The Normalcy of Negative Feelings

A Naturalistic Perspective of the Human Psyche and Mental Health

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Abstract

Indeværende speciale forsøger tentativt at skitsere et realistisk, naturalistisk syn på menneskets psyke og mentale sundhed. Det forsøges i første omgang ved at belyse behovet for sådan en opdateret og naturalistisk tilgang, gennem en redegørelse og kritisk diskussion af mere normative forståelser (mere specifikt positiv psykologi) af mentalt helbred. Her diskuteres de mere "normative" retninger i psykologi og deres teoretiske grundlag samt historiske kontekst. Derefter følges en redegørelse, analyse og diskussion af en samling af udvalgte teorier og empiri som antages at kunne tilbyde et mere mangefacetteret perspektiv, såsom blandt andet teorier om allostatisk stress, allostastisk load og neural reuse. Stress og neural reuse bliver diskuteret i forhold til deres historiske og moderne kontekster, hvor allostatisk stress tilbyder et nyt perspektiv på stress, som normalt er set i lyset af homeostase. Neural reuse diskuteres kort i forhold til den moderne neuropsykologi og de førnævnte normative teorier, samt den evolutionære støbning af emotioner. Til sidst diskuteres og argumenteres der for, hvorfor "negative" følelser, som i dag hyppigt bliver sygeliggjorte, eller i det mindste bliver betragtet som uønskelige, i stedet burde betragtes som naturligt og måske endda nødvendig. Der konkluderes, ud fra en naturalistisk tilgang, som tentativt er opridset i dette projekt, at den menneskelige psyke sandsynligvis er langt fra perfekt, men i stedet er kompleks. Derfor kan psykiske fænomener – og psykiske lidelser – ikke alene forklares og forstås gennem simple normative teorier, modeller eller manualer. Dette kan i stedet eventuelt underbygges med del to af projektet, som blandt andet belyser, at forskning indikerer at stress- og smertesystemer ikke kun har adskillige fysiske og psykologiske effekter, men derudover, som to af de ældste systemer, der udvikledes gennem menneskets evolution, er indlejret i mange nyere systemer og mekanismer af den menneskelige psyke. Summa summarum påpeger projektet derved, at negative følelser, såsom tristhed eller stress, er, under visse omstændigheder og til en vidst grad, helt normalt. Derfor er tendensen i den moderne, især vestlige, verden til at reducere mental sundhed til følelser af positiv natur, såsom lykke, kunne tænkes at være mere skadeligt end gavnligt i sidste ende, mere skadeligt end gavnligt i sidste ende, samt muligvis er rodfæstet i neoliberal og individualistisk ideologi fremfor empirisk videnskab.

Table of Contents

Introduction

Television, mobile phones, social media, the news, inequality, information overload, crushing debt, a dooming climate crisis, long-lasting pandemics, natural disasters, poor work/life balance, environmental pollution changing our genes, and last but not least the blue light from electronic devices — pick any of these modern tribulations and someone would most likely postulate that one or more of these are to blame for the surmised upsurge of mental health issues, as well as a general increase of unhappiness and stress within people today. Meanwhile the suggested, popular antidote to the aforementioned tribulations seems to, over the past couple of years, primarily have been: **Positive thinking.**

”Good vibes only”, ”Positivity always wins”, “A positive mindset leads to positive outcomes”, “You do not find the happy life, you make it” — we all know and have heard sayings like these in one variety or another. Hashtags like #goodvibesonly, #positivevibes and #positivethinking on social media sites like Instagram alone have millions of posts attached to them. Popular self-help books such as “The Power of Positive Thinking” by Peale or even “Learned Optimism: How to Change Your Mind and Your Life” by Seligman, all advocate for positive thinking as well and have gained significant recognition from the public.
This exerted strive for positivity and happiness, seems to, first and foremost, be a product of the current zeitgeist, yet also perhaps a symptom of the more and more prevalent feelings of helplessness, uncertainty and powerless. Indeed, the rise of self-help books, life coaches, podcasts, social media and even trends within the scientific field of psychology (mainly positive psychology) are a symbol – if not at the same time fathers – of this novel trend where people try to seek remedies for such feelings of uncertainty (Cabanas, 2008; Pérez-Álvarez, 2016; Fernández-Ríos & Novo, 2012).

Although it might perhaps be unfair to also partly blame the rise of the -at times pernicious- focus on positivity and self-betterment on positive psychology, one can hardly deny it’s influence and reach through its impinging on popular culture. As Held (2002) points out, ABC’s “Good Morning America”, a very popular news- and

chatshow, dedicated nearly an entire show to the positive psychology movement and its spokespersons back in October 1999. One segment of the show was titled "The Happiness Revolution" (Held, 2002)— and doesn't the promise of a revolutionary psychological theory bringing about happiness indeed sound grand? Desirable even? Searching for happiness seems to be all too human and while nothing is wrong with that, it raises the question whether the strive for happiness really brings about happiness? And what happens to our negative feelings?

Certainly, as Lazarus (2003) highlights, the scientific field of psychology seems to have become ensnared by the ideas proposed by positive psychology and its premise that through positive thinking and feeling, as well as through self-optimisation, one can find the way to well-being, happiness and ultimately: health. Thus happiness and positivity has not only become the cause, but also the solution to a variety of social and mental health problems, adopting an almost religious, if not at the very least normative, mantra– if only you do this and this, you too can obtain mental health, happiness, and fortune, and if it doesn't work it's because *you* yourself are the problem and weren't working hard enough for it. However, this scientific rhetoric largely echoed by society and a not insignificant number of psychological research and theories, might be prone to overlooking more subtle notions of how the human mind is construed, and instead risks offering not only normative, but also highly individual and tautological understandings of the human psyche and mental disorders (Pérez-Álvarez, 2016).

On the other end of the spectrum, neuropsychological perspectives have also gained more and more favour within the scientific field of psychology over the years, narrowing our understanding of mental disorders down to "diseases of the brain" (Nesse, 2019), and where the hitherto popular paradigm based on psychoanalysis has sidestepped in favour of a more descriptive, atheoretical and operationalised approach in the classification of mental disorders. Most notable perhaps the DSM-IV and its pre-successors (Murphy & Stich, 1998).

Indeed, psychology appears to be somewhat of a fragmented scientific field in disagreement, with various disciplines that at times contradict each other, or at least oftentimes are irreconcilable (Eronen & Bringmann, 2021; Hibberd & Gozli, 2017;

Zittoun et al., 2009; Murphy & Stich, 1998; Nesse, 2019), and where questions such as whether the observed decline in mental health, and accompanying spike of diagnoses, is holding true, and if so, where it stems from and how we're to understand it based on our understanding of the human psyche and mental health, sometimes leaves us with even more questions than answers.

While those questions are far from novel and have not only been on the forefront of various news articles (Williams, 2021; "Is Mental Illness on The Rise?", 2021; Mastroianni, 2020; Jowit, 2018; Kelly, 2022; Twenge, 2004), but also psychological research itself (Busfield, 2012; Collishaw et al., 2004; Wittchen et al., 2011; Hidaka, 2012; Almeida et al., 2020; Charles et al., 2013), it can, as elucidated above, feel like there are as many approaches and perspectives to treating and understanding these mental ailments, as there are questions and problems. As Nesse (2019) fittingly puts it,

> "*Like the six blind men each touching a different part of an elephant, each different approach to mental disorders emphasizes one kind of cause and a corresponding kind of treatment. Doctors who look for hereditary factors and brain disorders recommend drugs. Therapists who blame early experience and mental conflicts recommend psychotherapy. Clinicians who focus on learning suggest behaviour therapy. Those who focus on distorted thinking recommend cognitive therapy. Therapists with a religious orientation suggest meditation and prayer. And therapists who believe most problems arise from family dynamics usually recommend, predictably, family therapy.*" (p. 8)

Whereas, from a neuropsychological perspective, adopting an understanding of mental disorders as "diseases of the brain" can leave us susceptible to overlooking important insights from other perspectives and disciplines, such as social psychology, behaviourism, cognitive therapy and so forth (Nesse, 2019, p. 7), a more normative approach, such as positive psychology offers, risks carrying notions of how the human mind "*ought*" to function, and of how a person can maximise certain aspects of their psyche and personality traits in order to ensure their mental health and well-being.

However, no matter which approach is applied, to understand the human mind and practice psychology based solely on one perspective or theoretical framework is, as Nesse (2019) formulates it,

> *"like living within the walls of a medieval town*. *Trying to understand different perspectives is like visiting a series of walled towns. To see the whole landscape of mental illness requires a view from a mile high using special glasses that show changes across evolutionary as well as historical time*" (p. 7)

When we look at the rising numbers of e.g., diagnoses and suicides, it becomes apparent that the various approaches we have at hand, to understand -and ultimately treat- mental disorders, of the past five decades, appear to not be working and that we thus might be in a dire need of new perspectives (Nesse, 2019, p. 9). The aim of this paper is therefore, to tentatively explore a theoretical basis for how we can comprehend the human mind and mental health from a naturalistic perspective, and thereby possibly begin to frame the groundwork for a tool that could help build a bridge between what classically has been treated as opposing questions in the scientific field of psychology — such as, for example, those of a social versus those of a neurobiological manner — for a more holistic and natural understanding of how the human psyche functions and how we are to comprehend it.

Problem statement

At the beginning of this project, stood a wonder about how, if possible at all, the human psyche could be elucidated through an interdisciplinary lens, applying more modern and naturalistic theories of mental illnesses, that could encompass questions of both social and biological nature in regard to mental health. After a tentative first exploration of the existing trends not only within the scientific field, but also the lay perception, of psychology, positive psychology arose as one of the more dominant, yet also normative, approaches to mental health at the current time, and it became apparent that more naturalistic understandings, such as an evolutionary perspective can offer, might be needed to better encompass all facets of mental health. In

addition, it also illuminated the question of when something becomes a disorder instead of perhaps just a common reaction to certain circumstances and uncomfortable feelings? And lastly, the question whether "negative" feelings perhaps simply are necessary -desirable even- in certain circumstances?

Those questions then lead to the following problem statement/research question presented in this thesis:

> ***How can we understand the human psyche and mental health issues through a naturalistic and realistic lens? And could it be that negative emotions simply are necessary?***

Method

As explicated in the foregoing chapter, the aim of this thesis is to firstly illuminate the need for an updated, more naturalistic, and multifaceted comprehension of the human psyche and mental illnesses, and secondly, tentatively explore theories which combined could frame the foundation of such a more encompassing approach within the field of psychology. This was first and foremost attempted through abductively constructing a map of sorts, which draws upon and critically analyses an already existing a body of empirical research, theories, and models, and discusses how, if at all, an evolutionary perspective - as proposed in later chapters - might be the answer to providing a more realistic approach to understanding the design of the human mind and mental health.

Abduction, a style of logic originally introduced by C.S. Pierce, involves elucidating general principles or casual explanations, that might explain observed data, and differs from inductive reasoning mostly by its creative processes with which conclusions are reached and new connections between pre-existing findings and theories are formed. In essence, the abductive approach is almost like a puzzle, where different pieces once put together form a bigger picture— not one that necessarily provides a definitive answer to a given problem, but instead seeks to offer the best probable – and nuanced - suggestion available at the time, albeit the

drawn upon observations and theories might still be incomplete. Research suggests that such abductive conclusions deviate significantly from normative models of logic and instead can offer more realistic and naturalistic perspectives (Vitti Rodrigues & Emmeche, 2019; Burks, 1946; Ward et al., 2016).

Furthermore, when elucidating or wanting to introduce biological and naturalistic views of the human mind, more often than not, those concepts will draw upon evolutionary understandings, since any kind of biological problems and explanations -sometimes more, sometimes less explicitly- include evolutionary considerations, seeing as evolutionary theory offers a system for understanding how life has evolved over time (Baldursson, 2020). Thereby, if one wants to illuminate a certain problem from a biological or naturalistic perspective, evolutionary realism is thought to be a good starting point. One of its premises is, that more intricate mechanisms have arisen as modifications of pre-existing, less complicated mechanisms. Yet evolution can only modify something that already exists, which means that all newer mechanisms have arisen as modifications of previous existing mechanisms or systems (Baldursson, 2020). This suggests and highlights the importance of evaluating and analysing when a particular function first emerged, so we then can consider which form of selection may have led to the change (mutation) of the given mechanism or phenomenon (Baldursson, 2020). Based on that we can then, as Baldursson (2020), argues, assess a number of theories that deal with the "self" and/or related functions. If we, however, ignored the evolution of a mechanism and solely looked at the modern expression of a function, the conclusions we draw could run the risk of being incomplete. Thus, evolutionary realism can be used both to assess the plausibility of, and as a perspective which can help enrich and strengthen, different theories (Baldursson, 2020), which the following chapters attempt to show.

Part I:

Mental Health and Well-Being Research

As briefly elucidated in the introduction, there has, over the last one to two decades, been an upsurge of happiness related research in the scientific field of psychology, as well as a shift from descriptive notions of how the psyche is construed, to instead normative perspectives of how it "*ought*" to function (Rossi, 2012; Carlisle et al., 2009). While the increased focus on well-being, self-actualisation and self-optimisation is not by any means limited to psychological research, let alone the positive psychology movement, nor the only normative approach to understanding mental health, it can be argued to still be most prevalent within positive psychology as of date (Carlisle et al., 2009). Therefore, the aim of the following chapter is to firstly explore the roots and ideas of positive psychology, then lastly discuss where it falls short.

Positive Psychology

First introduced by Martin Seligman in 1998, positive psychology is the scientific study of what enables individuals to thrive and flourish at their best — with its main focus being the study of strengths, well-being and "optimal functioning" (Linely et al., 2006; Duckworth et al., 2004). Its research spectrum is broad, e.g., examining the effects of positive emotions and strength finding on both the body and the mind, motivation, experience of meaning and social relationships (Duckworth et al., 2004; Linely et al., 2006). According to Duckworth and colleagues (2004) the goal of positive psychology is to view the individual as "*more than the sum of damaged habits, drives, childhood conflicts, and malfunctioning brains"* (p. 632). At its core, the positive psychology movement was proposed as a response to an abundance of studies (and treatments) primarily focusing on mental illness, which was at the forefront of psychological research after the second World War and rooted the discipline of psychology in a disease model and illness ideology (Linely et al., 2006; Duckworth et al., 2004).

Instead of fixing what is “wrong”, positive psychology instead aims to build what is “strong”, thereby helping clients to lead more fulfilling and productive lives (Linely et al., 2006; Duckworth et al., 2004). While not directly implying that a good therapist doesn’t seek to both build competencies and at the same time treat “deficits”, positive psychology though criticizes the lack of attention (both from a scientific, but also from a clinical aspect) of the former (Duckworth et al., 2004), thereby seeking to redress what they perceive as an imbalance in the field of psychology and shift the focus onto positive emotions and traits (Duckworth et al., 2004; Linely et al., 2006).

More specifically, referring to Marie Jahoda’s works (as cited by Duckworth et al., 2004), positive psychology bases its premise on illuminating mental health not only through a lens of mental illness and the absence of disorders, but in its own right. Highlighting “*acceptance of oneself, growth/development/becoming, integration of personality, autonomy, accurate perception of reality, and environmental mastery”* (Duckworth et al., 2004, p. 633) as the pillars of understanding mental health. In short, positive psychology seeks to understand the positive separate from negative — making the positive its own entity, all while also understanding it as a tool in leading more fulfilling lives and self-betterment.
However, the concept is not an entirely new one. Indeed, humanistic psychology is often discussed as the forefather of the positive psychology movement. With the roots of positive psychology tracing back to humanist psychologists such as Carl Rogers, Rollo May, Gordon Allport and Abraham Maslow — who are claimed to have tried and illuminate many of the same problems as positive psychologists (Duckworth et al., 2004; Cabanas & Sánchez-González, 2016). Questions, put forth by Duckworth and colleagues (2004), such as,

> “*What is the good life? When are individuals at their best? How can we encourage growth in ourselves and in others? What does it mean to be authentic? How can therapists build personal responsibility?”* (p. 632)

The overlapping core idea here, seems to be the belief that patients and clients have the ability to actively better themselves through self-actualization (Linely at al.,

2006; Duckworth et al., 2004). Methodologically, positive psychology strives to adhere to a normal, descriptive science with reliable and valid methods of assessment, integrating e.g., studies of effectiveness of interventions, prospective longitudinal studies and experimental methods (Duckworth et al., 2004).

Yet as Lazarus (2003) points out, while there is nothing wrong with focusing on these so called "favourable" traits and emotions, nor studying which role they play in coping and well-being, there seems to be an issue with the marketing of positive psychology. Namely, that researchers ought to focus on the positive, instead of the negative human qualities. The deeper-rooted issue, however, lies in assigning certain emotions and traits valence. Furthermore, Lazarus (2003) questions, whether it makes sense to criticise past research about stress and coping for favouring the negative, instead of positive, when both have long been subject of "good" stress and coping research, or as Lazarus (2003) puts it,

> "*Coping is not just about adaptive failure but is equally about success. Its failures are just as important as, maybe even more important than, its successes in helping us to understand the human struggle to survive and flourish and to facilitate success clinically. It is often said that we learn more from failures than from successes. Success and failure are interdependent, and we cannot really think of one without the other*." (p. 106)

To assign value to emotions and ways of coping, classifying them as either positive or negative, could, in itself, be said to be problematic, as what is positive and negative heavily depends on the context, while simultaneously also -in a sense- vilifying the negative.
In addition, it stands to question what exactly is meant by "positive" and "negative", and whether to look at certain difficulties through a Pollyanna lens really can be the answer to all problems. The good and the bad, the positive and the negative, are not only contextual but also functionally linked (Lazarus, 2003).

Furthermore, positive psychology seems to represent the preferred epistemological stance of the atomistic and interiorized self, predominantly adopted by many Western scientists, thereby risking to overlook possible cultural underpinnings and

adopting an abstractionist view of the self, thereby presenting the notion of the *disinterested observer* (Christopher et al., 2008; Christopher & Hickinbottom, 2008). As Christopher and colleagues (2008) argue, positive psychology

> *"presumes that the human agent or self is a highly individualized, abstracted, and detached observer of a world that is taking place quite separately from the observer and his or her observations."* (p. 706)

The ideal of the disinterested observer thus accepts – or, perhaps, rather presumes – the notion of dualism, where there is a divide between the subjective and objective realm of being. The subjective realm, which contains opinions, values, beliefs, and feelings, is presumed to be independent of objective realm (aka the natural world outside of the individual). Since values are placed within the subjective realm, anything belonging to (or occurring in) the objective world only has relative meaning, dependent on how the disinterested observers themselves estimate their value or meaningfulness (Christopher et al., 2008; Slife & Richardson, 2008). Hence value and meaning are made, and the individual's self is independent of environmental factors and situations, implying that the self also is relatively stable and unswerving across different situations. The individual thereby once again becomes responsible for shaping their own life and creating their own happiness, adopting what Michael Sandel (as cited by Slife & Richardson, 2008) dubs 'minimalist' liberalism. Slife and Richardson (2008) highlight that, especially ethical questions become a rather hard to grasp concept, when adopting this highly abstract notion of individualism, void of any broader moral and cultural nexus. Ethics ergo become instrumentalized, where moral values are not essential parts of being human and social but means to an end in achieving results and payoffs (such as better health, feelings of autonomy, satisfaction etc.), thereby again promoting a highly individualistic idea of what it means to lead a good – if not even the best – life, presumably free of any relational meanings or environmental concerns (Christopher et al., 2008; Slife & Richardson, 2008). Cabanas (2018) points out, that

> *"One of the strongest assumptions in PP is that happiness is not a circumstantial, social, cultural, or political issue, but a psychological and*

> *individual one. This idea is well-reflected in the so-called "happiness formula" (Seligman, 2002), according to which genetics accounts for about 50% of individuals' happiness; volitional, cognitive, and emotional factors account for 40%; and life circumstances and other factors, such as income, education, social status, and so on account for the remaining 10%."* (p. 9)

Though claims of such a formular for happiness have been largely discredited by more recent research and further seems to contrast vast research linking the increasing rates of, mental illnesses, such as anxiety, depression and mood disorders, to the rise of the so called "me culture", as well as strive for happiness, in modern and capitalist societies (Cabanas, 2018; Horwitz & Wakefield, 2005). Similarly, Lazarus (2003) criticises the movement and many of its representatives for having "*converted their oversimple dogmas into popular slogans designed to whip up enthusiasm for a vague and old-hat ideology that so far has had little new to say*" (p. 107). Indeed, it seems what originally started with the idea of simply shifting the focus of psychological research onto mental well-being instead of mental-illness, has -perhaps though involuntarily- paved the way for some more ideological (and almost religious-like) theories and approaches, or what some may even call "toxic positivity".

Toxic Positivity

While there, as stated previously, per se is nothing wrong with adopting a positive mindset and the strive for happiness is nothing if not innately human (Ford & Mauss, 2014) it becomes problematic when we entirely repudiate the negative. Research (Gross & Levenson, 1997; Campbell-Sills et al., 2006; Dillard et al., 2018) has indicated, that suppressing 'negative' emotions such as sadness, fear, and grief, while instead forcing on a positive mindset, can potentially be harmful instead of helpful. Furthermore, not only do negative emotions such as sadness possess an adaptational function (Lomas, 2018; Nesse, 2015; Nesse, 2010), ignoring and suppressing them can worsen those feelings and overall decrease mental health. While positive psychologists, as elucidated in the previous chapter, lament the hitherto prevalent focus on pathology in psychological research and therapy, happiness research itself seems to inadvertently promote negative and problematised images of human beings, seeing as the study of positivity itself is based on a deficit model and assumes that

problems can be solved, if only the individual adopts and cultivates the correct attitudes (Frawley, 2015).

At the same time, while there's plenty of discussion about the positive effects of pursuing happiness and taking on a positive mindset, there's -as of yet- still little talk of the possible repercussions. However, as Ford and Mauss' (2014), recent findings have suggested, actively pursuing happiness can make it harder and less likely for a person to attain it. Paired with the inherent responsibility that is pushed onto the individual ("*if you're not happy or healthy, that's your own fault"*), it potentially paves the way for feelings of failure, inadequacy or weakness, and shame (Held, 2002; Ford et al., 2018). It also begs the question, whether people still are allowed to express their true emotions and feel bad (in whichever way) for a little while, or if those 'negative' feelings rather get shut down in a therapeutic setting in favour of an uncritical quest for positivity. To focus on a positive outlook and positive traits, is of course not intrinsically problematic, but given that research (Cross & Levenson, 1997; Campbell-Sills et al., 2006; Dillard et al., 2018) has highlighted the importance of acceptance and the downsides of suppression, shouldn't there equally be space to express 'negative' emotions? To discuss struggles in a non-judgemental environment? To vent without immediate solution finding or the need to self-reflect? As Held (2002) puts it,

> "*If therapists cannot tolerate the expression of pain or negativity, and if, as a result, they cannot provide real empathy in their rush to crush negative thoughts and feelings, then where will people go to reap the empirically demonstrated benefits of opening up productively? If we can't be real—if we can't be ourselves—in therapy of all places, then where?"* (Held, 2002, p. 986)

As stated above, demonizing and inhibiting the expression of 'negative' feelings, might result in an increase of such, and even bring about guilt or further self-doubts. Another danger lies in both condemning, but also pathologizing rather natural and healthy feelings such as sadness and hopelessness. Sometimes we cannot just put on a happy face or think of a situation in a positive light, yet there now seems to be an inability to tolerate 'bad' feelings, even when they're perfectly reasonable and

perhaps even healthy in certain situations. When positive thinking comes at the expanse of accepting negative emotions when appropriate, then it can indeed do more harm than good (Held, 2002; Campbell-Sills et al., 2006; Ellard et al., 2017).

An example of this, is research by James and Tennen (2010), who have criticized positive psychology's claim about the positive effects of positive thinking in cancer patients. James and Tennen (2010) argued, that there was no scientific evidence that positive attitudes could positively impact cancer patients' outcomes and health, nor that there was significant evidence for post-traumatic growth (the notion of strength and positive life experiences as the result of trauma, as proposed by positive psychology) following cancer battles. Instead, James and Tennen (2010) have warned of the harm of shifting the responsibility of health and happiness onto the individual.

Similarly, a study by Sinclair and colleagues (2020) has warned about the potential risks of positive attitudes in domestic abuse victims, pointing out that overgeneralized or misdirected positivity could potentially further endanger abuse victims. When an individual is an abusive relationship, the promotion of hopeful or positive thinking could instead be detrimental, encouraging the victim to stay in the abusive situation by shifting the responsibility to flourish onto them and making them feel as though the reason for their unhappiness is reflection of deficiency within them, seeing as positive psychology promotes the idea that psychological well-being is largely within an individual's own control and that the problem is the individual's perception, rather than the situation itself (Sinclair et al., 2020).

As Binkley (2011) points out,

> *"At the foundation of positive psychology, then, is a deep belief in the plasticity of emotional states, and in the opportunistic conduct of the happy subject as one susceptible to the suggestive power of optimistic and pessimistic thought: negative emotional states derive from the perception of one's own helplessness to make oneself happy, the inability to transcend one's routines or an over-dependence on the emotional patterns that develop from unexamined, shared, social life. Positive emotions, on the other hand, come with the embrace of one's power to change one's emotional well being, and with the assumption of responsibility for those emotions."* (p. 385)

The danger of pushing positive attitudes and promoting the idea, that most problems can be fixed with a change of perception, thus lies within minimalizing actual problems and ergo risk overlooking more serious conditions. Furthermore, the idea that one can indeed shape their own happiness through agency, resourcefulness, motivation, and accountability for oneself bears roots of neoliberalism, making happiness and well-being synonymous with the ability to act on one's own, to be capable and "*right*". In turn, the failure of achieving happiness becomes a flaw within oneself, a character weakness even, and adds immense pressure on the individual themselves. Furthermore, it also promotes the notion that mental illnesses, such as depression and anxiety, arise because an individual is "weak" – or in the very least does not possess the necessary agency to shape their own well-being (Binkely, 2011; Frawley 2015).

Bandura (2008) analysing positive psychology from a agentic perspective of social cognitive theory states,

> "*To be an agent is to influence intentionally one's functioning and the course of environmental events. In this view, people are contributors to their life circumstances not just products of them. Among the mechanisms of agency none is more central or pervasive than beliefs of personal efficacy. This core belief is the foundation of human motivation, well-being, and accomplishments*" (p. 167)

In short this indicates that an individual is responsible for their own well-being and thriving. Additionally, this idea is rooted in a direct-effects model, assuming that positive affect brings about good things, whereas negative affect brings about bad things — meaning that affect on psychosocial functioning in part is influenced by beliefs of personal efficacy (Bandura, 2018). In essence, from an agentic perspective such as proposed by Bandura (2018) and adopted by positive psychology, an individual's perceived self-efficacy is -at the very least partly- responsible for their emotions and mood, and whether those are positive or negative. In addition, efficacy beliefs are thought to shape people's outcome expectations, meaning a person's

belief in their own abilities will affect whether they expect favorable or unfavorable results (Bandura, 2018). Ultimately, this belief also impacts how opportunities and obstacles are perceived – whether a person regards their actions as futile or useful when faced with difficulties. People with low efficacy are viewed to easily give up trying, while those with high efficacy perceive those obstacles as controllable through the acquisition*" of requite competencies and perseverant effort*" (Bandura, 2018, p. 170). Hence, people with high efficacy – ergo belief in themselves and in a positive outcome of their actions - stay the course and remain resilient when faced with difficulties. Bandura (2018) even goes as far as pointing out that, efficacy beliefs not only affect the quality of emotional life, but also a person's vulnerability to stress and depression — claiming that while it's natural to feel devasted after a setback or failure, the ability to recover and bounce back relies on a person's belief in their ability to recover, as well as the individuals' decisions. At the core of positive psychology, as viewed through this agentic perspective, is the notion, that an individual's belief of personal efficacy has a hand in shaping their own life by influencing what kind of activities and environments they get into.
Moreover Bandura (2018), echoing popular ideas within positive psychology, claims that *"human well-being and attainments require an optimistic and resilient sense of efficacy."* Realists – according to Bandura (2018) – in turn are easily discouraged by failures or become cynical about their own ability to influence personal and social changes. Thus, Bandura (2018) proposes that, with the challenges of everyday life and its many difficulties and frustrations, one cannot afford to be a realist and that well-being ultimately requires an optimistic and resilient sense of efficacy – or perhaps rather disposition.

On the other hand, Lazarus (2003) criticizes the positive psychology movement and the modern strive for optimism, precisely for such a mindset, arguing that,

> "*Given the world in which we live, I would venture to suggest, however, that we need pessimists even more than optimists. Pessimists, or realists as many would prefer to think of themselves, mobilize valuable outrage against human depravity and its banality. Cruelty, murder, slavery, genocide, prejudice and discrimination, and worst of all perhaps, indifference to human suffering, abound, both today and in previous centuries. In reading about or*

> *experiencing this terrible litany of social evil, however, we also need to acknowledge the heroic goodness of many people, which has usually been mobilized by such evil."* (Lazarus, 2003, p. 107)

From that perspective, it could be argued, that positive psychology and similar normative approaches within the scientific field of psychology risk overlooking that the good and the bad, the positive and the negative, are not existing independently of each other, but are - as mentioned above - functionally interlinked, and that neither one could be argued to be more natural than the other.

Part II: A naturalistic/realistic approach

A positive approach, in which the individual is made to feel responsible for their own unhappiness and their problems are minimalized, could -as elucidated above- result in a suppression of these negative emotions, which then in turn could increase and prolong them— thus turning the healthy expression of negative emotions in the face of a challenging situation, into something indeed pathological (Campbell-Sills et al., 2006; Frawley 2015; Horwitz & Wakefield, 2007; Fernandez-Rios & Novo, 2012; Morrall, 2008).

The aim of the following chapters is to instead frame a map of theories that adopt a more naturalistic approach to understanding mental health and the functions of our psyche. To do so, we first briefly introduce the long history of stress research and review how stress research has shifted perspectives throughout the years, since stress research is one of the best examples of an interdisciplinary topic in need of an integrative approach, in order for us to not only comprehend its psychological consequences on one hand, and its physical components on the other, but understand that how the stress system fundamentally is linked together on both levels (Goldstein & Kopin, 2007). The perspective of the body and mind as not two separate entities, but as linked through a variety of systems will further be explored through the theories of neural reuse and social pain. Lastly follows a discussion of the evolution of emotion and the use of negative feelings.

Stress

Historical background

The term ”stress” was first used by Walter Cannon in relation to alarm situations (fight-or-flight) and its health effects have furthermore been widely known since Selye's early publications in the 1950s and 1960s (Cooper & Dewe, 2004). Selye formulated stress as a physical state under pressure, which is characterized by tension and resistance to external stimuli (stressors) - the general adaptation syndrome (GAS). Yet research from the last two decades has highlighted a wide range of issues related to the classic stress theories proposed by both Cannon and Selye (Baldursson et al., 2013). Hitherto various research has been carried out on the subject of stress, with the aim to shed more light on the mystery of “stress”, resulting thus in numerous theories and models of stress. Baldursson and colleagues (2013) suggest that a theory on stress, which involves other and parallel developed psychophysiological systems than those explored by the classical stress theories, might be the key to understanding stress in all its facets. Therein included a distinction between the evolutionarily older general adaptation syndrome (GAS) and the newer system based on the hypothalamic-pituitary-adrenocortical (HPA) axis, as well as an understanding of how the stress system is regulated through the more novel allostatic model proposed by Sterling and Eyer, and later expanded by McEwen (Goldstein & Kopin, 2007; Sterling & Eyer, 1988; McEwen, 2002), thereby replacing the original homeostasis model. Finally, this modern understanding of stress should also, as Baldursson and colleagues argue (2013), include theories of social pain, which can help explore how stress causes, regulates, and sharpens the experience of social pain in threatful situations. An inclusive, multilayered view on stress such as this, could open for a more multifaceted, modernized understanding and naturalistic approach in stress research (Baldursson, 2013). Furthermore, it could help illuminate the need for a more integrative paradigm, combining both evolutionary and neuroscientific, as well as psychological theories in modern psychological research.

Homeostasis and the beginnings of stress research

The idea of a disturbance of a physical equilibrium and a sequential development of diseases, as well the idea of the "soul" influencing, in one way or another, physical processes can be traced far back to ancient Greek philosopher such as e.g. Hippocrates and Epicurus (Schulz, 2009). However, the breakthrough in the understanding of stress underlies the pioneering work which Bernard began in the 19th century, when he coined the term *milieu intérieur*, describing a dynamic physiological equilibrium, where the internal environment of living organisms should remain constant despite changes in the external environment (Cooper & Dewe, 2004; Goldstein & Kopin, 2007; Schulz, 2009). Later, Cannon built on Claude Bernard's view of a stable and flexible internal environment, which he dubbed homeostasis, researching the responses of the sympathoadrenal system to threatening situations (Cooper & Dewe, 2004; Goldstein & Kopin, 2007). Cannon suggested, that when an organism is threatened and receives sensory information, the sympathetic nervous systems will quickly send out a signal which then activates the adrenal medulla through acetylcholine, increasing the release of adrenaline and noradrenaline, thereby activating the bodily mechanisms for "flight or fight" responses (Goldstein & Kopin, 2007; Goldstein, 2010; Hanschek, 2012). On a physical level this includes increased blood pressure, which causes the heart to beat faster, as well as increased blood sugar levels and a rise of the organism's blood's coagulation capacity. When the body's metabolic processes are skewed, for example through longer lasting stress, the sympathoadrenal system will work to return the body to homeostasis, either through activation or inactivation of the adrenal gland. Furthermore, Cannon proposed that these processes acted independent of the control of the central nervous system and took place locally in the body (Ramsay & Woods, 2014; Goldstein & Kopin, 2007; Goldstein, 2010; Hanschek, 2012). In short, homeostasis as understood through Cannon, is a concept of regulation, which (in line with Bernard) describes how different independent physiological systems interact with the purpose of re-establishing the conditions which existed before the stress system was activated (Goldstein & Kopin, 2007; Goldstein, 2010; Cooper & Dewe, 2004; Hanschek, 2012).

Expanding Cannon's original hypothesis, Selye later disclosed, that the organism's adaptive response to threats not only consists of catecholamine driven responses as suggested by Cannon, but also includes hormones secreted by the pituitary gland, globally affecting the central organ systems in significant, albeit indirect, ways (Meduri & Chrousos, 2020; Goldstein & Kopin, 2007; Ganzel et al., 2010). Based on the research Selye conducted, he suggested ***the general adaptation syndrome*** — a three-stage process model, describing the physiological changes the body goes through when under stress (Ganzel et al., 2010; Baldursson et al., 2013). The first stage being the *alarm reaction stage*, in which the body goes through the initial symptoms of stress, preparing itself to either fight or flee (Baldursson et al., 2013; Ganzel et al., 2010). One's heart rate increases, the adrenal gland releases cortisol and energy is increased through a boost of adrenaline. Following the alarm reaction stage, the body moves into *the resistance stage*, where it repairs itself – cortisol levels decrease the heart rate and blood pressure slowly begins to normalise (Baldursson et al., 2013; Ganzel et al., 2010). Yet, even while entering recovery, one remains on high alert for the meanwhile. If there no longer are any stressors, the body is able to recover, but if the stressful situation continues for an extended period of time, it can lead to the third stage – *the exhaustion stage* (Baldursson et al., 2013; Ganzel et al., 2010; Cooper & Dewe, 2004). This last stage is viewed a result of prolonged or chronic stress and the physical effects are various, putting one at risk of developing stress-related illnesses and weakening one's immune system, slowly draining the organism, and leading to its breakdown (Baldursson et al., 2013; Ganzel et al., 2010; Cooper & Dewe, 2004).

Understanding Selye

Selye's model of stress has deeply impacted the understanding of stress and one might even argue, paved the way for further stress research. However, it could be argued that Selye's model of stress is rather vague, due to Selye defining stress as a nonspecific response of the body to differing harmful stressors, as almost anything can cause stress (Baldursson et al., 2013; Cooper & Dewe, 2004). As mentioned earlier, Selye considered stress an innate system, which following an initial alarm phase, involves a stage of either resistance or adaptation to a stressor and ultimately can result in a stage of exhaustion, and even death. What this model fails to address,

though, is the phenomenological aspect of it, i.e., what might activate the stress response (Jackson, 2014). Furthermore, it suggests that stress will be experienced and act out in the same way, regardless of the nature of the stressor or how it's perceived (Baldursson et al., 2013). Thus, if we accept the premise of Selye's model and the many stress theories that largely build upon it, we would likely also have to view stress as an universal experience. Which raises the question why, if stress indeed was but a nonspecific response, some people do well in certain situations where others experience stress (Mason, 1971; Ganzel et al., 2010). From a homeostatic viewpoint, it could be argued that the extent of the stress experience itself, is an expression of the sum of stressors. Ergo, it can be viewed as the sum of the intensity with which the stressors appear and how often and for how long they appear. In that sense, stress could almost be put into an equation and, in some way, regarded quantifiable (Baldursson et al., 2013). Nevertheless, it seemingly still does not account for why the same level of stress leads to different diseases when the processes seem to be so universal and regulated? In relation to this, Selye (1974 as cited by Cooper & Dewe, 2004) later introduced the concept of conditioning factors, which either can decrease or increase the effects of stress. Their origin is either external or internal, and examples of such conditioning factors would be certain nutrients or genetic predispositions. Such conditioning factors can, according to Selye (1974 as cited by Cooper & Dewe, 2004), lead to normally well-tolerated levels of stress having a pathogenic effect and thereby account to a certain degree for the differences in human stress response. Yet, whereas e.g., Lazarus (1993; 1974) would argue that our emotions are qualitative reactions, which are dependent on an individual's distinctive relationship with the world around them, Selye's understanding of stress, more or less, solely indicates that a stress response has been activated and that the stress system now is reacting to it (Mason, 1971; Ganzel et al., 2010; Cooper & Dewe, 2004). Additionally, Selye's model of stress can only tell that there are different mental and physical consequences of stress (especially in prolonged stress), yet is unable to account for what those consequences will be (Baldursson et al., 2013). Thereby, stress is not only non-specific in its cause, but also to its effects. So albeit its popularity, Selye's general adaptation syndrome, hasn't been without criticism or shortcomings. Mason (1971) for example, has suggested that the stress system also involves an emotional (or mental) component, demonstrating that parts of the GAS vary, depending on both the individual and the

situation. This view on stress opens for the possibility that if the psychological aspects are affected - either extending or decreasing the significance of the stressor - the GAS response decreases or disappears altogether, thereby adding a more specific, as well as qualitative nature to stress responses, which has been missing in Selye's GAS model (Baldursson et al., 2013). Mason (1971) argued that there is little need or use for 'non-specificity' concepts, other than perhaps in relation to situations that incite psychophysiological or psychoendocrine reactions. In lieu, Mason (1971) proposed, that future studies should rather focus on isolating 'pure' stimuli, both in regard to physical and psychological, whilst studying endocrine regulation, as

> "*not only is there an important problem in the identification of psychological factors and their elimination from the stimulus situation, but a number of natural 'physical stress' situations actually involve a variable mixture of several 'pure' stimuli in a physiological sense*" (p. 331).

Thereby Mason (1971) highlighted the importance of placing attention on the sensitivity and ubiquity of psycho-endocrine mechanisms, proposing that stress can be viewed as neither a purely physical- nor psychological system.

Yet, as pointed out by Cooper and Dewe (2004), Mason's critique of Selye and the GAS, reflects a tendency of wrongfully assuming a linkage between Selye's work and the growing interest in the psychological features of stress. Seyle's research on stress was heavily based in the biological, regarding stress first and foremost as a purely medical and physiological phenomenon, with little thought to the psychological or sociological aspects of it (Cooper & Dewe, 2004; Selye, 1983; Jackson, 2014).
Furthermore, it is important to take into account the historical context of both Selye's work, but also homeostasis in general.

Historical context

As mentioned previously, the breakthrough in the understanding of stress often is allocated to the work of Bernard in the 19th century. The ***milieu intérieur,*** Bernard's

key concept, displays a mechanistic view of biology that was rather typical around this time. Similar to any machine, the behaviour of humans, as well as all other organisms, could be explained by its parts and the ways those parts are designed to work (Cooper & Dewe, 2004). This, in many ways, reflects a reductionist approach that was typical for the 19th century, where illnesses were believed to be results of external forces affecting the body's normal functioning, which could only be cured if the body was restored to its initial point - its "factory setting" if one will. The notion of mental processes could influence physiological functioning did not fit into this mechanistic view of human health (Cooper & Dewe, 2004). Instead there was a demand for objective mechanistic methods and a science that could be exact (Cooper & Dewe, 2004). Extending Bernard's work on the milieu intérieur, Cannon (1939 as cited by Cooper & Dewe, 2004) then later introduced the concept of homeostasis — the body's ability to self-regulate and maintain its status quo. This equilibrium being regulated through the sympathetic division of the autonomic system, Cannon (as cited by Cooper & Dewe, 2004) postulated that a signal is sent out immediately when an organism threatened by change and corrective mechanisms, to either restore or altogether prevent the change, are set in motion, to guarantee relative stability and continue to be effective. Cannon's aim was to understand the mechanisms and limitations behind these regulatory processes, pondering how the human body could withstand and constantly repair the daily attritions of life (Cooper & Dewe, 2004; Jackson, 2014).

Selye, inspired by Cannon's work, and often referencing him in his research, built on the idea of homeostasis in his research on stress, thereby somewhat staying in line with the mechanistic, almost engineering-like, view of Cannon and Bernard (Cooper & Dewe, 2004).

After the second world war and with a growing change in the conditions of daily life, society, work and the economy, the interest in stress only increased. Also, and perhaps especially, from a psychological perspective (Cooper & Dewe; Jackson, 2014). Reflecting mainly the concerns mid-and postwar, the prevalent focus was now on the "stresses of war" and its relation to mental health. The word stress soon became a part of everyday language and psychologists were in demand more than ever. Researchers more often investigated the psychological mediators of stress, such as coping and appraisal (see the following chapter) and Selye's work on stress was

more and more under a critical lens. Forgetting, however, as pointed out earlier, that Selye never set out to account for the psychological factors of stress and only later came to acknowledge that illuminating the psychological aspects could be beneficial in understanding stress (Cooper & Dewe, 2004; Jackson, 2014). Hence for Selye the term "stress" referred more to the normal body function being disturbed by e.g., an underlying ailment, and the organism hence being out of equilibrium, rather than what we today in psychology might regard as "stress".

Transactional Model of Stress

From a *Transactional Model of Stress* approach, stress responses are viewed as complex, interactional processes between the requirements of a situation and the person reacting to it (Cooper & Dewe, 2004; Lazarus, 1974; Lazarus, 1993). More specifically, the model proposes that there is a transactional process involved in stress, where an evaluation process is interposed between the stressor and the stress reaction — it implies that stress is not caused by either personal or environmental factors exclusively, but rather a combination of both (Lazarus, 1993; Cooper & Dewe, 2004). It suggests that personal and environmental factors have a dynamic and bidirectional relationship. Contrary to other, earlier stress theories, such as those of Cannon and Selye respectively, Lazarus proposed that not the objective nature of the stimuli or situation, but their subjective evaluation by the person is important and will determine the stress reaction (Cooper & Dewe, 2004). Ergo, this approach, adopts the notion that each person can be susceptible to a given stressor in different ways: What means stress for one person, is not necessarily perceived as stressful by another (Lazarus, 1993; Cooper & Dewe, 2004). The transactional model of stress thus aims to explain why people react differently to the same stressors and states that the stress response depends solely on how a person perceives the stressor cognitively and how well they cope with it. Coping, as Lazarus (as cited by Cooper & Dewe, 2004, p. 76) formulates it, being "*constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person*".

Lazarus (as cited by Cooper & Dewe, 2004) proposes that there are three stages involved in how a person responds to stress:

(I) *Primary appraisal*, where situations can be assessed as either irrelevant, benign-positive, or stressful. If a situation is experienced as stressful, it can then further be perceived as either challenging in a manageable way, as a threat or as harmful/loss (as in the harm's already been done) (Cooper & Dewe, 2004)

(II) *Secondary appraisal*, where it's assessed whether the given situation can be managed with the resources (various biological, social, and psychological mechanisms for handling the demands from the stressor) available to the person. If the resources are perceived as insufficient, a stress response reaction is triggered and a coping strategy, which is dependent on the situation as well as the cognitive framework and characteristics of the person, is designed. Relating to this stage, Lazarus names different types of coping strategies, such as problem-focused coping, emotion-focused coping, and cognitive coping. *Problem-focused coping* relates to the nature of the situation or stressor and here the individual is said to try to overcome a stressful situation or find ways to adapt to the situation by informing themselves about the situation, taking or failing to take direct action. Whereas with *emotion-orientated coping*, the main aim is to reduce the emotional arousal triggered by the situation. The goal of *cognitive copin*g is to reappraise stress as a challenge rather than a threat — through coping, the stressed individual can cognitively reevaluate their relationship to the environment and perceive the given stressful situation as positive, rather than negative (Cooper & Dewe, 2004).

(III) The third and final stage is *reappraisal*, where the success of the coping strategy of stage two is judged to affirm a successful adaptation to the new situation. If the individual learnt how to deal with the threat, the stressor might be perceived as nothing more than a challenge. However, if the situation can't be coped with, what might have been a challenge might then be perceived as a threat. Reassessment can either be based on new information from the environment or on the re-evaluation of the coping strategy (Cooper & Dewe, 2004).

This model implies that a stressful situation can be perceived as stressful, even when there's no real threat to the person and thus differs from Selye's idea of a general physiological response to a stressor, albeit agreeing that the human body responds defensively to stressors and disturbed homeostasis, which when prolonged can result in more health issues (Cooper & Dewe, 2004; Lazarus, 1993; Lazarus, 1974). Additionally, it seeks to elucidate how a person copes can impact their health negatively, i.e., through adopting coping mechanisms such as alcohol or drug abuse, this furthermore highlighting how individual each person's stress response is (Cooper & Dewe, 2004; Lazarus, 1993; Lazarus, 1974). Summa summarum, the transactional model of stress, and even more so Lazarus's research itself, places great importance on the person's emotions in accordance to how they respond to stress, suggesting that how the person perceives stress and how they end up coping with the situation, as well as adapts to life in general, heavily depends on the emotion they associate with different stressful situations (Cooper & Dewe, 2004; Lazarus, 1974; Lazarus, 1993). While it intuitively sounds reasonable that emotions and our assessment can influence the way we react to a stressor, one could argue that even when we perceive a situation positively in nature, it can still manifest itself as stressful. Considering, for example, moving into a new house — even while this certainly could be perceived as a positive situation with a promising outcome, the process can still be as stressful to a person, though they mostly have positive emotions about the situation itself. Similarly, a person could very well love their work and even workplace, yet experience stress be it due to, e.g., ever changing demands or changes in their personal life.

Modern approaches to stress

Allostasis

These classical theories, in summa, propose that a system is dynamic, but operates within narrow limits, typically in the form of a balance point that is sought to be re-established following any kind of disturbance. However, the concept of homeostasis could be argued to be more of a logical concept rather than a theory in and of itself (Baldursson et al., 2013). Allostasis, an alternative view on the physiological

regulation of stress, builds upon the concept of homeostasis but goes beyond it by introducing the notion, that, in order to be adaptive and be able to adjust to an ever-changing environment, an efficient regulation requires the ability to change its inherent levels or parameters when the need arises, as opposed to homeostasis, in which the goal is a consistent state (Baldursson et al., 2013; Sterling & Eyer, 1988; McEwen, 2002). In other words, whereas homeostasis is simply the maintenance of a stable internal environment in an organism through fixed values, which deviate but ultimately always return to its status quo, despite changes in the external environment, the goal of the allostatic mechanism is not fixed immutable values, but a system that changes and reflects the history of the organism's interaction, i.e. the process of achieving stability through changes in physiological behaviour under changing external conditions (Baldursson et al., 2013; McEwen, 2002). An example could be an increased blood pressure in a stressful environment, which is relative to the level maintained in a less stressful one. Additionally, allostasis opens for psychosocial/socioeconomic stressors to be considered as factors we respond to and highlight how our systems adjust to those (Baldursson et al., 2013).

Allostatic load

The term allostatic load refers to the so-called "wear and tear" reactions, which occur due to repeated or chronic experience of stress and was first introduced by Sterling and Eyer (Sterling & Eyer, 1988; Baldursson et al., 2013; McEwen, 2002). The theory is based on the regulation model of allostasis, as briefly elucidated in the previous chapter. McEwen (1998) defines allostasis as, "*adaptation in the face of potentially stressful challenges involves activation of neural, neuroendocrine and neuroendocrine-immune mechanisms*" (p. 33). Under normal circumstances, these adaptive systems, when used efficiently and not too often, help the body cope with challenges which otherwise might be overwhelming and life-threatening.

In summa, allostatic mechanisms help the organism regulate, by predicting demand and need for compensation. However, as this predictive regulation leads to a considerable utilisation of energy, it can end in a chronic accumulation of allostatic load – especially if the source of disturbance is not eliminated or, put in other words, if the situation is not resolved.

The allostatic systems are, as suggested, not without fail and can overstimulate or do not function as intended, resulting in a "wear and tear" on the body and brain, which is what McEwen and Stellar consequently termed "allostatic load" or "the price of adaptation" (McEwen, 1998). The automatic nervous system (ANS), hypothalamo-pituitary-adrenal (HPA) axis and immune system produce mediators which then generate allostasis (McEwen, 2002). There's furthermore evidence that indicates that allostasis even is involved in the brain, comprising of the release of neurotransmitters and nerve cell activity. McEwen (1998) names three different kinds of allostatic load: (1) a recurrent activation of allostatic systems, (2) not being able to shut off allostatic activity after stress, and (3) a deficient response of the allostatic systems, which then lead to increased activity of other, usually counter-regulated allostatic systems after stress. Examples of allostatic load include e.g., the loss of bone-mineral density, atrophying nerve cells in the hippocampus and the build-up of fat in the abdominal region (McEwen, 2002).

The concept of allostatic load hypothesises that e.g., cardiovascular, emotional, neuroenergetic and neuroendocrine responses remain constantly activated, so turbulence in the blood flow in the coronary- and the arteries supplying the brain, high blood pressure, atherogenesis, cognitive dysfunction and depression all can accelerate the progression of a disease. Thereby it's possible for an allostatic load to permanently change the brain's structure and further progress pathophysiological ailments (Wirtz et al., 2013; McEwen, 2002; Lu et al., 2021; Golstein & Kopin, 2009).

Put Into Perspective: Positive versus naturalistic perspective of stress

Positive and agentic approaches to stress view stress as something that is significantly influenced by an individual's ability to cope and exercise control over given stressors. Thus e.g., Bandura (2008) argues that the exposure to stressors without the ability to control them, activates certain physical (e.g., the cardiovascular and the automatic) systems, whereas exposure to the same stressors with the ability

to extort control over them has no "adverse" physical effects, and furthermore claims that,

> *"most human stress is activated while developing competencies for managing the demands of everyday life. Moreover, their stress is governed, in large part, by beliefs about their coping efficacy. Stress experienced while gaining mastery and hope enhances immune status rather than impairs it [....] The higher the growth in perceived self-efficacy, the better the immune status. This has substantial evolutionary benefits. Given the prevalence of stressors in everyday life, if they only impaired immune function, we would be bedridden much of the time, if not done in."* (Bandura, 2008, p. 177)

However, biological and evolutionary based stress theories, as elumindated above, indicate that stress is a far more complex phenomenon, which cannot simply be understood as a perturbation. In lieu, theories such as those of homeostasis and allostasis, suggest that stress is an intricate system, which is, as Goldstein and Kopin (2007, p. 109) point out, "*characterized by a perceived discrepancy between information about a monitored variable and criteria for eliciting patterned effector responses".* As the following chapters will expound further, the stress system is also linked to various other functions and mechanisms in our psyche, which makes adopting an integrative understanding of it all the more important.

The human psyche and evolution

To not only understand human psyche, but also the functional organisation of the brain and cognition, it might be beneficial to first and foremost look at how the brain evolved. Current studies (Anderson, 2010; Aisenberg & Henik, 2010) insinuate, that though the brain may originally have developed as an organ with specifically assigned functional regions, there has since, through evolution, been a creative reuse of said regions, mirroring essentially the evolution of other abilities where pre-existing systems are repurposed, reused and built upon through evolutionary development (Anderson, 2010). Thus Anderson (2010) argues, that the creative reuse of pre-existing neural mechanisms likely has had a prominent hand in the evolutionary development of cognition.

As such, research within neural reuse not only has implications for our understanding of the evolutionary foundation and development of cognitive function but might also help guide future experimental and clinical neuroscience.

Neural Reuse

According to neural reuse theories, which considers the reuse of neural circuitry in relation to numerous cognitive purposes a main organisational drive, it is rather normal for established neural circuits to be repurposed and reassigned to different uses, over the course of evolution, while at the same time also maintaining their initial functions (Anderson & Penner-Wilger, 2013; Anderson, 2010). These theories thereby differ from the hitherto traditional understanding of neural plasticity's purpose in brain organisation. Whereas typically, in plasticity theories, the brain involved some unusual circumstances, e.g., the loss of functions due to head injuries and the like, theories of neural reuse do not necessitate such changes to local circuit structures for novel purposes and connections to be established. Instead, it is assumed to involve new neural partners in the establishment of these new functional connections. Indeed, various research (Cosmides, 1989; Gould, 1991; Wilson, 2001; Glenberg & Kaschak, 2002; Cruse ,2003; Immordino-Yang et al., 2010; Anderson, 2010; Anderson & Penner-Wilger, 2013) seem to support the notion of reuse in cognition, as well as presenting neuroanatomic evidence (Andersen et al., 2013; Anderson, 2010; Anderson & Penner-Wilger, 2013) that the brain progressed by combining, expanding and maintaining existing networks and neural circuits.
One theory which touches upon this evidence and seeks to link the evolution of the brain with the reuse and expansion of existing systems and cognitive functions, is Anderson's (2010) massive redeployment hypothesis, which proposes that "*evolutionary considerations might often favor reusing existing components for new tasks over developing new circuits de novo*" (p. 246). According to Anderson (2010) this notion of neural reuse would indicate that one brain region would be responsible for various cognitive functions. Research pointing into the opposite direction – namely there being dedicated connections and regions for every new function - however, would rather support localist theories of how the brain has evolved. Based on his research, Anderson (2010) lists three evolutionary advantages such reuse of

existing components might have: 1) A typical brain area will be used by various cognitive functions and in diverse task categories, (2) evolutionarily older brain areas will be engaged in more cognitive functions, and (3) more recent cognitive functions will take more more advantage of more widely scattered brain areas.

More in depth this means, that older brain areas, available for reuse longer, should all the same be integrated in cognitive functions that have arisen later and that there thus should be a correlation between the evolutionary development and age of a brain region and the rate at which its redistributed to other cognitive functions — ergo, the older an area, the more multipurposed it should be (Anderson, 2010). Furthermore, newer functions would be spread out more widely across different brain areas than evolutionary older functions, since there'd be a broader palette of preestablished neural circuits these newer functions could build upon (Anderson, 2010). Looking at brain organisation from this angle, certainly offers new ways to understand how the human brain and psyche evolved, as well as how cognitive functions and emotions are regulated.

The social brain, neural reuse and emotions

The basic capabilities to perceive and react to major events are present even in simple single cell organisms and perseveres in all invertebrates and vertebrates. While vertebrates brain plan overall is well-preserved, there certainly are differences in complexity and size. Classically it's been proposed that mammalian evolution led to drastic and fundamental changes which changed and added new forebrain structures — i.e., the limbic system and neocortex. However, this idea – as well as the notion that emotion heavily develops in the limbic areas – has been refuted (LeDoux, 2013). Modern theories of emotions, now place emphasis on specific emotional systems, e.g., defence and fear systems, in lieu of a universal emotional system (LeDoux, 2013).

Immordino-Yang and colleagues (2010) propose that neural reuse is a dynamic, socially organised process, involving cultural and social processes, and is influenced evolutionary, as well as ontogenetically by cultural transmission of values, mental

practises, and ways of thinking. They furthermore point out, that Anderson's theory of massive redeployment should be broadened to make room for cultural effects on the functioning of structurally similar neural systems and the insinuations of these variations for neural reuse, as neural systems are considered to also be reused in the development and evolution of complex human behaviours, e.g., social emotion (Immordino-Yang et al., 2010). Thus, recent research indicates that a reciprocal reuse between non-social and social neural systems, as well as the highlights the significance of cultural transmission as a means for repurposing and combining neural systems in new manners in human learning and evolution. In particular, the reuse between a social and a somatosensory system in the feeling of social emotions seems most conspicuous. Consider this: While angry it might feel as though someone was wrenching your guts, and when upset, it might feel as if a stone is sitting on your chest — these are common metaphors people use to describe how their emotional turmoil might manifest itself in physical symptoms and it seems, as research (Eisenberger et al., 2003; Eisenberger, 2012; Eisenberger, 2011; MacDonald & Leary, 2005) indicates, that certain brain systems indeed are responsible for physical pain in certain areas (such as the viscera) indeed are involved in humans experience of social and psychological pain. Immordino-Yang and colleagues (2010) furthermore point out that,

> *"These systems are also involved in the feeling of late-developing social emotions about another person's psychologically or physically painful, or admirable, circumstances. These systems most notably involve the anterior insula, anterior middle cingulate, and ascending somatosensory systems in the dorsal midbrain, most directly associated with the regulation of arousal and homeostasis."* (Immordino-Yang et al., 2010, p. 276)

Taking these findings into account, it not only indicates that neural reuse is involved in social processes, as well as emotions, but might even, if further expanded, explain, and help understand the dynamic between psychological or social distress and certain physical symptoms. Research by Parker and colleagues (2001) for example shows how Westerners typically express depression psychologically, whereas psychological distress tends to manifest itself somatically in different Asian populations. Applying a neural reuse perspective, might open for a new understanding of such differences

within the somatisation and not only cultural, but also brain processes involved (Immordino-Yang et al., 2010).

Psychological/social pain

In the previous chapter, it was briefly mentioned how psychological distress at times manifest themselves in physical symptoms. Furthermore, it was suggested, that certain brain systems responsible for physical pain also are involved in humans experience of social and psychological pain. Indeed, an emerging body of evidence (Eisenberger et al., 2003; Eisenberger, 2012; Eisenberger, 2011; MacDonald & Leary, 2005) from the last few decades, indicates that social pain –such as the feeling of rejection, heartbreak, or loss– may very well depend on pain-related neural circuitry. Albeit our often strict distinction between physical and social –as well as psychological-pain, accumulating research (Eisenberger et al., 2003; Eisenberger, 2012; Eisenberger, 2011; MacDonald & Leary, 2005) has shown that the experience of such pain might not differ all that much from that of physical pain. More concretely, research from both humans and animal studies elucidate how social and physical pain share, and rely on, a mutual neural and neurobiological basis — namely, mu-opioid-related signalling –which pain processing heavily depends on– and on the other hand shared neural activity within regions classically linked to the more often than not uncomfortable experience of physical pain (Eisenberger, 2012). The idea of social pain was first brought up by Panksepp and colleagues in the late 1970s, building their concept upon evidence that suggested that the social attachment system was built upon and relying on older systems such as that involved in pain (MacDonald & Leary, 2005). Perhaps even more influential was Panksepp's discovery of mu-opioids significant role in the experience of social stress. Mu-opioids are neurotransmitters and typically known for their role in pain processing, yet as Panksepp's research (as cited by MacDonald & Leary, 2005) has revealed, they also appear to be involved in separation distress related behaviours. Furthermore, it's been indicated that drugs such as morphine and codeine, which are usually administered to relieve pain, also seem to have an effect on the sensation of social pain. In relation to the aforementioned, Eisenberger (2012) points out that,

> "*across several mammalian species, morphine, which increases mu-opioid-related activity, reduces separation-distress vocalizations made by infants when separated from their mothers, whereas naloxone, which inhibits mu-opioid-related activity, increases distress vocalizations."* (p. 43)

Moreover, as mentioned above, physical, and social pain also rely on the same shared neural components. Despite the sensation of pain being difficult to distinguish and the feeling of pain often is described simply as painful, research (MacDonald & Leary, 2005) suggests that there's at least two differing underlying mechanisms. Firstly, there's a sensory element to the experience of pain, which is not only objective but also both informs us about where the pain is located, as well as with which intensity we're to experience the pain. Secondly, there's an affective element, that regulates as how distressing or unpleasant we are to perceive the pain. Eisenberger (2012) argues, that, social pain relies most on neural areas involved in the affective element of pain due to the significance of it "*for signaling an aversive state and motivating behaviors to reduce it*" (Eisenberger, 2012). Nonetheless, since physical complaints often follow the experience of social pain, it's not improbable to assume, that there's also a link between the sensory element and our experience psychological/social pain — which, with reference to the previous chapter, indeed also seems to be supported by evidence from research on neural reuse, as well evidence stemming from neuroimaging which revealed that the same set of neural regions is activated both in the sensation of physical, as well as social pain.

In a study by Eisenberg and colleagues (2003), participants were asked to engage in a virtual ball-tossing game by the name of *Cyberball*. While they were led to believe that they were playing along with two other players –who, however, were computer simulated– they were allowed to play freely in the initial round, then during the second round, the participants of the study were socially excluded by the other, artificial two players, who stopped throwing the ball to them. Neuroimaging revealed that, when the participants were excluded by the other players, they showed significantly greater activity in the dorsal anterior cingulate cortex (or dACC), which is a brain region involved in cognition and motor control but also is selective for pain. As Eisenberg and colleagues (2003) point out, the heightened activity in the dACC was reciprocal to the feeling of rejection from the exclusion. Furthermore,

there also seemed to be activity within the anterior insula — areas that also often are linked to the distress of physical pain (Eisenberg et al., 2003; Eisenberg, 2012). Subsequent research on the pain of rejection and exclusion, as well as negative appraisal from peers, additionally support these initial findings. Hence studies have showed that even viewing images that indicate social rejection is able to active these affective-pain-related brain regions, without participants actually having to experience the rejection in person (Eisenberger, 2012). Heightened activity in the dACC and anterior insula has additionally also been linked to being shown disapproving faces in videos and grief, as well as heartbreak (Kross et al., 2007; Eisenberger, 2012; O'Connor et al., 2008). The pain following heartbreak or romantic rejection has moreover also been identified to be activated in sensory-related brain areas, such as the secondary somatosensory cortex and posterior insula, which usually is known for its involvement in physical-pain responses.

Summa summarum, the evidence emerging from these various studies, suggest that social pain does activate the same neural regions otherwise linked to feelings of distress, and even –though less common– sensory sensations, in physical pain responses. Albeit different in nature and not interchangeable, physical and social pain at least seem to share intersecting neural and neurobiological foundations when it comes to how they're perceived and processed (Eisenberger, 2012).

One might wonder about the necessity of perceiving these different social experiences as painful — or in other words why humans have evolved mechanisms that brings them so much despair when being faced with negative social experiences. In relation, Eisenberger (2012) points out that, from an evolutionary perspective, it might actually make good sense, seeing as,

> "*humans, as a mammalian species, face a very long period of immaturity, in which they rely almost completely on others (caregivers) to obtain the necessary nourishment and protection. Later in life, connection to a social group promotes survival through shared responsibilities for food acquisition, predator protection, and offspring care"* (p. 42).

It is hypothesized that, through the course of human evolution, our social-attachment system might have built upon the older physical-pain systems, using the already existing pain signals to warn of possible social exclusion and encourage the strengthening or reestablishment of previous social bonds, thereby suggesting that social pain is an adaptive way of ensuring survival, seeing as humans (especially in the past) heavily depend on their caregivers when younger, but also later on their social group (Eisenberger, 2012; McDonald & Leary, 2005). In addition, the pain we feel upon social rejection or criticism, might very well also be an adaption function, meant to motivate us to avoid engaging in socially unacceptable behaviour that would lead to exclusion or at the very least threaten the way we're perceived by others (Eisenberger, 2012). In fact, McDonald and Leary (2005) argue that,

> "*such threats are partly mediated by the same system that processes physical pain because the pain system was already in place when social animals evolved adaptations for responding to social exclusion*." (p. 202)

The Evolution of Emotions

The history of studying emotions and their functionality dates far back in psychology. However, in psychology, traditional understandings of how emotions aid 'adaptation' was not based in biology (Nesse, 1998). Rather than understanding adaptations as traits shaped by natural selection, which serve functions that then increase net reproductive success, the function and 'adaptation' of emotion was viewed as an individual's ability to adjust to different social settings (Nesse, 1998). In lieu, research from an evolutionary biology perspective, tries to elucidate how selective mechanisms have shaped emotions through a linkage to our evolutionary history or in other words, through a phylogenetic understanding (Nesse, 1998; Nesse et al., 2009; Baldursson, 2013). However, even many of the studies and models which adopt an evolutionary perspective were, as Nesse (1998) points out,

> "*based on outmoded ideas such as group selection, or they confound questions about individual differences with questions about the generic design of the organism, or they are based on vague statements about the*

general benefits of emotional states, such as happiness, that are purported to be more beneficial than other states" (p. 398).

Albeit there historically being significant disagreement about the right approach to studying emotions through an evolutionary perspective, there at least seems to have been a consensus regarding its importance (Nesse et al., 2009).

So how can we understand emotions through an evolutionary lens?

At the bottom of the concept of the evolution of emotion is the notion, that certain situations with key adaptive challenges surfaced rather often in the course of evolution, while the individuals with a genetic tendency to adjust well to those changes (i.e. adjust 'settings' of both body and mind to meet new requirements) had greater reproductive success — thereby also passing those new adjusted parameters down to their offspring (Nesse, 1998). From this perspective, Nesse (1998) argues that, "*emotions are analogous to computer programs that take over the operation of many aspects of the system to improve the ability to deal with specific adaptive challenges*" (p. 398).

Then, when a specific situation has recurred often enough and thus also impacted fitness sufficiently during evolution, it is able to shape distinct emotional modes. Rather than seeking to find an explanation for certain emotions in the characteristics of the emotion or situation, Nesse (1998) suggests that we'd better ask how the characteristics of the emotion give a selective advantage in regard to the adaptive challenges in a given situation. Ergo, we ought to evaluate the evolutionary utility of an emotion, finding explanations through explicit descriptions of a chosen situation and seek to illuminate how the emotion could be useful to the selective forces in the situation (Nesse, 1998). Emotions can give advantages for example through changes in cognition or physiology, motivation and modification of behavior and "*like everything else in the body, the mechanisms that regulate protective responses can fail, causing conditions such as chronic pain and anxiety disorders"* (Nesse et al., 2009, p. 21). In summa, emotions are complex and multifaceted, not necessarily solely aiding one function. When trying to expound on what the core emotions are, or how many of those exist, it's also important to highlight, that natural selection shapes new unique states of arousal based on pre-existing states, shaping

them so the differentiate enough from the original ones to offer incremental advantages (Nesse, 1998).

In addition, adopting this evolutionary approach to emotions also aids in illuminating why emotions typically have positive and/or negative capabilities — simply put, if a situation did not either present opportunities or risks, it would not shape a new distinct state. Or in other words, neutral emotions would serve no purpose in the grand scheme of selective advantages. Often and for most species, there is only a limited variety of situations that offer opportunities, whereas there are far more situations that present certain risks, thereby increasing the need for more negative, rather than positive emotions (Nesse, 1998; Nesse, 2004). Looking at negative emotions from that perspective, it becomes rather clear, that negative emotions are just as useful -or perhaps rather necessary - as positive emotions. As Ng (2017) highlights,

> *"Negative emotions have adaptive significance, and often have other utilitarian benefits in certain contexts. Preferences for, and experiences of, useful emotions, improve well-being, regardless of whether the emotions are pleasant or unpleasant in valence."* (p. 1567).

This might seem counterintuitive, since the common consensus seems to be that negative emotions are bad. No one wishes to suffer from anxiety or to feel so weighed down by their sadness, that they hardly can get out of bed in the morning. Not only that, but studies show that people with a lower quality of life -hereby included happiness- are more prone to have bad health and die earlier (Nesse, 2019, p. 64). Nevertheless, from an evolutionary standpoint it can be argued, that those very negative emotions we always seek to either avoid or rid ourselves of, serve a purpose. But why?

Negative Feelings

Indeed, how can negative emotions be beneficial? According to Nesse (1998) anxiety, stress, social pain - all these feelings serve a purpose and are to a certain extent normal, even desirable. How useful or harmful an emotion is, depends entirely on the situation in which it arises (Nesse, 2004). Being in a relaxed and unbothered state is nice and desirable, unless a wild animal is approaching us, and we'd ought to react to the new threat. Having no capacity for fear can be dangerous, yes life-threatening even. Yet there seemingly also are situations where panic seems useless. What purpose then could it possibly have to experience a panic attack in a crowd of other people? Or when having to stand in front of ones class and present a project? Here it is, as Nesse (2015) points out, crucial to recognize that not all emotions or affect states are useful and that there's a mismatch between our mind and our modern environment, as well as the fact that our emotions didn't evolve to benefit us but our genes (Nesse, 2015). Put into other words, the problem is not necessarily the bad feeling, but the situation itself. To condemn negative emotions as such, would be to undervalue that though they might be useless or perceived as too overwhelming, they're also quite normal.

Nesse (2019, pp. 67-83) proposes **the smoke detector principle** to explain these normal but often unnecessary instances of negative emotions, such as anxiety. Natural selection, as stated previously, didn't shape our emotions or the systems to regulate them to benefit us and our happiness, but rather to increase our fitness and selective advantages — ergo, they're expressed whenever it's worth it (Nesse, 2015; Nesse, 1998; Nesse, 2019, pp. 67-83). The panic we feel when being faced with a dangerous animal is worth it, compared to the potentially fatal outcome should we panic and our flight or fight responses kick in. When startled awake at night by some noise, most times the situation will turn out to be harmless — perhaps it's the wind outside rattling the windows, perhaps it's the cat jumping down from a counter. However, there is a slight chance that it could be an intruder and, in that case, wouldn't it be better to be alerted? So instead of viewing anxiety as a disease, an evolutionary perspective allows for anxiety to instead be understood as one of the body's protective mechanisms (Nesse, 2019, pp. 67-83). Building upon that, we must also recognize that, firstly neither our bodies nor minds are without 'design flaws', and that secondly, our environment is much safer now than it was when we first

evolved (Nesse, 2004; Nesse, 2015; Murphy & Stich, 1998). Depression can have many causes. We typically see it following major life changing events, such as the loss of a loved one. Here Nesse (1998, p. 402) highlights, "*a general explanation is that after a loss, a special state can prevent further similar losses and can motivate reassessment of adaptive strategies in the light of the loss".* But depression can also follow the loss of social status, humiliation or not being able to attain a goal. In most of these cases, it makes sense for the body and mind's defense mechanisms to step in and safe the individual energy, when all the available options to deal with the situation have more costs than benefits (Nesse, 1998).

Whereas in medicine, doctors distinct between symptoms and diseases, between normal and abnormal functioning, traditionally both psychiatry and psychology have neglected to address the normal functioning of our feelings and thoughts (Nesse, 2019, p. 27). Yet realizing that negative emotions are useful, shifts the search for causes from solely looking for brain abnormalities to instead also regarding the regulation of emotions, as well as evaluating the numerous evolutionary reasons behind their – at times - excessiveness (Nesse, 2019, p. 27; Nesse, 1998; Nesse, 1984).

Since most mental disorders, are emotional disorders of some kind, Nesse (1998) advices, that we ought not to automatically assume a disorder until we know the situation which has led to the emotions and understand how they're regulated. He furthermore argues that what is classified as normal vs. abnormal emotions, shouldn't depend on what feels good or bad or in other words – what is perceived as negative or positive emotions (Nesse, 1998). Negative emotions can be as valuable as positive emotions and positive emotions as harmful as negative emotions, considering the circumstances (Nesse, 2019, pp. 46-48). Thus far, there's still a lack of research on the excessive positive emotions and its consequences sadly has not been studied or even acknowledged enough, which perhaps is quite understandable, seeing as people typically do not seek help for their lack of anxiety or low mood (Nesse, 2019, p. 6). Yet studies suggest that people that lack anxiety typically show greater potential for taking risks and getting injured, while people that are born without the ability to experience physical pain often die earlier.

Conclusion

Albeit increasing rates of mental illnesses have, both in research and in the public, been widely noted and acknowledged in the past few decades and usually (Western) social and cultural changes are pointed out as the cause, the scientific field of psychology seems to be divided in regard how to best analyse and comprehend the problem (Richter et al., 2008; Murphy & Stich, 1998). Furthermore, as this project has attempted to illuminate, the popularisation of positive approaches toward understanding mental health and the human mind, carries potentially harmful notions, which might be the very reason our stress nowadays seems all the more encompassing and our sadness feels "sadder" than it used to in the past.

Confusing mental or emotional health with happiness and well-being, misunderstands negative emotions, as well as stress and pain as inevitable pathological, although it is - as suggested in part two of this project - normal to feel sad, hopeless, demotivated and even depressed at times (Carlisle et al., 2009). Williams (2000) argues that we, largely due to the happiness culture we have illuminated in part one of this project, are witnessing an upsurge of tribulations which, although they do not call for a diagnosis, are nowadays viewed as mental illnesses in need of remediation. Horwitz and Wakefield (2007) furthermore suggest that the observed increase of depression within people not arises from a true spike of mental illness but is a result of normal sadness being pathologized in recent years.

A naturalistic approach, as tentatively proposed in this project, instead suggests that the human mind or mental health is not perfectly designed machine which we can analyse with a simple manual or small, neat models— we are, our emotions are, and the evolution of our psyche has been, complex (Nesse, 1998; Nesse et al., 2009; Ng, 2017; Nesse, 2019, p. 51). Even feelings such as jealousy and envy, emotions that often are perceived as bad as well, have and do benefit our genes (Nesse, 2019, 65; Nesse, 1990). Furthermore, as elucidated in part two of the project, research indicates that stress and pain systems not only have numerous physical and psychological effects, but additionally since being two of the oldest systems that emerged in our evolution, forego and intersperse various newer systems and mechanisms of the human psyche (Anderson, 2010; Anderson & Penner-Wilger, 2013; Anderson et al.,

2013; Eisenberger, 2012; Eisenberger et al., 2003). In summa, just as we cannot avoid our need for food and water, we also can't avoid having "negative" feelings from time to time and they, as the herein included research proposes, are not only normal but in some instances indeed necessary.

Often it appears all too easy to forget that emotions do not exist in a vacuum, that general happiness or mental well-being is not necessarily threatened by spells of sadness or grief, and that instead they very well can co-exist. We can be happy and terribly sad at the same time and sometimes our sadness makes happiness even greater - think nostalgia. We can easily miss old times and be sad that these times are over, but grateful and happy that we have made the very experiences we now miss. The word "bittersweet" should be an oxymoron, but most people probably know the feeling that something feels bittersweet. The same goes for love that hurts, simply because it is so overwhelming. Or for an emptiness that fills everything in a person, even though the idea of feeling nothing and feeling too much of nothing, again is an oxymoron and seems terribly ironic. It could also be argued that not all of us are meant to walk the same paths in life, there is not one right way to be, feel or think. You can't make a giraffe out of a penguin - but why should we? The penguin can do things the giraffe can't and vice versa, yet both have their own unique abilities and purposes. The same could be said to apply to humans, as well as to emotions.

Nesse (2019, pp. 4-7) points out his anxiety patients often felt weak or flawed when he sympathized with them for having a disease, but that, when he began explaining how anxiety, in actuality, is a useful response, which was developed throughout our evolution to protect us, and which just happens to go overboard from time to time, his patients reported to instead feel empowered through having their feelings normalized. Helping patients understand the functions of their emotions and mechanisms behind their mental illnesses, instead of presenting them as personal flaws and such, might thus be the key in helping patients accept and better cope with their tribulations.

The project on hand aimed to tentatively frame a more naturalistic approach to how we can comprehend the human psyche and mental health, precisely to illuminate not only the need of the selfsame, but also what it can offer. However, it has only

scratched the surface of the available body of empirical research and theories within the scientific field of psychology that can add to formulate a naturalistic approach more fitting to encompass all facets of the human mind and mental health, without assigning valence to its many different parts. Hence further research and analyses, as well as discussions about its possible clinical application, will be needed in order to, as Nesse (2019) was quoted in the introduction of the paper, "*be able to see the whole landscape of mental illness*" (p. 7). Or at least to provide the, with the hitherto available evidence, most realistic and naturalistic comprehension.

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