have you experienced using the TRE method to relieve stress?
7. Have you noticed changes in your stress level? If so, what changes?
8. What are the challenges associated with the use of the TRE method in stress management?
9. What else would you like to say about the method or its effects?

ANNEX 3

ORIGINAL EXPRESSION	REDUCED EXPRESSION
<i>"The method is a great stress relief method for me."</i>	A great method of stress relief

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
A great way to relieve stress Previously more stressful Well-functioning for relieving stress A good way to relieve stress Among other methods, a good method Help relieve stress Prevents stress Help with coping Better identification of stress Less	Relieving stress	Reduction of stress	Positive experiences of employees
busy at work Calming down at work	Less work stress		
Decreased cynicism about one's own work Work matters are not remembered to spin More enthusiastic about work Getting rid of nasty things is easier	Disconnection from work matters easier		

Appendix table 1.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
<i>"Really deeply relaxed after the workout."</i>	Feeling relaxed

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
Feeling relaxed Feeling relaxed Feeling relaxed Relaxation for the day Relaxation for the day Relax Relaxed feeling Relaxed feeling	Feeling more relaxed	Decrease in activation level	Positive experiences of employees
Milder tension Feeling at ease Feeling calm	Feeling more relaxed		

Appendix table 2.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
<i>"The TRE method has helped me relax what I've experienced in a better night's sleep."</i>	My night's sleep is better.

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
My night's sleep is better Sleeps better even though sleep is weaker. Good dreams Better slept, but there may be various reasons for a night's sleep to be improved	My night's sleep improved	Improving sleep quality	Positive experiences of employees
It is easier to fall asleep Getting rid of sleeping pills It is easier to fall asleep	Falling asleep easier		

Table 3.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
"I feel that the method has also been helpful for breast syndrome"	The method helps with chest symptoms

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
A Method To Help With Chest Symptom	Relief of physical pain symptoms	Physical-mental increase in well-being	Positive experiences of employees
Focusing on yourself is a good thing	Focus on oneself		
Learned to keep stretching Self-confidence increased	Self-awareness increased		

Appendix table 4.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
"I haven't had any negative experiences."	No negative experiences

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	COMBINED CATEGORY
No negative experiences	No negative experiences	No negative experiences	Employee experiences
No negative experiences			
No negative experiences			
No negative experiences			

Appendix table 5.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
"For myself, TRE didn't stick to my own daily life, as the exercises start to activate traumatic symptom, functional seizure symptom, and I became a cautious use of TRE."	The method activates traumas

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
The method activates traumas	Mental challenges	Imported by the method challenges	Negative experiences of employees
Frustration with progress Low benefits perceived Unobtrusive changes The method causes			
physical pain Physical challenges in the method	Physical challenges		
Did not notice changes in stress level	Did not notice any changes in stress		
Did not notice changes in stress level			

Appendix table 6.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
"The only problem is that it would be remembered in every hurry to introduce it regularly so that it would be useful."	Difficulty getting regular

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
The inconvenience of getting regular The inconvenience of getting routine The	Getting the method routine	The method scheduling	Negative experiences of employees
inconvenience without a group	Doing without a group		
Inconvenience without a group			
Book your own time	Finding time		
Finding time			
Remembering exercises			
Booking your time during the day Finding time			

Appendix table 7.

ORIGINAL EXPRESSION	REDUCED EXPRESSION
"I can and have recommended the method to my co-workers."	Recommended method for co-workers

REDUCED EXPRESSION	SUBCATEGORY	TOP CATEGORY	CONNECTING CATEGORY
Recommended method for co-workers Recommended method for clients Getting to know the method	Recommended method	The method of the future	Employee experiences
An interesting method for patient work An interesting method that you intend to continue An interesting method for someone of interest An interesting method, especially for groups Intends to start using the method again	Interest in the method		

Appendix table 8.