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Impact of Empathy on Burnout Among Swedish
Professional Health Care Workers: An Empirical Study

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Impact of Empathy on Burnout Among Swedish Professional Health Care Workers: An
Empirical Study

Påverkan av Empati på Utbrändhet Bland Svenska Omsorgsarbetare: En Empirisk Studie

Abstract

Objective: Research on the association of empathy and burnout within professional health care workers has shown that the work is posing a risk for burnout. Empathy and compassion abilities are essential to understand others and when working with caring for others. Research from social neuroscience and psychology has forwarded findings indicating the risk of a negative side of empathy – empathic distress being associated with ill health such as burnout. Contrary, compassion has been shown to be associated with health benefits. Research integrating knowledge from social neuroscience and psychology is needed to inform evidence-based health promotion in the workplace arena.

Aim: The aim is to investigate if empathic distress among professional health care workers is associated with burnout, and if compassion has a buffering effect on burnout.

Design: A cross-sectional, within-group survey study is employed, using a quantitative explorative approach. 105 participants identified as professional health care workers was included. The bio-psychosocial model was used as a theoretical analysing tool.

Results: Results showed a significant positive association between empathic distress and client-related burnout. Compassion was found to be negatively associated with client-related burnout, however, not significant. Multiple regression analysis showed no significant effect of empathic distress, compassion or theory of mind to predict burnout.

Conclusion: Empathic distress was found to be significantly associated with client-related burnout. The study integrated social neuroscience and psychology theories, which can inform health promotion programs within social workplace settings especially for a vulnerable group in risk of burnout such as professional health care workers.

Keywords: Health promotion, empathic distress, empathy, compassion, social care professionals, health care professionals, social work

Nyckelord: Hälsofrämjande arbetsliv, empatistress, empati, compassion, omsorgsarbetare, socialt arbete

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Förord

Jag vill rikta mitt varmaste tack till deltagarna i min studie – utan er hade det inte blivit något examensarbete. Omsorgsarbetare, eller, ”de som arbetar i kontaktyrken” utgör en stor del av Sveriges arbetsmarknad. De har en avgörande roll i människors hälsa och välmående. Det är viktigt att värna om omsorgsarbeters hälsa och välmående också – inte minst för individens egen skull utan i förlängningen även för befolkningen och samhällets skull.

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1. Impact of Empathy on Burnout Among Swedish Professional Health Care Workers: An Empirical Study

In everyday life, the ability to empathise with others is considered a positive trait of being a caring human being. Human beings are social creatures and most of us need relational connectivity. Being able to put yourself in the shoes of another enables this relational connectivity and further allows the fostering of interpersonal relations (Miller, 2018). As it has been shown, the human brain is wired to enable ways of fostering the understanding of others, which empathic abilities provide tools for (Singer & Lamm, 2009).

Giving humans are hardwired to connect with others, there is little surprise that the ability to empathise has been shown to be an essential ability when professionally working with caring for other people. Social work education include training in skills to use empathy as a way of relational contact with clients, thus advocating the future social worker to be empathic (Wagaman et al., 2015). Research has shown that empathy as a part of quality care has been associated with higher patient satisfaction (Byrd et al., 2020), patients' investment in treatment, and lesser malpractice complaint (Gleichgerricht & Decety, 2013). Within professional settings for example, perceived psychotherapist's empathy has been shown to be a significant predictor of therapeutic success (Vitinius et al., 2018). Thus, the higher the patient perceived the psychotherapist's empathy to be, the better the therapeutic success. In fact, research results have put empathy as a key change process in psychotherapy (for a presentation of the result of a meta-analysis see e.g., Elliot et al., 2011).

In clinical settings and healthcare at large, empathy has been shown to be a central aspect affecting not just the patient outcome but also the healthcare provider's professional and personal well-being (Duarte et al., 2016). Practising empathy is not just a positive trait enabling a relational attachment. Empathy is a part of a phylogenetic aged, crucial bodily system necessary for humans to fully understand each other (Singer & Klimecki, 2014). Taken together, having empathy, and practicing it is therefore essential to enable the understanding of others, personally as well as professionally. The importance of empathy is thus significant, described as "...a cornerstone of our lives as "social animals"" (Singer & Lamm, 2009, p. 81).

Research from the fields of psychology and social- and cognitive neuroscience have given new insights on empathy and topics related to the ways humans understand others (see e.g., Klimecki, 2015). Such topics and their effect on for example well-being are empathy (e.g., Gleichgerricht & Decety, 2013), compassion and theory of mind (ToM) (see e.g.,

Luberto et al., 2018; Trautwein et al., 2020). When humans interact, we process complex social signals. Neural networks underpin these processes, enabling socio-affective capabilities such as empathy and compassion, and socio-cognitive capabilities such as ToM. (Preckel et al., 2018)

However, by way of such studies, neuroscientific evidence suggests there to be a negative, possibly detrimental side of empathy. Empathy indeed enables the sharing of others' emotions. However, it may lead to two different outcomes – *empathic distress*, a maladaptive, negative form of emotional sharing; and *compassion*, a prosocial, positive form enabling feelings of warmth and care for others and a motivation to alleviate the witnessed suffering (Preckel et al., 2018). ToM is not an affective state but refers to the ability to cognitively understand and mentalise others' thoughts and intents. Together, the socio-affective and socio-cognitive routes towards understanding others operates in a dynamic interplay yet are underpinned by independent neural networks (Preckel et al., 2018).

How does the ability to share emotions affect the well-being of health care professionals, where a part of the daily job is interacting with others? What if the ability to share emotions (i.e., empathise) contributes to ill health? Sickness absence is a complex and broad phenomenon that can be the result of many factors. Such factors are for example workplace related, organisational, individual, and societal factors (Borritz et al., 2006). Studies and official reports show a high prevalence of burnout and job stress among the health care professions (Arbetsmiljöverket, 2018, 2020; Borritz et al., 2006). In fact, studies have shown that empathic distress, the negative side of empathy, is associated with burnout (Altmann & Roth, 2020; Klimecki et al., 2014). As mentioned above, empathic abilities are essential to help us understand each other and further to provide qualitative care. As shown by research findings mentioned above, empathic abilities can also be a route towards personal distress and possibly lead to burnout. Thus, the negative consequence of empathy can be seen a potential risk factor in a line of work where empathic qualities are advocated. Therefore, it is of importance to investigate the association between empathy and burnout, especially amongst professional health care workers such as social workers and psychologists. Both professions involve much contact with individuals in suffering and in need of help, and where empathic abilities are essential.

Thus, the current thesis will investigate associations between the negative side of empathy – empathic distress, and whether it predicts burnout among Swedish professional health care workers. Moreover, the potential protective and buffering side of compassion will be investigated.

1.1 Relevance for Social Work, Health Promoting Working Life, and Health Promotion

Today, unanimity has been reached regarding that being a part of the work force is associated with better health, and not being a part of the work force is associated with poorer health (Waddell & Burton, 2006). However, employment is not by default a guarantee for health. Working life may contribute to states of ill health such as depression and burnout (Folkhälsomyndigheten, 2019a). Swedish Work Environment Authority published a report 2018, showing that women in Sweden to a higher extent were represented in professions where they to a higher degree worked near other people (such as close to patients, service recipients, and clients) (Arbetsmiljöverket, 2018). Working with clients and patients provides the opportunity to embody empathy and act with compassion, which is why many are drawn to the working with interpersonal service work (Ekman & Halpern, 2015). However, engaging in a line of work where the duty is to help others to effectively manage negative states and emotions may be a double-edged sword. It can be highly rewarding but also draining. (Andreychik, 2019) In fact, reports from Swedish authorities have shown that working in human service occupations such as within the health care sector and public service, is a risk factor for stress related mental illness (Arbetsmiljöverket, 2020; Försäkringskassan, 2020). Moreover, mental illness has been described to be one of the most common reasons for ill health and sick leave in Sweden (Folkhälsomyndigheten, 2019b; Försäkringskassan, 2020). In 2019 in Sweden, sick leave due to burnout syndrome was estimated to make up 18% of the psychiatric diagnoses amongst women and 13% amongst men (Försäkringskassan, 2020). Burnout syndrome is one of the most common diagnoses of all psychiatric diagnoses. Women are estimated to have more than a 40% increased risk of sick leave specifically due to burnout syndrome compared to men (Försäkringskassan, 2020). Moreover, mental illness is most prevalent in the health care sector (Försäkringskassan, 2020). The current study population sample consists of mostly women, and as such reflects the reality, as is shown above. However, when exposed to the same factors in working life, men and women's mental health is affected similarly (Swedish Research Council for Health, Working life and Welfare [Forte], 2020). Therefore, the topic of empathy and burnout is relevant for all individuals. Working in an occupation where empathy is essential seems to be associated with high levels of distress, which seemingly might even lead to burnout and absenteeism as a result. More knowledge is needed to enhance the health promoting work in the working life arena. Considering the results of the mentioned reports above, such

knowledge is important especially for the vulnerable groups working within the human service sector and the public service sector such as social workers and psychologists.

Burnout as a concept was coined within the context of human services such as social work, psychotherapy, and health care. Burnout was especially referred to as the individual reaction due to the interpersonal stressors because of the type of work. (Shaufeli et al., 2009) Hence, I am specifically investigating the important factor of empathy and its effect on burnout when meeting clients/patients on the daily job. More knowledge is needed in relation to the potential risk factor associated with the potential negative impact of empathy, and potential health factor associated with compassion. Especially since empathy and compassion is essential in qualitative care and is advocated among professions caring for others such as social workers and psychologists. Such research has important practical implications for health promoting work life and health promotion in general. As is put forward in the Ottawa Charter for Health Promotion (World Health Organization [WHO], 1986), health promotion must be facilitated in the work-place arena. Employees such as social workers and psychologists engaged in a type of work especially vulnerable to ill health such as mental illness must naturally be included.

Most research has focused on risk factors within working life. Less research has focused on health factors (Naidoo & Wills, 2016). Research of both risk factors and health factors should provide a better understanding of how to create a health promoting working life facilitated by for example health promotive programs. Such research should inform practise of health promotion in areas such as the working life of health care professionals such as social workers and psychologists. The mentioned agency reports motivate the urgency of continued research of underlying causes and associations of what contributes to ill health and health in working life. Social work as an academic topic should include research specifically focusing on health factors and well-being in environments where the individual and group live and work. Considering the current study's investigation of the specific effects of meeting clients/patients in the daily job, the connection to health promotion is quite clear. Besides investigating potential risk factors such as the effect of empathic distress in relation to the profession's interactions with other people, potential implications of health factors such as compassion will be discussed. Taken together, these risk factors and health factors affects the well-being and health of the individual and group, as well as the society at large, on the job as well as during leisure time.

The point of departure is that the current study's result can inform the field of what contributes to a sustainable workplace, in line with values guiding social work and health

promotion. The International Association of Schools of Social Work [IASSW] forwards overarching ethical principles, which should guide social work. Herein are principles of how social work should be practiced. (IASSW, 2018) Below *professional integrity*, point 9.6 is forwarded “Social workers and their employers recognize the need to take steps to care for themselves professionally and personally to prevent burnout and to enhance working relationships and outcomes” (IASSW, 2018, p. 8). Thus, to care for oneself professionally and personally (health promotion) is recognized as an important ethical guideline for the employee and employer. In Sweden, health promotion by way of systematic work environment management is regulated in The Work Environment Act, which is stipulated in Swedish law (Arbetsmiljöverket, 2001: AFS: 2001:1), thus supporting the ethical principle 9.6.

My hopes are that the current study will contribute to synthesizing health evidence and inform practice to help create a sustainable work environment for occupations at risk of burnout such as social workers and psychologists.

1.2 Aim

The general aim of this thesis is to investigate how health care professionals’ self-assessments of empathic distress and compassion relates to burnout. This is undertaken by first providing a systematic narrative review of previous research, which will motivate the execution of an empirical study with a quantitative approach.

1.2.1 Specific Aim

The specific aim of this thesis is to conduct an empirical study to investigate associations between empathic distress, compassion, and burnout in a Swedish sample of professional health care workers. This is actualised by collecting survey data to find answers to the following research questions:

Does empathic distress predict burnout among health care professionals working with clients/patients?

Does compassion buffer against burnout among health care professionals working with clients/patients?

2. Central Concepts and Definitions

Below I will give a brief description of the definitions used in the present thesis. First, the definitions of *empathy*, *compassion*, *theory of mind* (ToM), and *burnout* will be forwarded. Subsequently what is meant by professional health care worker and how the term relates to the present thesis will be described.

Empathy and burnout are broad research fields, and it is beyond the scope of this paper to give an exhaustive overview. However, determining what is being studied and providing the definition used is important to avoid confusion and enable comparability between research results (Altmann & Roth, 2020). However, it can also be described a risk given the number of definitions especially if the theoretical ground is based on different approaches (Cuff et al., 2016). Empathy, compassion, and ToM will all be described from the perspective of social-cognitive neuroscience. Moreover, the concepts are captured by assessments based on psychological theories, which in turn is complemented by findings from the field of social-cognitive neuroscience. The forwarded concepts will serve as a delimitation.

2.1 Empathy

There are many different definitions of *empathy* making the concept very broad (de Vignemont & Singer, 2006) (see e.g., Cuff et al., 2016 for a review of concepts of empathy). Empathy as a term is used across fields and has been used in for example sociology, care-giving settings, social and developmental psychology, and philosophy (Decety & Svetlova, 2012; Hein & Singer, 2008).

de Vignemont and Singer (2006) proposed a definition of empathy from the perspective of social-cognitive neuroscience, which the current paper will be based upon. The authors defined empathy as “there is empathy if: (i) one is in an affective state; (ii) this state is isomorphic to another person’s affective state; (iii) this state is elicited by the observation and imagination of another person’s affective state; (iv) one knows that the other person is the source of one’s own affective state” (de Vignemont & Singer, 2006, p. 435). As such empathy is *not* sympathy (which refers to feeling *for*, hence not being isomorphic), emotional contagion (sharing affects, but does not include conscious self-other distinction) or cognitive perspective taking (not being an affective state but rather inferring cognitively about another person’s mental state, i.e., ToM) (de Vignemont & Singer, 2006).

Empathy is a socio-affective process, which activates the affective routes in the brain distinct from the cognitive routes (Kanske et al., 2015; Preckel et al., 2018). However, both routes are deeply interconnected and jointly activated because both are required in many

complex social situations (Preckel et al., 2018). Empathy in response to suffering can result in two consecutive reactions: Empathic distress or compassion. Empathic distress is a self-related emotion, eliciting negative emotions, and might lead to withdrawal and isolation.

Empathic distress has been shown to be associated with burnout. (Singer & Klimecki, 2014)

The definition forwarded by de Vignemont and Singer (2006) separates Davis (1983) definition of empathy. Davis defines empathy broadly as "...reactions of one individual to the observed experience of another" (p. 113). Davis (1980, 1983) assessment of empathy – the Interpersonal Reactivity Index – measures four subscales of empathy (Perspective Taking; Fantasy; Empathic Concern; and Personal Distress). Because the subscale Perspective Taking intends to assess "...the tendency to spontaneously adopt the psychological point of view of others" (p. 114) it matches the concept of ToM (see below). The subscale Personal Distress and Empathic Concern intends to measure emotional reactions of the one engaged in empathy. Personal Distress assesses "...self-oriented feelings of personal anxiety and unease in tense interpersonal settings" (p. 114). Empathic Concern intends to assess "other-oriented" feelings of sympathy and concern for unfortunate others" (p. 114). As such, personal distress as defined by Davis (1983) resembles what Singer and Klimecki (2014) defines as empathic distress. Henceforth, the term empathic distress will be used when describing the negative, self-oriented feelings of distress when witnessing (or imagining) another's suffering. Empathic concern as defined by Davis (1983) resembles what Singer and Klimecki (2014) defines as compassion. Please see the next section for the definition of compassion used in the present thesis.

2.2 Compassion

Compassion is defined from the field of social-cognitive neuroscience in the present thesis. Compassion is a social emotion enabling prosocial activity (Singer & Klimecki, 2014). Compassion is activated when one is witnessing the suffering of another, which in turn elicits the wish to ease that suffering (Goetz et al., 2010). As such, compassion generates positive affect even when witnessing another's suffering (Singer & Klimecki, 2014). Compassion is associated with positive feelings of benevolence, affiliation, concern, and warmth as well as the motivation to help (Singer & Klimecki, 2014).

As such, compassion is a socio-affective *positive* state generating positive affects even when the observer is witnessing suffering. Compassion has a motivational factor eliciting a pro-social motivation to help and can be seen as an important factor to enable engagement in prosocial activity. (Preckel et al., 2018)

If empathy is “feeling with”, compassion is “feeling for”. Compassion is associated with good health, approach behaviour, and positive feelings (Singer & Klimecki, 2014). In other words, compassion is opposed to the potential negative effects of empathic distress, and as such not associated with burnout (for more in-depth arguments relating to the distinction between compassion and empathic distress, please see e.g., Klimecki & Singer, 2012).

Davis (1983) divides empathy to be multidimensional and assesses Empathic Concern to be “...”other-oriented” feelings of sympathy and concern for unfortunate others” (p. 114). In line with Preckel et al. (2018), Singer and Klimecki (2014) as well as Davis’ (1983) subscale Empathic Concern, the term compassion will henceforth be used in the present thesis to describe other-oriented, positive emotional ability and reaction when witnessing another in distress as well as the motivation to alleviate the suffering.

2.3 Theory of Mind – Cognitive Perspective Taking

To cognitively infer about another person’s perspective is a social-cognitive process often referred to as *theory of mind* (ToM), perspective taking or mentalising (Preckel et al., 2018). Contrary to social-affective processes such as empathy and compassion, which engages affect, ToM is a process of cognitive reasoning of others’ thoughts, beliefs, or emotions to gain abstract, propositional knowledge of their mental states (Preckel et al., 2018). Taken together, ToM is important because it enables the generation of an adaptive response promoting a more sophisticated interaction, which in turn are more manageable (Decety & Svetlova, 2012). The important notion of ToM is the ability to distinguish that one’s own internal state might be different or similar to other’s internal state (self-other distinction). Moreover, ToM is associated with processes underlying executive functions such as emotion regulation (Decety & Svetlova, 2012). For example, when meeting a client that have been exposed to trauma, the professional health care worker can cognitively infer and reason about what this might mean to the client. Subsequently, the professional health care worker can adapt and regulate the affective reaction to generate an appropriate response.

Davis’ (1983) IRI consists of one subscale named Perspective Taking, which is described to assess “...the tendency to spontaneously adopt the psychological point of view of others” (p. 113-114). Perspective Taking as such closely resembles what Decety and Svetlova (2012) and Preckel et al. (2018) conceptualise as ToM. Henceforth, the term ToM will be used to describe the ability to cognitively infer other individuals’ perspective, as well as the ability to distinguish or assimilate with one’s own internal state.

2.4 Burnout

Burnout is defined from Kristensen et al. (2005) paper forwarding underlying theories of a Danish assessment of the burnout syndrome. In line with the historical development of the concept of burnout, the theoretical foundation determines that the core of burnout is partly fatigue and exhaustion. Another key feature is the attribution of the fatigue and exhaustion the individual gives specific life domains. Examples of domains are work, and client-related work. Kristensen et al. (2005) developed a scale consisting of three subscales measuring: Personal Burnout, Work-Related Burnout, and Client-Related Burnout. The three subscales have the following definitions:

Personal Burnout is defined as “... *the degree of physical and psychological fatigue and exhaustion experienced by the person*” (Kristensen et al., 2005, p. 197). As such, burnout can be assessed whether you are employed or unemployed.

Work-Related Burnout is defined as “*The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work*” (Kristensen et al., 2005 p. 197). As such, the individual is asked to attribute symptoms specifically related to the domain *work*. Moreover, if desired the two scales can be compared to enable a clarification of whether an individual’s symptoms of fatigue are attributed to work or non-work factors such as family demands or health problems.

Client-Related Burnout is defined as “*The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients*” (Kristensen et al., 2005, p. 197). As such, the individual can attribute factors related specifically to the work with clients (or suitable terms such as patients, residents etc.). (Kristensen et al., 2005).

The authors built on theories of the way individuals perceive, understand, and interpret psychological and somatic symptoms such as schemata, causal attribution, and situational models of disease. *Schemata* refers to a sort of frame of reference used to understand symptoms particular for the individual but also influenced by culture and social roles. *Causal attribution* serves as a central feature associated with schemata in that individuals are expected to need to understand, predict and control the external and internal environment. Moreover, trying to understand why something is happening, attributions may be considered stable vs. unstable, global vs. specific, as well as controllable vs. uncontrollable. As such, when experiencing symptoms, the mentioned dimensions provide many different factors, which can be interpreted in different ways depending on the situation or circumstance. The *situational model of disease* (Alonzo, 1979 in Kristensen et al., 2005) refers to the individuals attempts to understand by way of interpreting, evaluating, and coping with the symptoms of

disease, becoming an expert of it and further learn how to act to influence the disease. A key feature is the necessity to ask individuals *how they manage* symptoms of burnout rather than how they think they would manage them. Kristensen et al. (2005) forwards that the situational model does not assume illness to be a static phenomenon but that it can change over time. Moreover, the individual is expected to be able to influence the course of the illness. As such burnout is not a static one-way process but indeed can be changed for the better. (Kristensen et al., 2005).

In sum, the definition of burnout in the present thesis includes three parts as measured by three subscales. All three parts are based on the assumption that one key part is fatigue and exhaustion, and one key part is how the individual interprets and attribute symptoms of burnout to different life domains such as for example client-related work. Moreover, burnout is considered to not be a static condition but reversible and by the individual possible to influence.

2.5 Professional Health Care Worker

The present thesis sample population consists mostly of social workers, counsellors, and psychologists. I will refer to these professionals as *professional health care workers*. Health care professionals are a broad term including professionals working within the health care sector. Such work can include working with patients, inmates, clients, service recipients etc. Work tasks depends on the context, as well as in what type of sector the professional is working in. Moreover, definitions vary depending on which country, as well as which language the publication is published from. Therefore, it is important to define what is meant by professional health care worker. In the present thesis, the term professional health care workers will be used consistently throughout the text describing individuals working with caring for others professionally and practice so called “people work”. Social workers, counsellors and psychologists share the fundamental base of promoting a professional relation with clients. Conversational interaction lies at heart within such work and social-affective (i.e., empathy and compassion) and social-cognitive (i.e., ToM) abilities is therefore essential.

3. Earlier Research – A Literature Review

“Once we understand that the main sources for attaining happiness and relieving suffering are closely related to our state of mind, we begin to understand where important change has to happen”

Diego Hangartner

To investigate what is already known in relation to empathy and burnout among professionals working with caring for others, a literature review in form of a narrative review was conducted. Narrative literature review is one way of providing an overview of a field and commonly prelude one’s own research. By way of the literature review, an assessment and critical interpretation of the research field is completed, providing a reasonable overview and background to the forthcoming empirical study. The purpose is to examine existing theories and research of what is already known, guided by the current thesis’ research questions. (Bryman, 2016) Social work is an interdisciplinary field, and databases relevant for Social Work and Psychology was screened. Please see the “Material and Methods” section for detailed information regarding the search process.

For the sake of scientific lucidity, I have divided the results from the literature review in appropriate headings and subheadings. Guided by Bryman (2016, p. 91-98), I will begin with what is generally already known about of empathy and burnout among professional health care workers. I will specifically focus on psychologists and social workers since these occupations make up most of the present thesis sample population. Subsequently, I will forward what concepts and theories are relevant within the area, and what research designs, methods and assessments are commonly employed. Lastly, forwarding the existing literature I will elicit existing controversies, inconsistencies as well as how the literature relate to the present study. By way of a systematic literature search, as well as browsing the selected papers reference lists, the following chapter is based on 63 peer-reviewed, scientific papers.

3.1 What is Already Known?

Considerable research has focused on empathy and what happens when professionals are meeting and helping people as a part of the occupational duty. Social science literature (e.g., Wagaman et al., 2015), psychological literature (e.g., Shaufeli et al., 2009), modern medical literature (e.g., Gleichgerrcht & Decety, 2014), and rather recently social and cognitive neuroscience (e.g., Decety & Lamm, 2006) has to a great extent explored empathy and

burnout in relation to health and occupational health. There are studies integrating research field such as neuroscience and social work (e.g., Ekman & Halpern, 2015; Gerdes, 2011). Despite different epistemology, the consensus in the literature is that *something* happens to both the professional and the client/patient when they meet. Further, burnout seems to be posing a serious risk for ill health among professionals working in emotionally demanding occupations (Reis et al., 2018) (such as therapists, and social workers). Despite divided nomenclature, research seems to have suggested there to be a close link between empathy and burnout (Thirioux et al., 2016).

However, theories and the course of associations have been shown to be divided, even contradictory (Altmann & Roth, 2020; Gerdes, 2011; Thirioux et al., 2016). Wilkinson et al. (2017) conducted a meta-analysis reviewing the relationship between empathy and burnout. The meta-analysis included 10 studies using healthcare staff such as nurses or medical professionals as sample populations. Eight of the studies showed a negative association between empathy and burnout, and one study forwarded results of a positive association between empathy and burnout. Inclusion criteria included burnout being measured by the Maslach Burnout Inventory (measuring Maslach's definition of burnout: Maslach et al., 1996, in Shaufeli et al., 2009, p. 206). Empathy was measured using Davis' (1983) assessment the Interpersonal Reactivity Index measuring cognitive and affective empathy. Wilkinson et al. (2017) has concluded there to be a negative association between empathy and burnout. Even though the quality of the studies were deemed good, there were some methodological inconsistencies and as such the authors urge that more research is needed.

Contrary, other evidence has suggested (positive) empathy to prevent burnout (e.g., Andreychik, 2019), empathy for sensory pain being the source of affective pain (see e.g., Lamm et al., 2011, for a meta-analysis), affective empathy to be the facilitator of empathic distress or empathic care respectively, where the latter is closely associated with compassion and sympathy (Ashar et al., 2017), and that too much empathy and compassion is not bad for the social worker (Nilsson, 2014). Furthermore, empathy has been suggested to be differentiated from compassion, and studies from social-affective neuroscience forwards result suggesting that training empathy results in negative affect, and training compassion results in positive affect (Klimecki et al., 2013). Klimecki et al. (2013) provides evidence that compassion training reversed the negative affect resulted from empathy training. Thus, leading the authors to suggest compassion training to be a potent strategy against burnout (contrary to empathy training, which induced negative affect).

Studies have used different methodologies such as functional magnetic resonance imaging (fMRI) (e.g., Ashar et al., 2017), and different self-assessment scales to measure empathy and burnout. As such, to avoid biased results and epistemological confusion, there is a need to define what epistemological foundation and theoretical frameworks are used when researching empathy and burnout (Cieslak et al., 2014; Gerdes, 2011). Stating the definition and theoretical framework will allow comparability between study results and provide an enhancement of the theoretical grounding of assessment and interventions (Cuff et al., 2016).

Below, I will present the concepts and theories, and some commonly used self-assessment scales and technologies used to measure the concepts that emerged from the systematic literature search.

3.2 Concepts and Theories

3.2.1 Empathy

There are many different definitions of empathy, and as mentioned it is beyond the scope of this thesis to cover them all (please see e.g., Cuff et al., 2016 for a review on the many different concepts and definitions of empathy). Below, I will present the most common definitions, concepts and theories adopted in the studies that were reviewed.

3.2.2 Affective and Cognitive Empathy

Whether empathy is a cognitive or affective concept or consists of both has been thoroughly discussed (Cuff et al., 2016), and is still being debated (Ashar et al., 2017). Acknowledged difficult to define, yet important to quality health, in medicine settings, empathy has been considered to consist of two primary features: Cognitive and affective empathy (Decety et al., 2014). However, forwarded empirical evidence suggests that cognitive and affective empathy interact in the experience of empathy (Cuff et al., 2016). Cognitive empathy refers to the ability to “recognize and understand another’s experience, to communicate and confirm that understanding with the other person, and to take effective action to then act appropriately in a helpful manner” (Decety et al., 2014, p. 233). Affective empathy refers to the ability to emotionally resonate with patients. Before, affective empathy was considered to interfere with the physician’s ability to diagnose and further facilitate better outcomes, and the practice was to establish an emotional distance. Later, evidence has suggested that affective empathy improves cognitive accuracy, and that emotion resonance

contributes to a better patient-physician relation. This in turn seems beneficial for the patient outcome, as well as the well-being of the physician and the patient. (Decety et al., 2014)

Much psychology and social research divide empathy between cognitive and affective empathy, using Davis (1980, 1983) assessment the Interpersonal Reactivity Index (consisting of four subscales; Empathic Concern and Empathic Distress to measure *affective empathy*, and Fantasy and Perspective Taking to measure *cognitive empathy*) (Chrysikou & Thompson, 2016). However, Chrysikou and Thompson's (2016) factor analysis suggests a two-factor model has poor model fit. The authors question whether it is possible to measure cognitive and affective empathy using the IRI. For example, the authors question the combination of using the two subscales intended to measure affective empathy (Empathic Concern and Personal Distress) and suggests they measure very different aspects of empathy. Chrysikou and Thompson (2016) suggest more behavioural research using fMRI is needed in future studies to enable a reliable measure cognitive and affective empathy. Another study suggested that the IRI captures many aspects of social cognition where PT captures cognitive empathy, EC captures sympathy/compassion for others, and PD captures the negative side of anxious feelings in relation to others suffering (Jordan et al., 2016).

3.2.3 Positive and Negative Empathy

Andreychik (2019) investigated associations between *positive* and *negative empathy* with burnout and professional quality of life among professionals providing care for clients and students. Negative empathy included empathizing with the negative emotions of the other resulting in a negative emotionality for oneself and as such suggested to likely be an aversive experience. Even though negative empathy likely leads the professional to sense a motivation towards helping others, it might also have increased burnout. Both positive and negative empathy is forwarded as relying on the ability to take the perspective of others, however they are also considered distinct. Positive empathy contrary to negative empathy includes sharing positive affects with the other and increase levels of vicarious positive emotionality, generating a pleasant experience. Results from the two included studies showed that positive empathy among front-line mental health providers and teachers was associated with lower levels of burnout and greater job satisfaction. Negative empathy was found to be associated with more burnout, more secondary traumatic stress, and less compassion satisfaction. The results should however be regarded with caution, being correlational and not causal. (Andreychik, 2019)

3.2.4 Clinical Empathy

Considered an important quality clinical setting in health care, clinical empathy refers to i) the understanding of the patient's experience of the situation, the feelings and perspective; ii) the practitioner's ability to communicate this understanding and check its accuracy; and iii) informed by the previous steps, act in a helpful (therapeutic) way (Mercer & Reynolds, 2002). Clinical empathy has been shown to be associated with greater patient satisfaction and treatment adherence. Clinical empathy has also been shown to be associated with higher levels of life satisfaction, psychological well-being, decreased burnout and less personal distress among practitioners (Decety et al., 2014).

3.2.5 The Social Neuroscience of Empathy

In biological terms, social neuroscientific evidence considers empathy to be an inherent, evolutionary favoured ability necessary for survival (Decety & Svetlova, 2012). Especially important in social attachment and maternal behaviour, empathic tendencies are thought to serve regulatory functions such as distress alleviation, nurturing, and security. Further, cognitive processes such as attention, social recognition, motivation, and memory is thought to connect sensory input to motor output (Decety & Svetlova, 2012). Broadly put, neuropeptides regulate the activation of the nervous system and stress systems important for empathic responsiveness, which in turn predicts behaviour necessary to ensure survival. Humans are thus "wired" to form bonds with others. For example, mother-infant bonding and parenting facilitates the brain's reward system as do caring behaviour for non-kin as well. (Decety & Svetlova, 2012)

Having and engaging in empathy is one way which enable us to understand other people (Singer & Lamm, 2009). As the technology has advanced during the last two decades, the emerging field of cognitive neuroscience and social affective neuroscience have put forward contributions to research of empathy and related concepts, such as compassion and empathic distress. Studies measuring brain activity via advanced technology allow new insights of the underlying neural signatures of empathy and compassion. Brain scanning techniques (neuroimaging) allows researchers to investigate and observe the human brain in vivo, by tracking the metabolic and electrical activity to provide a new type of information. One such technique is fMRI, which is used to measure changes in local neuronal activity by tracking blood flow changes in the brain (Gazzaniga et al., 2009). Tracking the metabolic and electric activity enables the investigation and inferring of brain function in relation to behaviour (Brown & Behrmann, 2017). This technique enables researchers to test hypothesis and

measure the brain's functional anatomy by detecting brain regions activated for example when the test subject is involved in a cognitive task (Gazzaniga et al., 2009).

The first neuroscientific studies of empathy investigated the relation of the sensory and affective experience of pain (Preckel et al., 2018). The study by Singer et al. (2004) in their landmark paper, put forward results from an fMRI study investigating the subjective experience of pain as well as the experience of seeing a loved one in pain. When experiencing sensory pain, the full pain-related network was activated however when seeing their loved one in pain, part of the same system activated as well. The results showed that participants witnessing their loved one in pain activates parts of the same pain-related network as when experiencing pain (sensory) themselves and that the response can be automatic. Thus, the empathic, affective experience of pain involves similar pain-related network as the sensory experience of pain (Singer et al., 2004).

Seemingly, empathic responses rely on both automatic bottom-up processes as well as top-down modulation (Gonzalez-Liencrez et al., 2013). The top-down process, which enables the capacity to regulate emotions in relation to interact appropriately with other people is an important aspect where neuroimaging studies can provide more information for a better understanding (Decety & Lamm, 2006). Empathic responses seem to be associated with neural both phylogenetically older and neocortical brain areas, suggesting that emotional contagion (the unconscious "catching" of another's emotional state) is a pre-cursor to more "higher-order" facets of empathy (Gonzalez-Liencrez et al., 2013).

Why is there empathy? Why do we empathise? It has been suggested that empathy might have evolved in parallel with parental care to ensure the survival of offspring as well as the promotion of cooperation and prosocial behaviour within in-group such as kin, relatives and individuals of the same group (Gonzalez-Liencrez et al., 2013). Empathy is thus suggested to have been favoured by evolution due to its contribution to genetic fitness (Decety & Batson, 2009). However, empathy in human is also seen across non-kin and even across different species (Decety & Batson, 2009).

Lesion studies are important to elicit potential differences between the healthy functional brain and the damaged brain, which in turn correlate to changes in behaviour. Studies have for example found structurally and functional abnormalities in schizophrenic patients connected to alterations a sub cortical area involved in error monitoring, self-other distinction and empathic perspective-taking (Krause et al., 2017). Moreover, empathy has been shown to be dysfunctional in psychopathy, where the individual has a cognitive understanding of emotions, but does not share them (i.e., not sharing the affect) (Gonzalez-Liencrez et al.,

2013).

As mentioned, results from behavioural and neuroscientific studies seem to show that empathy might lead to compassionate prosocial actions (Decety & Lamm, 2006; Decety & Yoder, 2016; Singer & Lamm., 2009). However, it can also lead to personal distress (Decety & Batson, 2009). For example, when individuals experience personal distress as a reaction towards witnessing another person in distress it might lead to an egoistic motivation to reduce it. In such cases a result can be behaviour of withdrawal further leading to a decrease in the likelihood of prosocial behaviour (Ashar et al., 2017; Decety & Yoder, 2016).

Altogether, even if many definitions of empathy differ somewhat from the fields of cognitive and social affective neuroscience, many seem to agree on empathy being neither good nor bad. Moreover, results point to the notion of empathic care (i.e., compassion) rather than empathic distress promotes altruism (prosocial motivation) (Ashar et al., 2017; Klimecki & Singer, 2012). Empathy, however, is the first step enabling us to connect with the affective and motivational state of others subsequently possibly transformed into compassion or empathic distress (Klimecki & Singer, 2012, p. 371). The type of response the individual subsequently engages in depends on context, personality, disposition, and emotion regulation ability (Klimecki & Singer, 2012). For example, empathic brain responses have been shown to be dependent of the perceived fairness in a situation. Empathic reactions were activated when a player was perceived playing fair but not when the player played unfair (Singer et al., 2006). Empathic responses for another in pain has further been shown to be dependent on whether a member is a part of one's in-group compared to an out-group member. Greater empathic responses were shown for the in-group member in pain. (Hein et al., 2010) Taken together, the mentioned studies point to empathy acting as a "gatekeeper" for prosocial behaviour, and moreover that the response depends on multiple factors such as fairness and context. Subsequent responses are either empathic distress or compassion. Emotional contagion, in turn, seems to be an important cue for the engagement of empathy (Klimecki & Singer, 2012). Compassion has been shown to be the facilitator of inducing positive affect, and facilitate pro-social behaviour (Klimecki & Singer, 2012). The next section will explore compassion from a cognitive and social neuroscience perspective.

3.2.6 The Social Neuroscience of Compassion

Most reviewed studies within the social work context used the framework compassion satisfaction (and compassion fatigue) related to burnout within the health care profession (e.g., Cuartero & Campos-Vidal, 2019; Hunt et al., 2019; Norrman et al., 2020). Compassion

satisfaction involves positive feelings, and satisfaction with one's work as well as the helping itself. Compassion fatigue is stated as the negative side of caring for others who has experienced trauma and results in negative feelings of being overwhelmed by work as well as fear of the work. (Stamm, 2010)

Another definition of compassion as a concept comes from the perspective of socio-affective neuroscience. Compassion is defined as "...a feeling of concern for the suffering of others that is associated with the motivation to help" (Kelner & Goetz, 2007 in Klimecki et al., 2013, p. 873).

If empathy enables the sharing of others' feelings (positive and negative feelings), compassion is a complementary social emotion. Compassion does not entail the sharing of negative affect, but rather elicits affect of care, benevolence, warmth, and concern for the one suffering (i.e., positive affect). Moreover, compassion includes a prosocial motivational aspect, where the motivation to alleviate the suffering and improve the others well-being is present. (Singer & Klimecki, 2014) Hence, even when exposed to another's trauma and suffering, compassion allows the listener to respond with positive affect.

Social neuroscience has provided evidence suggesting that the empathy and compassion activate distinct neural activity. As such, the response of empathy and compassion differ not only behaviourally but also on the neural level (Singer & Klimecki, 2014). As mentioned above, empathy for pain has been shown to activate brain regions connected to the affective component of pain (Singer et al., 2004). Contrary, compassion has been shown to activate brain regions previously shown to be associated with reward and affiliation. (Klimecki & Singer, 2012; Preckel et al., 2018) Moreover, studies have shown that certain type of mental training promotes the activation of neural networks associated with compassion (as well as love, and positive emotions). Further, such neural activation has been shown to take place even in distressful situations when participants has been exposed to the suffering of others. (Klimecki et al., 2013)

Arguing that compassion fatigue should be considered a form of pathological altruism because the consequence negatively affects the health of caregivers, Klimecki and Singer (2012) suggests compassion fatigue should be re-named empathic distress fatigue. Moreover, challenging the notion Figley (2002) gives of empathy being a main source of compassion fatigue, Klimecki and Singer (2012) presents neuroscientific results showing that compassion and empathy are different concepts (yet related). The results provide evidence for an integrative model accounting for underlying mechanisms of compassion fatigue. As a result, empathic distress rather than compassion fatigue is suggested to generate negative

consequences for the one witnessing another in suffering. Compassion and empathy are both affective responses, deeply intertwined, and compassion cannot be present without empathy enabling it. Empathy serves as a preliminary stage and compassion or empathic distress are two consequences that might follow, depending on several factors mentioned above (such as context, fairness, and situation). (Klimecki & Singer, 2012) Taken together, cognitive, and social affective neuroscience evidence suggests compassion to be promotive of positive states and as such contributing to mental health.

3.2.7 Empathy and Related Concepts of Dysfunctional Responses

Listening to others sharing their trauma has been suggested to cause a “second-hand” negative response to the listener. Hence, it has been deemed a risk factor for fatigue and exhaustion within clinical work. (Bride et al., 2007) Typically, the negative response is experienced when the listener is exposed to the trauma told by for example clients. Such response in the present reviewed literature was found to be referred to as *secondary trauma*, *compassion fatigue*, *secondary post-traumatic stress disorder* or *vicarious traumatization* (Kanno & Giddings, 2017; Wagaman et al., 2015). Witnessing the pain of others has also been termed *empathic distress* or *personal distress* (Davis, 1983; Klimecki & Singer, 2012; Thomas, 2013) The experience of witnessing, or hearing others sharing pain and traumatic experiences might be associated with feelings of burnout.

Burnout, in turn, can be harmful for the professional working in settings enabling the consistent exposure to the trauma of others. (Bride et al., 2007; Wagaman et al., 2015)

Secondary traumatic stress (STS) is forwarded as a condition characterised by fatigue, which might lead the professional to, in part, experiencing trauma when hearing or witnessing the accounts of trauma being shared from others. STS shares characteristics with post-traumatic stress disorder (PTSD) and can cause rumination, fear, physiological responses and flashbacks. Moreover, STS can affect sleep quality, agitation, and hypervigilance. Altogether, STS can affect interruption in the professional’s work as well be the source of much individual suffering. (Wagaman et al., 2015)

Compassion fatigue as a term was forwarded by Figley to describe STS in a more constructive, “user-friendly” way. As such, STS and compassion fatigue refers to the same phenomenon (Figley, 1995, in Bride et al., 2007) However, Norrman et al. (2020) distinguish compassion fatigue as arising negative feelings for not being able to alleviate the suffering. STS on the other hand is forwarded as caused by being indirectly exposed to trauma by hearing about it. (Norrman et al., 2020) Contrary, *compassion satisfaction* is considered one

aspect in professional quality of life and refers to the positive sense of satisfaction professionals experience when working with clients (Stamm, 2010).

Vicarious traumatization (VT) is another term referred to a consequence of empathic engagement with clients' traumatic experience. In turn, VC can result in a transformation in cognitive schemas as well as belief systems for the professional. VT can affect the professionals' sense of meaning, identity and world view, connection, and moreover interpersonal relationships, psychological needs, affect tolerance and sensory memory. (McCann and Pearlman, 1990 in Bride et al., 2007, p. 155)

Empathic distress and personal distress have been used interchangeably to describe the result of witnessing others in pain, in turn resulting in an aversive response to the observer (Davis, 1983; Singer & Klimecki, 2014; Thomas, 2013). Empathic distress is associated with burnout among professionals working with helping professions (Altmann & Roth, 2020; Klimecki et al., 2014). Personal distress (i.e., empathic distress) invokes negative feelings of distress when witnessing another's suffering. In turn, personal distress is hypothesised to evoke a self-focused egoistic motivation to alleviate one's own negative feelings rather than the individual in suffering. (Batson et al., 1987) Contrary, empathic concern is an other-focused response, a prosocial concern where the one witnessing the suffering of others wishes to alleviate the suffering (Davis, 1983; Thomas, 2013). Empathic concern has been termed compassion within socio-affective neuroscience settings. As mentioned above, compassion includes positive feelings of love, affiliation, and benevolence and the motivation to the alleviate the suffering of another (Preckel et al., 2018; Singer & Klimecki, 2014).

Burnout is a concept associated with empathy, yet distinct (Wilkinson et al., 2017). Burnout as a concept was introduced in the 1970s by Freudenberger (1974) and Maslach (1976) independently. Considering their experiences of employees' experience of stress in their work environment, Freudenberger and Maslach both suggested burnout to be especially prevalent among those employed or volunteering in work related to helping other people. Maslach defined burnout as "...a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind" (Maslach & Jackson, 1981, p. 99). Later, the definition of burnout was extended to include other professions outside of the human service sector: "...a state of exhaustion in which one is cynical about the value of one's occupation and doubtful of one's capacity to perform" (Maslach et al., 1996, in Shaufeli et al., 2009, p. 206). Burnout is conceptualised as being a consequence of internal reactions to external stressors (Wilkinson et al., 2017). Since the 1970s, thousands of papers and studies investigating burnout based on Maslach's definition have been published.

Maslach's definition of burnout has been considered by far to be the most adopted (Kristensen et al., 2005), also when burnout is investigated and assessed in human services (Wilkinson et al., 2017). Notably, the concept of STS resembles the concept of burnout. Seemingly, as shown by the meta-analysis investigating the coexistence of STS and burnout, results suggests that there is a high association, where the concepts share as much as 48% of the variance (Cieslak et al., 2014).

Others such as Kristensen et al. (2005) defines burnout as consisting of two core features: One being psychological and physical fatigue and exhaustion, and one being the attribution the individual makes of the experienced fatigue and exhaustion to areas of life such as work, and client-related work.

Taken together, secondary traumatization, burnout, compassion fatigue, empathic/personal distress, and vicarious traumatization appear to be closely related to social service work, and health care work. These concepts seem to a negative consequence particularly in a line of work where the professional meet and experience suffering i.e., are indirectly exposed to trauma. Even though the definitions on job burnout vary, there seems to be a consensus in the field related to the exhaustion component (Cieslak et al., 2014). However, compassion fatigue as a concept differs in that the emphasis is on a broad range of emotional and cognitive consequences of indirect exposure. Burnout, secondary traumatization stress, and vicarious trauma is related to organisational issues and workplace factors (Cieslak et al., 2014).

3.2.8 Emotion Regulation – Empathy Regulation?

Individuals with successful emotion regulation skills seems better equipped to down regulate potentially overwhelming negative emotions such as witnessing other's suffering (Decety & Svetlova, 2012). Moreover, when working professionally with caring for individuals that suffers, it seems that strategies enabling the professional to be fully present, promoting care and benevolence are rewarding for the professional, for the recipient as well as their relationship.

Empathy being the enabler of both compassion and prosocial activity – as well as empathic distress does not seem to have an ideal set point. Rather, being able to regulate the empathic response is needed when it becomes overwhelming, or when empathy *is* needed. One way to achieve a regulated empathic response is for example by practising interventions targeted at modulating the empathic experience. (Zaki & Ochsner, 2018). Therefore,

professional health care workers who have a line of work where they are exposed to the suffering of others will benefit from emotion regulation skills.

Experience seems to account for some effect in emotion regulation skills. For example, neuroscientific research has connected ToM abilities and experience (in working years) with adapted emotion regulation skills when seeing someone in pain. One study showed that physicians contrary to non-physicians experienced less empathic arousal in relation to perceived pain, and greater cognitive regulation of the emotional response (Decety et al., 2014). Further, studies have shown that more experienced physicians are better at regulating their own emotional response (Altmann & Roth, 2020; Decety et al., 2014). As such, working experience might provide professionals with emotion regulation skills.

Other factors affecting emotion regulation skills are mental practises such as contemplative meditation (for a recent review see e.g., Conversano et al., 2020). Research has shown that interventions targeted at fostering compassion (such as loving-kindness meditation) seems to increase positive affect even when exposed to the suffering of others (Klimecki et al., 2013). Thus, emotion regulation- and compassionate skills seems to bestow many mentioned advantages, which in turn foster the important relational bond within clinical and professional settings and moreover the professional's well-being. Next section will more in-depth review research on interventions, and practises that has been shown to positively affect mental well-being, even in response to difficult, negative emotions.

3.2.9 Contemplative Practises – Meditation and Mindfulness

In the last decades, researchers have been interested to see whether it is possible to mentally train cognitive and social abilities such as cognitive perspective taking (ToM), empathy, and compassion. Further, specific interest has been on whether mental training will affect brain structures and if these changes are associated with behavioural outcomes. Recently, it has been shown that mental contemplative practices such as meditation seem to promote structural changes in the brain (i.e., brain plasticity – reshaping of the brain) for socio-affective and cognitive-affective neural networks respectively (Trautwein et al., 2020; Valk et al., 2017). Moreover, these changes seem to affect the behavioural outcome related to the different targeted mental training. As such, results seem to support the possibility to train cognitive (ToM) and affective (compassion) abilities and competency, which in turn has been shown to result in behavioural outcomes (Valk et al., 2017). Even if these results should be considered preliminary, for example Valk et al. (2017) concluded that different types of mental training techniques affected the underlying brain structures. This in turn is supporting

the notion that distinct neural networks exist for socio-cognitive abilities and socio-affective abilities.

Researchers has suggested that compassion fatigue (empathic distress) is inevitable and considered inherent to the helping process (e.g., Cuartero & Campos-Vidal, 2019; Figley, 2002). Empathy is indeed essential for successful social interactions such as in the helping relationship. However, because one consequence of empathy – empathic distress – has been suggested to be detrimental and possibly a source of burnout, studies of potential ways of coping is of importance. Compassion has been suggested to foster emotional well-being, even when exposed to another's suffering (Klimecki et al., 2013, 2014) For example, studies have investigated how different mental training techniques affect how participants rate video depicting suffering or everyday habitual behaviour (Klimecki et al., 2013, 2014). Participants trained empathy by way of empathic resonance where the focus was to resonate with suffering. Compassion training was practised by way of contemplative techniques aimed at consciously cultivating feelings of benevolence and friendliness. Compassion training includes a core structure of extending feelings of benevolence and friendliness towards loved ones as well as all of mankind (i.e., in-groups as well as out-groups). A control group practised memory training techniques. All groups were scanned watching videos using fMRI and all participants rated negative and positive affect. Results showed that the empathy training group showed an increased level of negative affect in relation to videos depicting suffering. Moreover, these videos activated brain areas associated with empathy for pain. Subsequently, the empathy training group practised contemplative compassion training. After compassion training, self-reports indicated an increased level of positive affect, and furthermore reversed the increase in negative affect in relation to videos depicting suffering. Brain areas associated with affiliation, positive affect and reward was activated. The authors concluded that empathy training in empathic resonance for suffering increased negative affect. Compassion training counteracted the negative effect as well as increased positive affect even when exposed to suffering. As such, compassion training was suggested to be a potential strategy to down-regulate the negative effect of empathy (empathic distress) and hence a potent strategy for preventing for example burnout (Klimecki et al., 2014, p. 878).

A meta-analysis of other mental training techniques in relation to professional health care workers is forwarded by Conversano et al. (2020). For example, the practice of mindfulness, which has been defined as "...the awareness that arises by intentionally paying attention, in the present moment and in a non-judgemental way, to the flow of experience" (Kabat-Zinn, 2003, in Conversano et al., 2020, p. 2) is presented. Mindfulness can be practised by way of

contemplative meditation and psycho educational exercises. These practices is all considering the importance of the subjective observation of emotions, physical sensations, and thoughts in the moment. Seemingly, mindfulness is a strategy helpful in reducing stress, anxiety, and depressive symptoms and towards fostering quality of life by way of increased attention, cognition, physiological processes, and behaviour. Mindfulness is forwarded as a way of reducing negative affect, and compassion as well as self-compassion (compassion towards oneself), to foster positive emotions. The meta-analysis found that effective ways of preventing or mitigating burnout was amongst more: mindfulness interventions, fostering compassion and compassion satisfaction using mindfulness, meditation and yoga and further compassion-related interventions. (Conversano et al., 2020)

3.3 Employed Research Designs, Methods and Assessments

Below, I will forward the most commonly employed research design, methods and assessment based on the literature review.

3.3.1 Research Designs

Both qualitative and quantitative, and mixed-methods approaches has been used in the reviewed studies. For example, one qualitative Swedish study investigated eight Swedish clinical psychologists' experiences of compassion fatigue. Results indicated that all eight participants had experienced compassion fatigue. The participants associated compassion fatigue to a large quantity of patients, high expectations from others, and complex cases. Protective factors mentioned was collegial support, agency at work, meaningful activities during leisure time and having an understanding, empathic boss (Norrman et al., 2020). Quantitative studies have tested hypothesis of the association of empathy and burnout using different sample populations such as social workers (Cuartero & Campos-Vidal, 2019; Thomas, 2013), clinical health professionals (Hegel et al., 2021), and mental health professionals (Kanno & Giddings, 2017). Moreover, mixed methods design has further been used in investigating the impact of stress and the coping strategies used amongst helping professionals (Howard & Navega, 2018). Quantitative experimental designs have been used to investigate underlying neural network associated with empathy and compassion, as well as brain plasticity when consciously training empathy and compassion (see e.g., Klimecki et al., 2013, 2014).

3.3.2 *Burnout Assessments*

Maslach and Jackson (1981) developed a scale to assess burnout syndrome in human service workers and The Maslach Burnout Inventory (MBI) was presented (Maslach & Jackson, 1981). Burnout, measured by the MBI is defined by the following three dimensions: exhaustion, cynicism, and inefficacy (Maslach et al., 2001). The MBI is the most employed scale when assessing burnout (Grossi et al., 2015; Kristensen et al., 2005).

In 1997, the longitudinal study PUMA (Project on Burnout, Motivation, and Job Satisfaction) was initiated by the Danish National Institute of Occupational Health to study the number of long-term sick leave and early retirement in the human service sector that were increasing. Criticising the theoretical foundation of the MBI, the research team decided to develop a new scale to measure burnout among human service workers. The Copenhagen Burnout Inventory (CBI) was developed and presented (Kristensen et al., 2005). It should be mentioned that in response to the critique as put forward by Kristensen et al. (2005), Shaufeli et al. (2009) states that the pure theoretical framework underlying the CBI is missing how the MBI came to be – the iterative process that came from extensive, in-depth interviews.

The core of burnout as measured by the CBI is fatigue and exhaustion. However, Kristensen et al. (2005) elaborates that burnout is more than fatigue and exhaustion. The authors state “...the additional key feature is the *attribution* of fatigue and exhaustion to specific *domains* or spheres in the person’s life” (p. 197). For example, the CBI measures the domain work (work-related burnout) as well as the specific work domain including clients (client-related burnout). In line with the present thesis theoretical focus, the CBI rests upon theories which explains the way individuals perceive, interpret, and understand the psychological and bodily reactions. Kristensen et al. (2005) provides a background of the underlying theories. These theories contend that when individuals experience a psychological or bodily reaction, such as exhaustion, they want to explain and understand in relation to what they already know (a pre-existing cognitive schema i.e., mental representation). By way of causal attribution in relation to what is perceived (in connection to existing cognitive schemata), the individual will need to understand, predict, and control what is undergoing as well as wanting to understand why. The final theoretical underpinning is in line with Alonzo’s situational model of illness (Alonzo, 1979, in Kristensen et al., 2005). In line with the model, the authors acknowledge that burnout might not be a static phenomenon but rather change over time and be influenced by the individual. Burnout is suggested to be able to change for the better and as such not unavoidable or altogether a negative process in a one-

way process of bad to worse (Kristensen et al., 2005). I will now present the three parts making up the CBI.

The CBI includes three sub-dimensions measuring different dimensions of burnout: Personal burnout, client-related burnout, and work-related burnout. *Personal burnout* is defined as "...the degree of physical and psychological fatigue and exhaustion experienced by the person" (Kristensen et al., 2005, p. 197). As such, the subscale can be used irrespective of occupational status among for example unemployed, students as well as pensioners. *Work-related burnout* is defined as "The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work" (Kristensen et al., 2005, p. 197). As such, the way the individual attributes the symptoms as a part of her work. Work-related burnout can be compared to personal burnout to explore whether the individual attributes fatigue and exhaustion to the work, or to non-work factors outside of work. The primary focus in the present study is the subscale measuring *client-related burnout*. It is defined by Kristensen et al. (2005) as "The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients" (p. 197). Clients can be exchanged for patient, recipient etc. however the main idea is to assess the individual's attribution of the fatigue and exhaustion in relation to meeting people in their line of work.

3.3.3 *Empathy Assessments*

The most employed scale to assess empathy is Davis' (1980, 1983) Interpersonal Reactivity Index (Chrysikou & Thompson, 2016). Consisting of four subscales asking respondents to assess Empathic Concern (EC), Personal Distress (PD), Perspective Taking (PT), and Fantasy (FA). Empathy is considered a multidimensional construct rather than a single, unidimensional concept, and measures four dispositional tendencies all related yet discernible from each other (Cliffordson, 2002; Davis, 1983). IRI has been used to measure affective empathy (EC and PD) and cognitive empathy (PT). However, research has suggested that such a two-factor model has a poor fit (Chrysikou & Thompson, 2016). Contrary, research has also suggested that the IRI subscale PT reflects a cognitive component of empathy. EC has been questioned to whether it in fact measures the concepts of sympathy or compassion, however a factor analysis showed it was closely conflated with affective empathy (Altmann & Roth, 2020; Baldner & McGinley, 2014). EC has been suggested to be seen as a more general measure of concern for others (Jordan et al., 2016).

Both Chrysikou and Thompson (2016) and Baldner and McGinley (2014) suggests more research is needed to determine which construct of empathy different assessments of empathy do measure.

3.4 Controversies and Inconsistencies

Quite opposing standpoints regarding the association between empathy and burnout are forwarded depending on what framework and conceptualisation that have been used. The direction of the association of empathy and burnout varies depending on the framework used to define empathy. For example, Wagaman et al. (2015) and Wilkinson et al. (2017) forwards findings showing that empathy components may reduce or prevent burnout. Further Wagaman et al. (2015) conclude the need of more empathy training in social work education and during the social worker's career. In contrast, other studies shows that empathy is associated with burnout (Andreychik, 2019; Thomas, 2013). Neuroscientific findings have shown research suggesting that empathy training in fact is associated with empathic distress (Klimecki et al., 2013, 2014). Moreover, rather than empathy training, compassion training is associated with compassion, which in turn seems to downregulate the aversive response stemming from empathy training (Klimecki et al., 2013, 2014).

As forwarded above, reactions of witnessing others in pain and distress can result in consequences possibly detrimental to health, such as burnout. However, the research on the role of empathy and empathic response suffers from a divided nomenclature. The direction of the association between empathy and burnout is therefore hard to make (Altmann & Roth, 2020). Therefore, it is important to clearly state which definition and what type of framework is being used.

3.5 Relevance for the Present Study

Taken together, from the review of concepts and study findings above, there seems to be consensus regarding the potential risk being a professional health care worker can pose for one's health. Further shown by the literature review, the research fields of empathy and burnout suffers from a divided nomenclature, and concept confusion. Associations between empathy and burnout are hard to make (Altmann & Roth, 2020). Therefore, it is of importance to forward what is being measured, how, and from what perspective.

In the reviewed literature, empathy is described to be a key concept when it comes to understanding others i.e., essential when working as a professional health care worker. The empirical study to be described below benefits from the inclusion of a social cognitive

neuroscience perspective, and cognitive psychology as the study population acts within social structures. These perspectives can give new insights towards constructive ways of working with what promotes health in the workplace, informing practice that will benefit individual and societal health. For example, according to Cuartero and Campos-Vidal (2019), empathic attitude comes with an unavoidable physical and emotional cost should the professional health care worker want to ensure an efficient practise. According to results forwarded by the perspective of social-cognitive neuroscience, compassion has been shown to act as a buffer against the negative effect of empathic distress (see e.g., Klimecki et al., 2013). Several studies have argued for a review of the concept of empathy being neither good nor bad though the consequences of empathy can result in two subsequent responses: empathic distress – detrimental to health and an egoistic tendency to alleviate one’s own suffering; and compassion – protective towards empathic distress as well as promotive of prosocial behaviour (Klimecki et al., 2013; Klimecki & Singer, 2012; Preckel et al., 2018).

To the best of my knowledge, no study has used the IRI and the CBI to investigate associations between burnout, empathy, compassion, and ToM (Theory of Mind). As such, using the mentioned assessment to investigate if self-assessed levels of empathic distress and ToM is associated with burnout, and further whether compassion acts as a protective buffer against burnout can provide new insights in identifying health factors and risk factors within the health care profession. As such, in relation to measurements of burnout, the present study will use the CBI to assess burnout. Sweden and Denmark are culturally more alike than Sweden and the U.S. For example, Sweden and Denmark share similar welfare systems and public health policy. As mentioned above, Swedish agencies has forwarded reports showing the same “trend” of burnout increase among health care workers (e.g., Arbetsmiljöverket, 2020; Folkhälsomyndigheten, 2019a; Folkhälsomyndigheten, 2019b; Försäkringskassan, 2020). Because the current study’s population is Swedish, investigating professionals in similar work sectors, a decision was made to employ the CBI instead of the MBI. Therefore, the definition of burnout in the current thesis is based on the definition as put forward by Kristensen et al. (2005).

In a broad sense, burnout as defined by Kristensen et al. (2005) and empathy as defined by Davis (1983) captures aspects of social cognition and as such matches the definition of empathy used in the present thesis (as forwarded by de Vignemont & Singer, 2006). Compassion as considered by Singer and Klimecki (2014) is captured by the subscale Empathic Concern in the IRI.

In the area of psychology and within social work settings where health promotion at work should by Swedish law be present, neuroscientific results have contributed to theories and hypothesis to be challenged and developed. It has been argued that social theories and affective- and social neuroscience theories possibly can strengthen each other (Verweij et al., 2015). For example, Verweij et al. (2015) argue that social sciences can be supported by social and affective neuroscience by offering additional assessments of concepts and theories regarding emotion, social behaviour, cognition, and decision making (Verweij et al., 2015). As shown in the literature review, such contribution is for example that empathy might come with a cost – empathic distress. Moreover, compassion may have a buffering effect, contributing to health even when exposed to suffering.

3.6 Summary – Earlier Research

Based on the reviewed literature from the systematic narrative literature review it can be concluded that there has been a vast amount of research studies investigating the association of empathy and burnout. Extensive research from different fields using different populations has aimed at understanding the consequences of what happens to the professional health care worker exposed to the suffering of a client/patient on the job. Based on the literature review, it can be concluded that the research field of empathy suffers from a divided nomenclature. Furthermore, several studies stress the need for the researcher to define the construct being measures (such as empathy and how empathy is defined).

There seems to be a consensus regarding that professional health care workers are an exposed group suffering from risk factors associated with burnout.

Having empathy has been shown to be an essential part of qualitative care by for example increasing patient satisfaction, affect clinical outcomes positively as well as patients' adherence to medical recommendations (Decety et al., 2014; Ekman & Krasner, 2017). Professional health care workers are engaged in helping people in need – a prosocial motivational psychological process including positive feelings. At the same time the opposite psychological process of witnessing the distress of others might lead to an aversive response, possibly leading to the distress of the professional health care workers (Jensen et al., 2020).

4. Theoretical Tool for Analysis

Theories are an important because they provide a frame of reference of how social phenomenon including research findings can be interpreted (Bryman, 2016). Below, I will describe theories relevant for the interpretation and understanding of the effect empathy and

compassion have on burnout for health care workers. The theories will provide a theoretical tool for the analysis of earlier research as well as the research findings of the present thesis.

4.1 The Bio-Psychosocial Model

Humans exist in a complex world and multiple factors affects an individual's overall health and well-being. The *biomedical model* of health is criticised to only acknowledge well-being as the absence of disease and/or illness (Naidoo & Wills, 2016). The biomedical model assumes that individuals are mere recipients of disease, and that medical treatment is necessary to return health. Contrary, the *bio-psycho-social model* (Engel, 1977) rests on the assumption that areas within the biological, psychological, and social dimensions overlap in affecting health. The bio-psycho-social model is often used as a perspective within for example social work because it incorporates biological, psychological, and social factors and assume they are inter-related. (Parrish, 2014)

Biological characteristics refer to the individual's genetic predisposition and biology of for example the brain. *Psychological* factors refer to thoughts and actions, stress as well as health beliefs. *Social* conditions refer to for example the environments around the individual, family relationships, support and cultural influences (Gazzaniga et al., 2013). The bio-psycho-social model assumes health to be a holistic concept, based on the different dimensions and their interaction (Naidoo & Wills, 2016). This is in line with the very well cited notion from the World Health Organization [WHO]: "health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (p. 100). As such, the many factors within the respective dimensions provides information important to enable an inclusive, holistic pursuit of health.

4.1.1 Biological – The Brain and Biological Information

Humans are a social species and social abilities assists in allowing us to process complex social signals (Preckel et al., 2018). All such abilities are underpinned by neural activity. Neurochemistry and brain structures such as the brainstem and the brain hemispheres as well as sub-cortical structures such as the amygdala, the insular cortex, cingulate cortex and thalamus allows the inner world to assist, survive, and make sense in living in the outer world. (Parrish, 2014) The human brain enables the ability to experience emotions, thoughts, memory, sight, touch, hearing as well as pleasure and pain (Parrish, 2014). In other words, the human brain enables intra- and inter-personal relations.

When exposed to factors inducing stress, humans can suffer from burnout. Highly stressful work environment is associated with physical ill health such as infectious conditions, coronary heart disease, and compromised immune system functions. Further, stress has been shown to be associated with depression and anxiety. (Parrish, 2014, p. 23) Generally, burnout refers to physical and psychological exhaustion and fatigue i.e., exhaustion of the body and the mind (Kristensen et al., 2005). Biological information forwarded from for example brain imaging in relation to behavioural states and subjective experience provides in-depth information of underlying neural correlates. In turn, such information is adding to the puzzle of what contributes to factors affecting our ill-health and factors affecting our health and well-being.

Empathy as a part of socio-affective processes has been suggested to enable relational bond but also possibly be detrimental to health. Compassion as a part of socio-affective processes has been suggested to contribute to good health and moreover beneficial for relational bonds. (See e.g., Singer & Klimecki, 2014) Burnout has been suggested to be a result of prolonged stress, causing exhaustion and fatigue altogether detrimental to mental and physical health (see e.g., Cieslak et al., 2014; Kristensen et al., 2005). Biological underpinnings of the mentioned concepts can provide important information helpful towards facilitating health promoting factors essential for vulnerable individuals such as health care workers. Knowledge of biological underpinnings such as how the biology of the mind (e.g., empathy and compassion) underlies behavioural outcomes (e.g., such as burnout) is such important information. However, biological information (e.g., neuro-affective, and neuro-cognitive information) is informative yet alone insufficient (Decety & Svetlova, 2012). According to Parrish (2014) "...biological factors would need to be balanced by attention to psychosocial dimensions such as cognitive and environmental factors" (p. 125). The human brain, body and behaviour is complex, and humans live in a complex external world. Many different factors are assumed to affect health and ill-health, as is captured by the bio-psychosocial model. In the next paragraph, I will forward accounts of how psychological and social dimensions can help creating a framework of interpretation of holistic health.

4.1.2 Psychological – Cognitive Theory, Cognitive-Behavioural Perspective and Social Neuroscience

Cognition broadly refers to "...mental activities involved in acquiring, interpreting, and retaining information, as well as the thoughts and beliefs that results from those processes" (Parrish, 2014, p. 106). Cognitive theory assumes that the individual's behaviour and

experiences are influenced by the interplay of thoughts, beliefs, and interpretations. Cognitive behavioural theory assumes behaviour to be something learned, and as such behaviour can be reinforced, modulated, and manipulated to be re-learned, adapted or changed for the better. (Parrish, 2014) Re-learning, adapting, and changing the behaviour for the better should thus result in different behavioural outcomes.

Cognitive neuroscience refers to the combination of *cognition* (broadly put, the process of knowing) and *neuroscience* being the study of the nervous system. In other words, cognitive neuroscience refers to the study of "... understanding how functions of the physical brain can yield the thoughts and ideas of an intangible mind" (Gazzaniga et al., 2009, p. 3). Cognitive neuroscience is the combination of the study of psychology and its theories, and neuroscience – the study of the physical brain (Gazzaniga et al., 2009). *Social neuroscience* is a sub-discipline, which specifically investigates the mechanisms underlying social understanding. In other words, social neuroscience aims at elucidating neural correlates of how humans feel with (named the affective route) and know about others (named the cognitive route). (Tholen et al., 2020) Verweij et al. (2015) argues that knowledge and evidence from social and affective neuroscience can support social sciences by way of offering additional assessment regarding social behaviour, cognition, emotion, and decision making. In turn, social theories can support and help specifying neuroscientific models by way of using social frameworks of social phenomenon from example sociology research (Verweij et al., 2015).

To successfully navigate in the social world (such as in the workplace, engaged in client and patient interaction), the ability to utilize functions to perceive, interpret, share, retain information and understand others' affective states is essential. As such, socio-affective, and socio-cognitive abilities, and competencies such as empathy, compassion and ToM assists the forming of inter-personal relations and interaction. (Decety & Svetlova, 2012). Since the purpose of the present study is to investigate whether empathy predicts burnout for health care workers and further, whether compassion acts as a buffer against burnout, the combination of the mentioned theoretical perspectives serves as a good fit. Moreover, the assessments used are grounded in the psychological framework, which in turn translates to the social neuroscience perspective, which in turn support the psychological framework with forwarded important research findings of underlying brain activity.

However, it should be mentioned that the cognitive perspective has been criticized to be lacking the consideration of social factors (Parrish, 2014). Because the present study includes professional health care workers whom in their line of work has been shown by research to

be vulnerable to burnout, the social environment is essential to acknowledge. I will discuss the impact of health promotion in the working life and workplace settings below.

4.1.3 Social – Workplace Settings and Health Promotion

According to Naidoo and Wills (2016), the workplace itself and context around the workplace can significantly affect the employee's health. Moreover, the workplace is considered a social system that can contribute health or ill health (Naidoo & Wills, 2016). Considering the present study's population is professional health care workers working in a context where the employee is consistently exposed to other's suffering on the job (a risk factor for burnout), a workplace which promotes health is crucial. According to Naidoo and Wills (2016), the workplace is a key setting for health promotion. However, work, and ill health has not been established as having a direct link, which is why the inclusion of biological and psychological factors complement the social system perspective. Together, the biological and psychological dimensions can inform practice towards health promotion in workplace settings shown to be a potential risk for burnout amongst health care workers. In the present thesis, the social dimension within the bio-psychosocial framework will relate to settings for health promotion, namely the workplace. According to Naidoo and Wills (2016), the workplace is an ideal place to facilitate health promoting programs.

Taken together, the bio-psychosocial model captures three dimensions consisting of theories that together will contribute to a holistic understanding of health. The theories provide a theoretical lens, by which the primary data results and earlier research will be analysed through, and further discussion based upon.

5. Material and Methods

5.1 Literature Review

In order to systematically review previous research on the topic of empathy, burnout, and compassion amongst health care workers, a narrative literature review was conducted. Four different databases were browsed – Web of Science, Sociological Abstracts/Social Science Abstracts, SocIndex, and PsychInfo – to include publications from the field of social work and psychology/neuroscience. Search blocks, inclusion criteria filter, and practical browsing of abstracts and subsequently reference lists resulted in 63 papers, which the chapter “Earlier Research – A Literature Review” is based upon. Inclusion criteria included that the papers were in English or Swedish, peer-reviewed, published in scholarly journals, available in open

access and published within the last 10 years (see Appendix for more details of the systematic search process relating to inclusion criteria, search terms and search blocks in respective database). All search blocks were guided by the current thesis research questions and sample population, which further guided the selection of which papers were included.

To provide a first general overview of the extent of research in the area, a first search included the search terms “empathy” and “burnout” (or “burn-out”). Subsequent search blocks included search terms “professional health care workers” as well as common terms for employees working professionally with caring for others, and synonyms for burnout such as “exhaustion” and “fatigue”. Guided by the second research question, the term “compassion” was added to a second general search and subsequently followed the same search method as the first search block.

Boolean operator “AND”, “OR” and brackets was used to narrow and specify the search. Subsequently, a practical browse of abstracts guided by the research questions generated the final pool of publications the chapter “Earlier Research – A Literature Review” is based upon. Further, a practical browse of the selected papers’ reference lists was conducted, and relevant publications were added in the chapter. Guided by Bryman (2016), the literature review was further divided in appropriate headings and subheadings.

5.2 Study Design

The study to be described is a cross-sectional, within-group survey study. To serve the purpose of the study and answer the posed research questions, a quantitative explorative approach is used.

5.3 Ethical Dilemmas

The study was approved by the local ethical board of University of Gävle and informed consent was obtained from all participants. Information was put forward, including the general purpose of the study as well as that participation was voluntary and could be interrupted at any time, without any consequences. In line with guidelines of the European data protection regulation (General Data Protection Regulation [GDPR]) all information which can be connected to an individual should be protected. As such, a decision was made to create a public survey to ensure no individual participant can be traced to the survey. A decision was further made to collect as little personal data as possible to protect the anonymity of the participants. Personal data such as name, social security number or place of

residence was therefore not included as demographics.

5.4 Procedure

All scales of assessments, to be described below, were included in a self-administered online survey. A pilot-test of the questionnaire was performed by six individuals who gave feedback of any potential unclarities. No unclarities of the employed assessments were reported and as such the original assessments were distributed.

Opportunity sampling was employed using social media web pages, such as Facebook, targeting specific groups such as social workers and psychologists. Members of user groups were invited to take part in the study. The invitation included general information and a link directing them to the survey. An invitation to participation was also sent to managers in Uppsala and Lidköping municipality. Two managers distributed an invitation including information regarding the purpose of the study to the employees' e-mail. The invitation included a link directing them to the survey. The survey was available, and data collected between 2019-04-03 and 2019-04-24.

5.5 Participants

Participants included a total of 114 individuals. Because the study investigated professionals' burnout in relation to working with clients/patients, exclusion criteria were set to:

- being on sick leave or leave more than 6 months (less contact with clients/patients),
- in contact with clients/patients less than 5 hours/week (less contact with clients/patients),
- job assignments not including interactions with clients/patients.

As a result, a total of 9 respondents were excluded for having less than 5 hours of direct contact with clients/patients or for having work assignments not including interaction with patients. Moreover, when controlling for outliers, two were found and excluded in the subscale Empathic Concern (EC). Thus, the sample consisted of a total of $n = 105$ participants in all scales except for EC consisting of a total of $n = 103$. Descriptive statistics can be found in Table 1.

5.5.1 Demographic Questions

The participants were informed to indicate age, gender, educational level, area of practice (such as hospital/health centre), years of experience within the stated area of practice,

profession (e.g., such as nurse, counsellor, social worker), years of experience within the current workplace, and hiring in percentage, whether work included shift hours. The participants were further instructed to estimate the extent of direct contact with patients/clients during a normal work week, number of sick days during the last 12 months, and if any leave was undergone during the last 12 months.

5.6 Measurements

Measurements included self-report assessments as collected by an online survey. The assessments measured burnout (personal, work-related, and client-related), empathy (personal (empathic) distress (i.e., affective state), perspective taking (ToM) (i.e., cognitive state), and compassion (empathic concern (i.e., affective state).

5.6.1 Copenhagen Burnout Inventory (*Outcome Variable*)

Burnout was measured using a Swedish version (Arneson et al., 2000 in Liljegren, 2008) of the Copenhagen Burnout Inventory (CBI: Kristensen et al., 2005). The measurement was developed for the Project on Burnout, Motivation, and Job Satisfaction (PUMA), a longitudinal, prospective study investigating burnout in employees in the human service sector (Kristensen et al., 2005). Denmark shares cultural characteristics with other Scandinavian countries such as Sweden. Therefore, the CBI should have a good fit when used in the current study employing a Swedish population.

The CBI consists of three subscales measuring burnout. *Personal Burnout* includes six items on general symptoms of exhaustion and applies to all individual working or not such as unemployed, young people, early retired and pensioners. Personal burnout is defined in the following way: “personal burnout is the degree of physical and psychological fatigue and exhaustion experienced by the person” (Kristensen et al., 2005, p. 197). Example items are for example: ‘How often are you physically exhausted’, and ‘How often are you emotionally exhausted’. *Work-Related Burnout* includes seven items on exhaustion related to work generally hence applies to all individuals engaged in paid work. Work-related burnout is defined in the following way: “The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work” (Kristensen et al., 2005, p. 197). Example items are for example: ‘Is your work emotionally exhausting’, and ‘Do you feel worn out at the end of the working day’. Comparing the results on the personal burnout and work-related burnout enables the possibility to identify individuals who are exhausted and attributes the exhaustion to work or other non-work factors. *Client-Related Burnout*

includes six items related to symptoms of exhaustion for individuals working with clients. It is defined in the following way: “The degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients” (Kristensen et al., 2005, p. 197). The survey informed the respondent to exchange *client* to whatever term was suitable for the work (such as patient, recipient etc.). Example items are for example: ‘Does it drain your energy to work with clients’, and ‘Do you feel that you give more than you get back when you work with clients’.

The score on each question for each respective subscale ranges from 0-100 where 0 is “never” and 100 is “always” or “to a very high degree”. The total score on each subscale was calculated to extract a total mean score for each subscale ranging from 0-100 (see Table 2). The higher the score indicated a higher level of burnout. The scales have been found to have a good internal reliability with Cronbach’s alpha of α .87 for Personal and Work-Related Burnout respectively and α .85 for Client-Related Burnout (Borritz et al., 2006; Kristensen et al., 2005). The scales have been found to have good predictive validity ($p < .001$) of burnout and association with job satisfaction, sickness absence, use of medicine, sleep problems, and intention to quit the job (Kristensen et al., 2005, p. 205). The scales have been used in studies with social workers (e.g., Borritz et al., 2006; Walters et al., 2018), nurses (e.g., Montgomery et al., 2021), as well as people engaged in work in close proximity to clients/patients (see e.g., Caesar et al., 2020; Reis et al., 2018). Cronbach’s alpha in the present study showed good internal reliability with α .87 for Personal Burnout, α .86 for Client-Related Burnout and .88 for Work-Related Burnout.

5.6.2 Interpersonal Reactivity Index (Predictor Variable)

Empathy was measured using the Interpersonal Reactivity Index (IRI; Davis, 1980, 1983). The scale was developed to employ a multidimensional approach to measure both cognitive empathy and affective empathy since most scales at time measured either or. The IRI consists of four subscales with seven items respectively measuring four separate dimensions of empathy together forming a 28-item scale. All items are mixed to create one single scale, with 7 statements per respective subscale. The respondent indicated on a 5-point Likert scale for each item from A-E where A “does not describe me well” and E “describes me very well”. The subscales are rated in the following way: A=0, B=1, C= 2, D=3, E=4 except for the reverse coded items which are rated the following way: A=4, B=3, C=2, D=1, E=0. The

range of the score is from 0-28 where a higher score indicates higher level of the respective dimension of empathy (i.e., the different subscales).

IRI consists of the following subscales. *Empathic Concern* (EC) measures compassion and concern for suffering others. Example items are for example: ‘When I see someone being taken advantage of, I feel kind of protective towards them’, and ‘I often have tender, concerned feelings for people less fortunate than me’. *Personal Distress* (PD) measures feelings of personal unease and suffering within an interpersonal setting (i.e., empathic distress). Example items are for example: ‘When I see someone who badly needs help in an emergency, I go to pieces’, and ‘I sometimes feel helpless when I am in the middle of a very emotional situation’. *Perspective Taking* (PT) measures the cognitive aspect of taking the other person’s view into consideration (i.e., ToM). Example items are for example: ‘I sometimes try to understand my friends better by imagining how things look from their perspective’, and ‘When I’m upset at someone, I usually try to “put myself in his shoes” for a while’. *Fantasy* (FA) measures the tendency of the respondent to imagine herself into the feelings and actions of fictional characters. As such the first two subscales, EC and PD, measures the affective dimension of empathy and two latter subscales, PT and FA measures the cognitive dimension of empathy. Because FA is irrelevant for the purpose of this study, it was excluded from the analysis. Moreover, several studies have questioned the relevance of the FA scale when measuring empathy (see e.g., de Corte et al., 2007; Lawrence et al., 2004). As a result, the following three subscales were included in the analysis: EC, PD, and PT.

IRI has been found to have satisfactory internal reliabilities ranging from α .71 to .77 as well as satisfactory temporal stability with test-retest reliabilities ranging from .61 to .79 (males) and .62 to .81 (females) (Davis, 1980). Recent studies based on for example a Dutch version of the IRI reported psychometric properties suggesting the IRI to be a useful measurement of self-reported empathic tendency among Dutch (de Corte et al., 2007). The Swedish version of the IRI (Kulich & Bengtsson, 1997 in Cliffordson, 2001) used in the current thesis was found to have psychometric properties comparable to Davis’ (1983) original version with alpha reliabilities ranging between α .74 to .80 (Cliffordson, 2001, 2002). Cronbach’s alpha in the present study showed good internal reliability with α .71 for Empathic Concern (EC), α .73 for Perspective Taking (PT) and .74 for Personal Distress (PD).

5.7 Statistical Analysis

IBM SPSS Statistics Version 27 software was used for analysing the data. The sample characteristics were described using means and standard deviations (SD) for continuous variables, and frequency and percentage for categorical variables (see table 1 and table 2). Burnout (as measured by the three subscales of Copenhagen Burnout Inventory) was the dependent variable (outcome variable). Empathy (empathic distress as measured by Interpersonal Reactivity Index's subscales Personal Distress, and ToM as measured by the subscale Perspective Taking), and Compassion (as measured by the Interpersonal Reactivity Index's subscale Empathic Concern), Hours/week in direct contact with clients/patients, Years of Experience in the area were the independent variables (predictor variable). The sample consisted of mostly women ($n = 92\%$) and as such gender was not included as a predictor variable in the analysis. However, women in the health care sector makes the largest group in the Swedish labour market (Försäkringskassan, 2018), and as such the sample reflects reality.

A Shapiro-Wilk test of normality, Q-Q Plots, and Boxplots showed a strong indication of a normal distribution with z-scores within the range of ± 1.96 and as such parametric tests were applied. Pearson's correlation (r) was undertaken to analyse potential correlations between the predictor variables and the outcome variables. Multiple regression analysis was undertaken to test the following research questions: Is the proportion of variance of burnout (as measured by the three subscales of burnout: Client-Related, Personal, and Work-Related) predicted by the empathy subscale Personal Distress and Perspective Taking? The Multiple regression analysis included unadjusted variables (model 1, see table 3) and adjustment for covariates (model 2, see table 3). To test the research questions, multiple linear regression was performed in two steps: 1) by entering Client-Related Burnout as the dependent variable and Empathic Concern, Personal Distress, and Perspective Taking as the independent variables 2) additionally entering Hours/week in direct contact with clients/patients, and Years of Experience. In each model, the b-coefficient, standard error (SE), and p-value was determined.

Moreover, analysis was applied to test whether Compassion (as measured by the IRI subscale Empathic Concern) has a buffering effect on burnout.

5.7.1 Statistical Considerations

One problem is that of multiple comparisons, increasing the risk of getting significant results by chance (type 1 error). On the other hand, this study has a considerable sample ($n = 105$) to increase power to detect differences (and lower the risk to make type II error).

Significance at $p < 0.05$ is assumed throughout.

6. Results

Descriptive statistics are presented in Table 1 and Table 2. The sample consisted of a total of 105 participants, where the majority of the participants identified themselves as women. The age span varied between 18-64 but the majority of the participants indicated being within the age span 25-54 years of age, with the largest percentage of the sample population being between 35-44 years of age. The participants are working as health care and social care profession such as psychologist/psychotherapist, counsellor, and social service/social work. Work characteristics such as hours in direct contact with clients/patients of an average week showed that 72.4% of the participants met with clients/patients between 10-30 hours/week. Participants also indicated how many years they had worked within the work sector. Fewer participants were less experienced (less than one year) as well as very experienced (more than 20 years). Most participants were divided quite evenly with approximately one fifth respectively indicated they had worked between 3-5 years; 6-10 years; 11-15 years. Descriptive statistics for the dependent variable and independent variables are found in Table 2. In terms of Client-Related Burnout, the average score was 37.74 ($SD = 18.32$) on a scale ranging from 0-100. In terms of Empathic Concern (compassion), the average score was 20.30 ($SD = 3.80$) on a scale ranging from 0-28. Perspective Taking was found to have an average score of 20.57 ($SD = 3.40$) and Personal Distress 9.45 ($SD = 4.55$) on a scale ranging from 0-28.

Pearson's r was undertaken to examine the associations between the dependent and independent variables. In relation to the reported results of the subscales of IRI and the subscales of CBI, there was a low to moderate positive correlation between Personal Distress and Client Related Burnout $r(105) = .202, p = .019$. No correlation was found between the subscales Empathic Concern and Perspective Taking in relation to the subscales of Burnout.

Table 1*Characteristics of the Study Population (n=105)*

Baseline characteristics	n	%
Gender		
Females	97	92.4
Males	8	7.6
Age		
18–24	2	1.9
25–34	33	31.4
35–44	45	42.9
45–54	20	19.0
55–64	5	4.8
Profession		
Counsellor	36	34.3
Psychologist/ Psychotherapist	38	36.2
Social service/Social work	26	24.8
Other	5	4.7
Weekly contact with patient/client		
5-10 hours/week	23	21.9
10-20 hours/week	48	45.7
21-30 hours/week	28	26.7
More than 30 hours/week	6	5.7
Years of experience within the sector		
Less than 1 year	4	3.8
1-2 years	13	12.4
3-5 years	23	21.9
6-10 years	22	21.0
11-15 years	23	21.9
16-20 years	13	12.4
More than 20 years	7	6.7

Table 2

Descriptive statistics for Interpersonal Reactivity Index and Copenhagen Burnout Inventory subscales

Scale	<i>M</i>	<i>SD</i>	Min.	Max.	Mdn	IQR
Interpersonal Reactivity Index						
Empathic Concern	20.30	3.80	0	28	21.00	18.00-23.00
Perspective Taking	20.57	3.40	0	28	21.00	19.00-23.00
Personal Distress	9.45	4.55	0	28	9.00	6.00-13.00
Copenhagen Burnout Inventory						
	Mean	SD				
Personal Burnout	47.90	18.72	0	100	50.00	31.25-62.50
Client Related Burnout	37.74	18.32	0	100	37.50	25.00-50.00
Work Related Burnout	40.31	18.32	0	100	39.29	25.00-53.57

Note. Interpersonal Reactivity Index (Davis, 1980, 1983), Copenhagen Burnout Inventory (Kristensen et al., 2005)

M = Mean Mdn = median IQR = Inter-Quartile Range

Because there was a significant low to moderate correlation between Personal Distress and Client Related Burnout I continued with linear regression and multiple linear regression analysis to examine the associations between empathy, compassion, and burnout. The results are presented in Table 3. Model 1 included three predictors (all subscales of IRI: Personal Distress, Empathic Concern, and Perspective Taking), and was able to explain 4.7% of the sample outcome variance (Client Related Burnout) (Adj. $R^2 = .018$). Model 1 was not found to significantly predict outcome $F(3, 99) = 1.613, p < .191$. However, one of the predictors significantly contributed to the model. Experiencing Personal Distress was positively associated with Client Related Burnout ($\beta = .904, t = 2.185, p = .023$). When rating 1 score higher on Personal Distress, Client Related Burnout increased by .904 units. Empathic Concern (compassion) showed a negative, but non-significant association on Client Related Burnout. When rating 1 score higher on Empathic Concern, Client Related Burnout decreased by .395 units. Perspective Taking showed a positive, but non-significant association with Client-related Burnout. When rating 1 score higher on Perspective Taking, Client-related burnout increased by .218 units.

Table 3

Linear regression analysis. Results of Regressions. Dependent Variable: Client-Related Burnout (0-100). Independent Variable: Interpersonal Reactivity Subscales (0-28).

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Constant	32.931	14.229	<.05	43.281	16.028	<.05
Personal Distress	.904	.414	<.05	.825	.417	Ns
Empathic Concern	-.395	.573	Ns	-.311	.594	Ns
Perspective Taking	.218	.533	Ns	.267	.534	Ns
Years of experience within the area				-1.227	1.181	Ns
Hours/Week Contact w. patients				-2.332	2.192	
<i>R</i> ²	.047			.068		
ΔR^2	.			.019		

Note. Ns = not significant. R^2 = Independent variables explained variance on the dependent variable.
 ΔR^2 = Adjusted variance.

In Model 2, adjusting for Years of Experience and Hours/week in direct contact with clients/patients, similar results were found as in Model 1, although the association between Personal Distress and Client-related Burnout became slightly less significant ($p = .051$). The covariates did not contribute markedly to the variance in Client-related Burnout (Adj. R^2 change = .02).

Because Empathic Concern had a negative effect on Client Related Burnout, I continued with analysis investigating potential buffering effects. The interaction was however not significant ($\beta = .047$, $SE = .123$, $p = .702$).

7. Discussion

The study findings will first be discussed and related to earlier research using the theoretical analytical tools. This will be followed by a discussion related to the study's methodology. Further, a discussion of the study findings in relation to practical implications of health promotion will be discussed. Lastly, weaknesses and limitations as well as suggestions for future studies will be discussed.

7.1 The Present Study Findings and Earlier Research

The aim of the present thesis was to investigate associations between the negative side of empathy (empathic distress), on burnout among Swedish professional health care workers engaged in client-related work. Further, the aim was to investigate whether compassion was negatively associated with client-related burnout and as such served as a buffering effect on burnout.

In the present study, results showed a significant association between empathic distress and client-related burnout. The results showed that neither of the subscales measuring Personal Distress (empathic distress), Empathic Concern (compassion), or Perspective Taking (ToM) significantly predicted outcome on either of the Burnout subscales. However, the model testing whether the three subscales Empathic Concern (compassion), Perspective Taking (ToM), and Personal Distress (Empathic Distress) predicted Client-Related burnout showed Empathic Distress to significantly contributing to the model. These present findings shows that empathic distress indeed seems to significantly contribute to the outcome of client-related burnout among health care professionals working with clients/patients. That is, the individual, self-oriented feelings of anxiety and unease significantly contributed to the degree of assessed physical and psychological fatigue and exhaustion in relation to the work with clients. These findings are in line with earlier research such as Andreychik (2019) who found negative empathy (i.e., empathic distress) to be associated with an aversive response suggested to be associated with burnout. Moreover, the present findings are in line with social cognitive neuroscience findings as well as psychological theories of the negative affective outcome of empathic distress specifically associated with burnout, and as such poor health (Davis, 1983; Singer & Klimecki, 2014). Furthermore, the present findings support the notion of empathic distress as a result of witnessing others in suffering might be detrimental to the observer (Preckel et al., 2018). Thus, supporting the notion Klimecki and Singer (2012) suggests, namely that compassion fatigue instead should be referred to as empathic distress (fatigue).

Empathic Concern (compassion) and Perspective Taking (ToM) was not found to be associated (positively or negatively) to any of the subscales assessing burnout. Analyses of whether empathic concern (compassion) and perspective taking (ToM) predicted burnout showed that compassion was negatively (however, not significantly) associated with client-related burnout. Even if the association was not significant, the results indicate a trend similar to what has been found in earlier research (such as Klimecki & Singer, 2012), namely compassion being a socio-affective ability not associated with empathic distress and burnout.

Hence, participants assessed empathic concern (compassion), described as other-oriented feelings of sympathy and concern for others to *not* be associated with client-related burnout. However, when analysing the interaction effect of empathic concern (compassion) on client-related burnout, the effect was not significant. Even so, the present findings indicate a positive functioning of compassion in relation to client-related burnout, and more research should investigate the potential benefits of facilitating compassion in client-related work.

Surprisingly, perspective taking (ToM) showed a positive trend towards an association with client-related burnout, even though the association was found not to be significant. These results are opposed to what has been shown in social affective neuroscience results. Contrary to compassion, ToM has been suggested to be a social-cognitive ability enabling a process of cognitive reasoning of other's thoughts, beliefs, or emotions to gain knowledge of their mental state. Moreover, ToM has been suggested to include the important notion of enabling a separation of one's own internal state and others. In turn, ToM has been suggested to make interpersonal interaction more manageable providing a facilitation of emotion regulation (Decety & Svetlova, 2012; Preckel et al., 2018). However, socio-cognitive processes such as ToM, and socio-affective processes interact in the experience of empathy (Cuff et al., 2016). Thus, it might be difficult to separate ToM, empathic distress, and compassion employing the present assessments IRI and CBI. Furthermore, the results may indicate that the participants are in fact less prone to regulate emotions in response to working with clients/patients.

Years of experience has been suggested to affect the emotion regulation skills when witnessing others in pain (i.e., suffering), prompting a more functional and adapted cognitive regulation of the emotional response the more experience the professional health care worker has (Decety et al., 2014). Further, exposure to other's distress such as health care professional's involvement in client-related work has been suggested by many to be a risk factor for burnout (Bride et al., 2007; Singer & Klimecki, 2014; Wagaman et al., 2015). As such, the more exposure (i.e., time spent with clients) may affect levels of empathic distress. Therefore, years of experience and hours in direct contact with clients was included in the model used to test the predictability of empathic distress, compassion, and ToM on client-related burnout. However, the parameters did not contribute to the model used to explain client-related burnout. Even so, empathic distress was still found to be associated with client-related burnout (though slightly less significant).

In sum, in relation to the first research question, the present study findings have forwarded results indicating that empathic distress is positively associated with client-related burnout

among Swedish professional health care workers. When undertaking multiple regression analysis, the model including the subscales of IRI did however not predict client-related burnout. However, empathic distress as a predictor, was significantly shown contribute to the model. As such, the present study findings are in line with previous research suggesting that empathic distress indeed is associated with burnout, particularly client-related burnout.

In relation to the second research questions, empathic concern (compassion) was negatively associated with burnout, however the association was not significant. When analysing the potential buffering effect of empathic concern (compassion) on client-related burnout, the interaction was not significant. Even so, the findings of a negative association of empathic concern (compassion) on client-related burnout, yet not significant, showed a trend in line with previous research showing that empathic concern (compassion) indeed is not associated with burnout. This finding supports the notion that compassion is not associated with burnout, and further might be a health promoting factor for health care professionals consistently exposed to the suffering of others.

Taken together, the present study findings suggests that negative effect of empathy – empathic distress – is distinct from positive effect of empathy, namely compassion. As such, this study contributes with knowledge that is relevant especially when considering health promoting factors in a line of work where professional health care workers suffers a risk of burnout.

7.2 Methodological Discussion

The present study methodology suffers from several limitations and weaknesses. For example, self-assessments of empathy, compassion, and burnout was used to collect data. Online surveys allow the researcher to reach participants irrespective of geographical position. Moreover, self-assessment by way of online survey is straight-forward and easy administered because most individuals have access to a smart phone or computer (Bryman, 2016). Even so, online surveys have been criticized on the basis that the result are difficult to generalize beyond the sample population. However, considering that the survey was spread in an online forum and in two different municipalities (Uppsala and Lidköping), the sample population should be considered quite randomly distributed and as such suggesting generalizability beyond the present sample population.

Further, self-assessment (using for example Likert-scales) such as the IRI and CBI to measure constructs such as empathic distress, compassion, and burnout has been criticized to be insufficient because the respondents are forced to answer within the given frame and as

such responds only to the given concept (Bryman, 2016). One way of addressing this in future research is to use a mixed-methods design where quantitative data by way of self-assessments as well as in-depth qualitative interviews are adopted. However, the present study is supported being in line with earlier research (such as Andreychik, 2019; Thomas, 2013) and thus points to the usability of the IRI and CBI. Moreover, in the present study the IRI and CBI was found to have good internal reliabilities. Even so, quantitative data in joint with in-depth qualitative interviews might provide more insight of the relationship of empathic distress, compassion and burnout.

Further, the biological and psychological framework was used as a theoretical tool for analysis as captured by presented studies forwarding knowledge of underlying brain activity in relation to the concepts of empathic distress and compassion in relation to fatigue and consequently burnout. The psychological framework was used and captured by including consideration to the involvement of cognition on behavioural outcomes such as burnout. Since the present study did not include any brain imaging data, there is unfortunately no way of knowing whether the result was supported by corresponding underlying neural activity. As such, the presented results should be considered preliminary. Moreover, correlational research is by no means causal and as such more research including measurements of brain activity in relation to subjective reports should be undertaken.

Furthermore, there has been an extensive discussion in relation to the definitions and assessments of empathy as well as burnout (e.g., Altmann & Roth, 2020; Cuff et al., 2016; Wilkinson et al., 2017). The research fields of empathy and burnout suffers from a divided nomenclature and concept confusion (Altmann & Roth, 2020). Even so, considering the present study is, to the best of my knowledge, the first study to use IRI to measure empathic distress, compassion, and ToM and the CBI to measure burnout, the results can add to the continuous discussion.

Lastly, the present study did not focus on the social determinants of health in the working life such as for example factors within the Demand-Control-Support (DCS) model (Karasek & Theorell, 1990, in Theorell, 1990). The DCS model includes psychological demands (reasonable qualitative and quantitative demands such as client load), social support, and autonomy when making decisions (Karasek & Theorell, 1990, in Theorell, 2003). These are factors that have been shown to affect the health within workplace settings (Naidoo & Wills, 2016). Further research should include these factors to investigate to what extent each factor affects health among professional health care workers including social determinants as well as biological and psychological determinants of health.

7.3 Implications for Social Work and Health Promotion Within the Working Life

The present study adopted the bio-psycho-social model, more specifically biological information and cognitive- and cognitive behavioural theories to investigate the potential risk factor of empathic distress within working life settings such as working as a professional health care worker meeting clients. As mentioned above, the present study findings were in line with research from social affective neuroscience and psychology, supporting the notion of the potential detrimental effect of empathic distress possibly contributing to client-related burnout. Considering the reports of increasing stress related mental illness within the human service occupation (such as professional health care workers) (see e.g., Arbetsmiljöverket, 2020; Försäkringskassan, 2020), knowledge informing practice of health promotion is crucial. Naidoo and Wills (2016) suggests work life settings to be an optimal place to employ health promoting programs. As shown by social affective neuroscience research (Klimecki et al., 2013, 2014; Preckel et al., 2018; Trautwein et al., 2020; Valk et al., 2017) and a meta-analysis (Conversano et al., 2020) investigating mental training techniques in relation to professional health care workers, results point to contemplative meditation practice to be a constructive way of enhancing abilities associated with mental well-being. Mindfulness meditation (e.g., Kabat-Zinn, 2003, in Conversano et al., 2020) and compassion meditation (Klimecki et al., 2013, 2014) has been shown to facilitate abilities related to emotion regulation skills as well as the facilitation of positive affect even in response to witnessing another's suffering. These results provided from social affective neuroscience and psychology has important implications when creating health promotion programs for professional health care workers. The present study findings showed that empathic distress indeed is associated with client-related burnout among a sample of Swedish health care professionals. Moreover, the present study findings indicated a trend towards a negative association between empathic concern (compassion) and client-related burnout adding to the view of compassion not being associated with burnout. Future studies should continue investigating the potential association of the negative effect of empathic distress on burnout, as well as if compassion can be a potential buffer against burnout.

In final remarks, I would like to express my hopes for continuous action including research helping to synthesize health promoting evidence to inform health promotion in the workplace. Professional health care workers are there to promote health of the general public, seemingly risking their own health. Their health is essential first and foremost individually,

but as research has shown they are essential when promoting health to the general society. Health care workers take care of us when we become sick. We must also take care of them.

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9. Appendix

Table 1. Search process from search blocks.

I/E (intervention/exposure)	O (outcome)	P (population)
#1 Empath*	#1 Burnout	#2 Health care worker*
	#1 Burn-out	#2 Health care provider*
#3 and #2 and #1 Compassion	#2 Exhaustion	#2 Professional*
	#2 Fatigue	#2 Psychologist*
		#2 Psychotherapist*
		#2 Social worker*

Table 2. Search strings.

Search #1 Column I/E and O	Database, date 210812	Hits	Hits Limitations, filtered through inclusion criteria	Practical screening
	Web of Science	1.098	224	2
	Sociological Abstracts/Social service abstracts	449	24	6
	SocIndex	78	23	3
	PsychInfo	1144	70	6
Search #2 within results of search #1	Database, date 210812	Hits	Hits Limitations, filtered through inclusion criteria	Practical screening
	Web of Science	120	120	11

	Sociological Abstracts/Social service abstracts	6	6	0
	SocIndex	1	0	0
	PsychInfo	421	203	29
Search #3 and #1 and #2	Database, date 210812	Hits	Hits Limitations, filtered through inclusion criteria	Practical screening
	Web of Science	93	46	4
	Sociological Abstracts/Social service abstracts	283	130	4
	SocIndex	32	28	4
	PsychInfo	229	121	3
Total	All	-	-	58

Table 3. Inclusion criteria.

Inclusion criteria literature review	Type
English, Swedish	Language
Peer-review	Expert reviewed
Articles, review articles	Scholarly Journals
Open Access	Availability
Published last 10 years	Updated research
Search block #1 Term “empath*” or “burnout” or “burn-out” in abstract or keyword	Intervention/outcome/methodology
Search block #2 Term “professional health care worker” or “health care provider” or “professional*” or “psychologist*” or	Population

“psychotherapist*” or “social worker*” in abstract or keyword	
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Table 4. Selection process.

Search #1, all databases: 2769
Inclusion criteria + practical screening: 23
Search #2, all databases: 548
Inclusion criteria + practical screening: 40
Total search #1 and #2: 63
Practical screening and checking for doublets: 48
Search #3, all databases: 637
Inclusion criteria + practical screening: 15
Practical screening and checking for doublets: 58
Total search #1, #2, and #3 : 58
After practical screening of reference lists: 63