



**Orthorexia Nervosa:
lifestyle phenomenon or mental health disorder?**

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Abstract

The phenomenon of orthorexia nervosa gained the attention of clinicians and scholars ever since Bratman introduced the term in 1997. Orthorexia is defined as a fixation with healthy eating characterized by rigid avoidance of foods believed to be “unhealthy or impure”. Despite its epidemiological relevance, it has not been recognized as a mental disorder. There are numerous conflicting argumentations surrounding this new phenomenon. The purpose of this literature review is to assess which are the argumentations in the debate whether orthorexia nervosa should be considered a mental disorder. The argumentations included in this literature review are pragmatism, social constructivism, Wakefield’s theory of harmful dysfunction, neurobiology, biopsychosocial model and the DSM-5. Moreover, existing research is evaluated and synthesized to identify what is known about the definition, diagnostic criteria, measurement tools, prevalence and neuropsychology of orthorexia nervosa. This analysis indicates that there are some physical, social, psychological and cognitive impairments. However, further research is needed to determine whether orthorexia should be considered a mental disorder.

Keywords

Orthorexia nervosa, mental disorders, diagnosis, measurement tools, social constructivism, pragmatism, Wakefield’s harmful dysfunction, neurobiology, DSM-5

Table of contents

1. Introduction.....	Error! Bookmark not defined.
2. Methods.....	7
3. Defining mental disorders	9
3.1 Pragmatism.....	9
3.2 Social Constructivism	11
3.3 Wakefield's harmful dysfunction.....	13
3.4 Neurobiological perspective	15
3.5 Biopsychosocial model	16
3.6 DSM-5.....	17
4. Orthorexia Nervosa	21
4.1 Definitions.....	21
4.2 Diagnostic Criteria	22
4.3 Measurement tools	Error! Bookmark not defined.
4.4 Prevalence	Error! Bookmark not defined.
4.5 Physical consequences	Error! Bookmark not defined.
4.6 Social and psychological characteristics.....	Error! Bookmark not defined.
4.7 Neuropsychological impairments	Error! Bookmark not defined.
4.8 Comparison with other mental disorders	Error! Bookmark not defined.
5. Conclusion	34
6. Discussion	40
Literature.....	43

Chapter 1. Introduction

In recent years, there has been an increased interest in healthy eating. Special diets such as vegan, vegetarian, gluten-free diets and other clean eating trends are frequently promoted on social and popular media. Particularly, “clean eating” has become popular through Instagram, food blogs and other websites. According to Ambwani, Shippe, Gao, & Austin (2019), “clean eating” is perceived as healthy and defined as “eating local, “real” (non-processed), organic, plant-based, home-cooked foods. Often also more extreme strategies such as eliminating gluten, grains, or dairy are advertised. However, what happens when healthy eating becomes obsessive? When does this seemingly healthy new eating trend become pathological? Could a strong fixation on healthy eating lead to harmful consequences? This phenomenon is known as orthorexia nervosa (orthorexia nervosa) “to describe people whose extreme diets – intended for health reasons – are in fact leading to malnutrition and/or impairment of daily functioning” (Dunn & Bratman, 2016). Individuals with orthorexia nervosa are striving for optimal health, however their fixation with healthy eating may lead to nutritional deficiencies, medical complications and poor quality of life (Koven & Abry, 2015). The term orthorexia nervosa was first coined by Bratman in 1997 to describe people with the desire to achieve “extreme dietary purity”. Ever since then, there have been multiple case studies of individuals displaying certain orthorexic eating patterns.

According to Dunn and Bratman (2016), “a 28-year-old woman with severe malnutrition marked hypoproteinemia, and vitamin B12 deficit, with a Body Mass Index (BMI) of 10.7” was reported by Zamora, Bonaachea, Sánchez, and Rial (2005). This woman had isolated herself from family and friends and ate only uncooked vegetables. Another case reported by Saddichha, Babu, and Chandra (2012) is that of “a 33-year-old woman with an eight year history of maintaining an exclusive diet of only fresh fruits, raw vegetables, and uncooked eggs. The patient did not report concerns about her body type or weight, but reportedly became obsessed about healthful eating. She reportedly was worried that cooking foods would ruin their nutritional qualities. During this time, she reportedly cut ties with her friends and family and developed a BMI of 14.5 requiring medical intervention.” (Dunn & Bratman, 2016).

Orthorexia nervosa is a relatively new and emerging topic in the media and in international research and the debate of whether it belongs to the category of mental disorders

is still ongoing. There has been a growing number of articles investigating this phenomenon (Cena et al., 2019). Various scholars have proposed definitions, diagnostic criteria and measurement tools for the assessment and diagnosis of orthorexia nervosa, but there is no unanimous consensus among researchers concerning these proposals. Despite orthorexia's epidemiological relevance, it is not officially classified as a distinct mental disorder in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). This is the central taxonomic and diagnostic tool published by the American Psychiatric Association (APA). The DSM serves as the principal authority for psychiatric diagnoses and treatment recommendations. Orthorexia is also not classified in the 11th version of the International Statistical Classification of Diseases and Related Health Problems (ICD-11). This is a globally used diagnostic tool for epidemiology, health management and clinical purposes. It is maintained by the World Health Organization. According to Marazziti et al. (2014), orthorexia nervosa should not be considered a real disorder but rather an extreme behavioral addiction (Marazziti et al., 2014). Other scholars question whether orthorexia nervosa is just an extreme dietary habit (Varga et al., 2013). However, the most common belief is that orthorexia nervosa is an eating disorder, but even this opinion has been challenged by researchers arguing it should be classified as a subtype of obsessive-compulsive disorder (Mathieu, 2005). Opinions and claims about the nature of this newly identified eating behavior range from seeing it as disturbing, to acceptable. Further research is necessary to clarify whether orthorexia nervosa has a place among the mental disorders. This is important for several reasons. In case orthorexia causes significant pathological distress, it is essential to be acknowledged as a mental disorder in order for orthorexic individuals to be recognized and to be able to receive suitable treatment. However, if orthorexia is not a mental disorder then it should not be addressed as such because it runs the risk of medicalizing normal behavior and unnecessarily labelling people and maybe even stigmatizing people as orthorexic. In order to be able to determine whether orthorexia nervosa is a mental disorder one has to consider all the stances and perspectives in the ongoing debate while also investigating the arguments in favor and against. There is still much confusion surrounding the topic of orthorexia with various conflicting opinions. Thus, it is important to categorize and organize the different argumentations taking place in this debate. This will provide more clarity on what perspectives are in favor and which views argue orthorexia as a mental disorder.

Hence, the aim of this integrative literature review is to answer the following research question:

“Which are the argumentations in the debate whether Orthorexia Nervosa should be considered a mental disorder?”

The research question will be answered according to six perspectives; pragmatism, social constructivism, Wakefield’s theory of harmful dysfunction, neurobiology the biopsychosocial model and the DSM-5.

Firstly, the following chapter will describe the methodology of this literature review. Secondly, different definitions of mental disorders will be provided by using the six perspectives mentioned and a critical analysis will discern advantages from disadvantages according to each separate perspective. Thirdly, an overview and synthesis of different research papers that explore the topic of orthorexia will be discussed for a deeper understanding of what is known about the phenomenon to date. Basically, the fourth chapter will cover the definition of orthorexia nervosa, the diagnostic criteria proposed by Moroze et al. (2014) and by Dunn and Bratman (2016), the measure and prevalence of orthorexia nervosa, the psychological, social, cognitive impairments and the overlap of orthorexia with other mental disorders. The fifth chapter will include concluding remarks in light of chapter 3 and chapter 4. Subsequently, the study will move on to a discussion of the different argumentations on orthorexia in order to come to a telling conclusion with regards to the research question.

Chapter 2. Methods

This chapter turns the attention to the methodology of this research for a clear understanding of the method used in order to answer the research question. One of the methodological options considered was conducting an empirical study by collecting quantitative data through a survey: when based on an appropriate sample, statistical analysis may present reliable findings to test theoretical models. However, for the fact that orthorexia nervosa is not classified as a mental disorder, there are no officially approved diagnostic criteria. The lack of criteria recognized by the academic/ scientific community limits the possibility to adopt determined variables and carry out a valid statistical analysis. Next to the fact that the research is not carried out by licensed clinical psychologists, as mentioned in the above, the label ‘orthorexic’ cannot be attributed to participants to a research because orthorexia is not classified by the DSM-5 or any other classification system. Moreover, there is a growing debate whether orthorexia nervosa is an eating disorder or not. Researchers are divided on whether orthorexia nervosa is a mental disorder. Given the limits of the scientific classification of orthorexia, qualitative methods may represent a better fit to engage with explorative questions on the topic of orthorexia.

The literature presents some empirical evidence and identifies a debate on whether orthorexia nervosa should be considered as a distinct mental disorder. Many researchers are divided on whether orthorexia is an eating disorder or whether it even belongs to the category of mental disorders. Orthorexia nervosa is a relatively new phenomenon with little research conducted, however, there are many conflicting opinions of scientists and clinicians on the topic of orthorexia nervosa. A careful examination of the different argumentations partaking in the debate is necessary in order to investigate the objective evidence of orthorexia nervosa as a distinct mental disorder or not. It was decided to exclude the non-scientific or semi-scientific information and opinions circulating in popular media.

The design chosen for in this research is a literature review. This research is built on the available publications and knowledge derived from several fields that previously examined orthorexia nervosa. It is important to analyze the literature carefully and identify the relevant publications, as there may be a significant volume of knowledge related to orthorexia, but not necessarily pertinent to this research. With respect to this, Snyder states: “This makes it hard to keep up with state-of-the-art research and to be at the forefront, as well as to assess the collective evidence in a particular research area.” (Snyder, 2019). However, the identification

of orthorexia nervosa is relatively recent, the field of knowledge as well as the different academic debates on the matter, the territory is still researchable. Furthermore, Snyder states that a literature review can hold very strong points over other research methods. “By integrating findings and perspectives from many empirical findings, a literature review can address research questions with a power that no single study has” (Snyder, 2019).

This research is based on the description of various standpoints of scientists and the current discussions originating from these researchers’ different viewpoints, as described in the available literature. For these reasons the research question, “*Which are the argumentations in the debate whether Orthorexia Nervosa should be considered a mental disorder?*” was considered to be most appropriately examined by means of a literature review. This research is of inductive nature as several publications from a variety of fields are evaluated to converge toward answering the same research question. Therefore, this literature review explores whether the academic debate sufficiently raises answers to this research question. With respect to this specific research question a literature review may present several advantages. About this matter, Baumeister states (1997): “As compared with empirical reports, literature reviews can tackle broader and more abstract questions, can engage in more post hoc theorizing without the danger of capitalizing on chance, can make a stronger case for a null-hypothesis conclusion, and can appreciate and use methodological diversity better. Also, literature reviews can draw any of 4 conclusions: The hypothesis is correct, it has not been conclusively established but is the currently best guess, it is false, or the evidence permits no conclusion.” As Baumeister (1997) explains, the literature review has the potential to dig deeply into several explanations, to compare them and to contrast them.

In this case an integrative review approach was used, since the goal of this research is to target the research question and not so much to cover all publications on Orthorexia Nervosa. This integrative review provides a broader perspective by including multiple data (qualitative and quantitative) from theoretical and empirical literature. The literature search was done by means of electronic ‘keywords search’. Multiple search engines were available for this process: this research relied on public ones such as Google Scholar, or private ones provided by Tilburg University such as WorldCat Discovery. These search engines allow direct links to multiple sources such as psychology journals or more philosophical essays. The main search terms used in this research were orthorexia nervosa, mental disorders, diagnostic criteria for orthorexia nervosa, measurement tools, pragmatism, social constructivism, Wakefield’s harmful dysfunction, neurobiology, DSM-5.

To maintain the reliability of the literature sources, the criteria of scientific eligibility were held of primary importance to select appropriate articles. First of all, it was imperative to check the construct validity of the sources. Through a thorough check of the articles resulting from the keywords search, the most relevant were selected based on whether they related adequately to the concepts needed for this research. Secondly, a careful overview of the literature was necessary to preserve the internal validity of the current research. In other words, before proceeding to the available literature, all sources were examined in detail in order to avoid biased comparisons or build the theory on contradictory claims. In this way, the literature could be interpreted correctly, which allows to balance theories and arguments in favor or against those. Thirdly, the external validity of the sources was evaluated. For example, statistical studies are highly context dependent, meaning that their results are contingent to their analysis. In this case, when mentioning preliminary explorations on orthorexia, when presenting their findings, their limitations need to be considered as well. To avoid universalistic claims, the content of academic articles and the generalizability of their evaluations are considered in their context.

The publications considered in this literature review stem from six different perspectives with different conceptualizations and definitions of mental disorders. Perspectives of philosophy (pragmatism, social constructivism and Wakefield's harmful dysfunction), but also from other disciplines such as neurobiology, biology, psychology and the DSM-5 allow for a more interdisciplinary approach. In this way orthorexia will be explored from various standpoints and disciplines and different views on the question whether orthorexia should be considered a mental disorder, will be described and analyzed.

Before proceeding to the analysis of the research question it is imperative to define and conceptualize mental disorders from the six previously stated perspectives; pragmatism, social constructivism, Wakefield's theory of harmful dysfunction, neurobiology, the biopsychosocial model and the DSM-5. In chapter 3, there will be a thorough evaluation of the six different perspectives including a discussion of their potential arguments and their limitations. Once a clear definition is given by each of those perspectives, a summary of the most relevant findings of orthorexia will be presented and evaluated in chapter 4. Particularly, chapter 4 includes an analysis and synthesis of extant literature on the definition of orthorexia nervosa, the diagnostic criteria proposed by Moroze et al. (2014) and by Dunn and Bratman (2016), the measure and prevalence of orthorexia, the psychological, social, cognitive impairments and the overlap of orthorexia with other mental disorders. This way a clear overview of what is known about the topic will be provided. In addition, the references used in this thesis are based on both

quantitative and qualitative data. In other words, the references are based mainly on previous experiments and literature reviews. Furthermore, this thesis is using an inductive methodology, which starts with the specific observations and theories towards a general answer to the research question. In chapter 5, a conclusion will summarize the findings of the literature review and also clarify which stance each perspective takes in the debate. Lastly, a discussion will follow after the conclusion including all perspectives which will be discussed in light of the research question. Arguments will be presented from each perspective separately to determine to what extent orthorexia nervosa can be considered a distinct mental disorder.

Chapter 3. Defining mental disorders

In order to evaluate the different argumentations partaking place in the debate whether orthorexia nervosa should be considered a mental disorder, it is necessary to investigate what mental disorders are according to the six perspectives analyzed in this literature review. There has been an abundance of different theories trying to define what a mental disorder is. Due to its variety of theories there is often cause for conflict, as confusion may arise based on different views as to which definition is the correct one. Defining mental disorders is a complicated task and opinions may vary, however it is important for several reasons. Firstly, understanding and defining mental disorders contributes to the classification that is needed to create a universal standardized language between clinicians. Secondly, it is paramount to distinguish between pathological and normal behavior. Thirdly, it is vital to avoid medicalization of normal behavior and unnecessary labeling. Fourthly, it is relevant to avoid under treatment of people suffering from mental disorders. Especially in the case of new mental disorders, people's pathological suffering might not be recognized as mental disorders and that often leads to under treatment.

This chapter will shed some light on the definition of mental disorders by exploring and comparing different perspectives and models; pragmatism, social constructivism, Wakefield's theory of harmful dysfunction, neurobiology, the biopsychosocial model and the DSM-5 definition of mental disorders. The aim of this chapter is to investigate the advantages and disadvantages of the general definition of mental disorders provided by all these different argumentations. Later on, these definitions will be used to determine whether orthorexia nervosa should be considered a mental disorder.

3.1 Pragmatism

According to Kendler (2016), pragmatism in its classic form, avoids using metaphysical speculation; it is "unambitious and reluctant to make claims about the underlying reality of psychiatric disorders." (Kendler, 2016). Zachar (2014) who is an advocate of pragmatism defines it as "a term with both common sense and technical meaning". However, in order to fully understand pragmatism, one must first look at William James (1842-1910), who is the

founding father of pragmatism. James was a very influential American philosopher and psychologist. He established together with Charles Sanders Peirce, the philosophical school of pragmatism. Pragmatism, according to William James, has “no prior commitments that oblige it to take a side in metaphysical debates such as those between scientific realists and anti-realists. Neither does it deny the value of substantive philosophical distinctions that are explored in such debates” (Zachar, 2014). From this, Zachar states that “according to pragmatism, concepts such as truth should be understood with respect to their practical consequences” (Zachar, 2014). This would essentially mean that pragmatism is defined by the source of a problem or action that can be found by observing the most practical and visible approach to a problem. These thoughts are also reflected by the following quote that could be found in Kendler.

“As a working scientist or clinician, I just want to predict and control features of the world. I want a psychiatric diagnosis that tells me what treatment to use, is good at predicting the course of illness, and correlates well with important biomarkers. What the hell do I care about metaphysics and vague philosophical phrases such as “mind-independent reality”!” (Kendler, 2016)

As can be derived from this quote, pragmatism in practice, focuses on what measurement tools and treatment methods successfully predict, diagnose and treat mental disorders. Pragmatism’s approach is in general neutral when it comes to the status of the reality of mental disorders. In common sense terms, pragmatism does not make any claims about whether mental disorders are real or not. But pragmatism is very much interested in whether the measurement tools for the diagnosis and treatment methods of mental disorders work satisfactorily (Kendler, 2016). At first glance, this may appear to be “a coherent, sensible, moderate position” (Kendler, 2016) as it works to treat disorders based on what can be treated rather than just making assumptions on what it is. It seems to be a workable approach to mental disorders. However, this also means that “Pragmatism, in its classic form, is unambitious and is reluctant to make claims about the underlying reality of psychiatric disorders.” (Kendler, 2016). This is precisely the point that Kendler takes issue with and defines as pragmatism’s greatest limitations. If mental disorders cannot be observed by medical professionals, then according to pragmatism, mental disorders could not be viewed as a real illness in some instances.

Kendler has numerous issues with pragmatism, the two most important ones will be further elaborated on. His first issue is of a personal nature. Having treated patients with mental

disorders over several years, and having first-hand experiences on the trauma that they and their families have undergone during the course of treatment, Kendler states that viewing or even inferring that the nature of their illness is not real is “disrespectful” (Kendler, 2016) towards his patients and their families. Although he does acknowledge that this issue is an ethical one, that is born out of his personal emotions, he feels it is a very important issue. Kendler (2016) states: “I continue to feel an obligation to counter this position (the pragmatism) and argue for the reality of mental disorders” (Kendler, 2016).

His second argument is that by employing a pragmatic approach there is a “devaluation of psychiatry as a legitimate biomedical discipline” (Kendler, 2016). He argues that surgeons, for instance, do not find themselves in a position of having to wonder as to what degree a gall stone is real. Therefore, partaking in a debate without recognizing mental disorders as real disfavours all psychiatrists because this is not a question that a surgeons are ever confronted with. Hence, according to Kendler (2016), it does not serve any purpose to create a common ground in the debate of respect and resources that these two different strands of medicine (surgical and mental) have been debating over the last couple of years.

To sum up, pragmatism is not interested in the (mental) disease, only in the effectiveness of measurements and treatments. The critique (formulated by Kendler) is that this point of view is disrespectful towards patients, their families and also towards psychiatrists.

3.2 Social Constructivism

Social constructivism states that people work together to construct artifacts. According to social constructivism, mental disorders are social constructs and “to say that something is socially constructed is to say that it would not exist without the activities and social conventions of human beings” (Kendler, 2016). For example, social constructs such as money or passports were created by humans and are used for purchasing goods and travelling, respectively (Kendler, 2016). The way in which social constructivism works is best defined by Satcher:

“The cultures from which people hail affect all aspects of mental health and illness, including the types of stresses they confront, whether they seek help, what types of help they seek, what symptoms and concerns they bring to clinical attention, and what types of coping styles and social supports they possess. Likewise, the cultures of clinicians and service systems influence the nature of mental health services.” (Satcher, 2001)

When defining mental disorders, a distinction needs to be made about what is healthy (mental state) and what is pathological (mental state) in order to determine whether a condition can be

considered a mental disorder (van Riel, 2016). Boundaries between healthy and pathological are partly based on social and cultural norms that expect individuals to behave a certain way in society. Based on this claim made by van Riel (2016), it may therefore be inferred that as social constructs cannot exist solely by themselves as they were created and built by society. So if society as a whole would cease to exist, then also social constructs would disappear. Hence, without considering statistical deviation from the norm, on one extreme, it could be argued that mental disorders are dependent on society, and without society there would be no mental disorders. An argument in favor of social constructivism is that certain behaviours that are perceived as symptoms of a mental disorder in Western cultures are not perceived as such in non-Western cultures (Perring, 2001). Thus, the definition of mental disorders is relative to the sociocultural norms. Another argument that supports social constructivism is that the expression of emotion in regard to somatic symptoms is different among cultures. In Western culture, it is generally accepted that somatic symptoms are likely to be a response of emotional distress, however, this possibly leads to a bias that views somatic symptoms as an inferior way of dealing with psychological problems (Krupić et al., 2019; Bagayogo, Interian & Escobar, 2013; Moldavsky, 2004). On the contrary, non-Western cultures translate psychological problems into somatic complaints (Calzada et al., 2017). In fact, studies have shown that the rates of somatic symptoms caused by stress are extremely high in China, Japan and Arab countries (Löwe & Gerloff, 2018; Matsumoto & Juang, 2016). Also we know that some mental disorders only occur in certain societies. E.g., in Japan it is estimated that around 1 million youths locking themselves away in their bedroom are a lost generation. This phenomenon is called: *Shakaiteki Hikikomori* (social withdrawal) (Kato, Kanba, Teo, 2018). This does not seem to occur in any other culture. Overall, these examples show the profound social and cultural influences on mental disorders.

On the other hand, defining mental disorders solely on sociocultural grounds can be problematic when one is on the search for a clear definition of mental disorders (Thakker, Ward & Strongman, 1990). There is no precision and detail on what a mental disorder is nor what the line is that separates pathology from non-pathology. Social constructivism is criticized for its broad variations of psychopathology across sociocultural environments (Thakker, Ward & Strongman, 1990). In other words, there is no general definition of what is considered pathological that can apply to every sociocultural context. Social constructivism has a vague stance towards psychopathology that blurs the lines between pathology from non-pathology, which makes it harder to differentiate them. In this case, there is no “core” of what a mental disorder is nor any clarity about what is considered abnormal. Furthermore, according to

Kendler (2016), social forces influence the field of psychiatry in general and the revisions of classifications are not purely scientific. Kendler (2016) illustrates this argument with an example of post-traumatic stress disorder (PTSD):

“Traumatic reactions to the barbarity of warfare had long been recognized. But the decision to add PTSD to DSM-III arose out of a complex, historical context involving the Vietnam Veterans Against the War and politically involved prominent U.S. psychiatrists who believed that suffering Veterans were not being recognized or adequately treated by the country they served. The historical record suggests that the decision to include PTSD, with its specific criteria, was substantially influenced by the social and political environment in the U.S. in the late 1970s associated with the Vietnam War.”

What this example by Kendlar (2016) is meant to illuminate is that in most cases “socially influenced disorders are common, as our nosologic processes typically involve important social and cultural elements”. This essentially means that history does influence the way mental disorders may have been viewed and adapt the way that they are handled within society. Kendler (2016) does acknowledge that throughout history there may have been cases of mental disorders that were socially constructed, however he points that these cases were extremely rare. For example Caroline Walker Bynum stated in her book ‘Holy Feast and Holy Fast’, that in the Middle Ages, the fasting of women were considered to be a sign of Holiness and never a sign of an eating disorder. (Walker Bynum, 1987).

Still mental disorders are not only social constructs, as Kendler (2016) points out, but are rather formed by sociocultural norms. Thus, according Kendler (2016), even if mental disorders are influenced by social forces, the reality of mental disorders should still not be doubted.

3.3 Wakefield’s harmful dysfunction

According to Wakefield’s theory of harmful dysfunction, mental disorders are defined based on two principles or components: a) the value component (harmful) and b) the factual component (dysfunction). He defines mental disorders in the following quote:

“A condition is a disorder if it is negatively valued ("harmful") and it is in fact due to a failure of some internal mechanism to perform a function for which it was biologically designed (i.e., naturally selected)” (Wakefield, 2007)

Firstly, according to the “value component”, “a condition is a mental disorder only if it is harmful according to social values and thus at least potentially warrants medical attention.” (Wakefield, 2007). However, this definition is not exhaustive, as it would label many socially disapproved conditions, such as amongst other things bad manners and ignorance, as mental disorders. For example, Wakefield explains this theory by giving an example of illiteracy, which is not considered a disorder, even though it causes harm, but if such condition was due to a neurological flaw or psychological inhibition then it would be qualified as a disorder.

Illiteracy -as was seen above- is not considered to be a mental disorder, even if its conditions are disvalued or perceived as harmful in society, for a dysfunction only exists when something has gone wrong with functioning (Wakefield, 2007), so that a mechanism cannot perform as it is naturally supposed to. Therefore, Wakefield (1992) argues that the second element that defines a mental disorder is the “factual component”, which states that a condition is a mental disorder when there is “an inability of some internal mechanism to perform its natural function”. The term “mechanism” is, according to Wakefield, used “in a generic sense that encompasses both physical organs and behavioral, psychological, motivational, perceptual, and other mental features of the organism.” (Wakefield, 1992). What is further expressed by Wakefield within his factual component is that a mental disorder is only considered to be so if it fails to perform “a function for which it was biologically designed” (Wakefield, 2007). For example, if someone loses a loved one and experiences immense grief then that is considered “harmful” but it is not a “dysfunction” although grief is according to societal standards a negative consequence. It is also an intercultural phenomenon as the concepts of grief and mourning a loved one is experienced in all cultures. However, if someone who has not experienced a loss but still feels such intense emotions in form of, for example, depression then according to Wakefield's second component its mechanism has failed to perform its function for which it was biologically designed and acts outside the normal social values that have been assigned by society. As a result it then is considered to be a mental disorder.

Wakefield's definition of harmful dysfunctions attempts to bring a more nuanced understanding as to what may be just considered a natural human reaction to stressful or emotional impactful situations and what should be considered a mental disorder. It has been quoted to be one of the “most rigorous and thoughtful attempts to address serious conceptual problems that beset the foundations of abnormal psychology” (McNally, 2001). However, it must be pointed out that various authors have criticized Wakefield's theory of harmful dysfunction. Indeed as stated by Brölde (2007), when considering “ "normal grief" vs. pathological bereavement (a possible component in depressive disorder) as two possible

reactions to loss” (Brölde, 2007) one must really consider as to whether this difference between these conditions is based on the failure of a specific mechanism when it comes to pathological bereavement but not when it comes to normal grief. “To defend the dysfunction account by postulating a "loss-response mechanism" is rather far fetched. It seems more plausible to regard the two conditions as *different ways of functioning*, where "the depressed way of grieving" is far more harmful than the "normal" way. This suggests that the presence of a dysfunction is not essential to disorder.”(Brölde, 2007). Furthermore Brölde (2007) questions Wakefield’s (2007) exclusion of what Brölde refers to as “normal grief” from the definition of a mental disorder “it might be appropriate to regard grief as a mental injury and, if all injuries are disorders, so is grief. It can also be argued that people in grief are entitled to sick leave with compensation. Normality is simply not the issue here.” (Brölde, 2007).

So in short, Wakefield defines the value component as harmful and the factual component as dysfunction in mental disorders. Brölde (2007) criticized this position by stating that normal grief should not be compared to “the depressed way of grieving”.

3.4 Neurobiological perspective

From a neurobiological perspective, mental disorders can be traced back to neurobiological mechanisms, deficient brain circuits, and other biological factors (Borsboom, Cramer, & Kalis, 2018; Weir, 2012). In this line of reasoning, mental disorders are nothing but biological diseases. Such is the opinion of Eric Kandel, who teaches about brain science in Columbia University. He states “the brain is the organ of the mind. Where else could mental disorders be if not in the brain?” (Weir, 2012).

This neurobiological approach has deepened our understanding of cognitive regulatory deficits in brain networks of patients with mental disorders (Etkin, Gyurak, O’Hara, 2013). For example, studies of neuroimaging have identified deficits in brain regions that affect executive functions (EF) and emotion regulation processes (ER). EF and ER deficits are pervasive in patients with psychotic disorders, mood disorders and anxiety disorders. These findings from the neurobiological approach are a significant step forward in research with the promise of future interventions that target EF and ER (Etkin, Gyurak, O’Hara, 2013). Additionally, advances in genetics have contributed to the explanation of mental disorders. For example, studies on schizophrenia have showed that its development can be explained by genetics that are passed down from parents to children (Tripathi, Das & Kar, 2019). Specifically, monozygotic twins’ concordance is 50% and a lower estimate of 10-19% for dizygotic twins (Narayan, Shikha & Shekhar, 2015). Other mental disorders such as autism, attention deficit

hyperactivity disorder (ADHD), bipolar disorder and major depression also are genetically hereditary (National Institute of Health, 2013). This leads to many scientists and clinicians such as Eric Kandel to believe that mental disorders are nothing but biological diseases. Also, Thomas R. Insel, the former director of the National Institute of Mental Health (NIMH), agreed that there is no difference between mental disorders and heart disease. As a matter of fact, he continues to say that “the only difference here is that the organ of interest is the brain instead of the heart. But the same principles apply” (Weir, 2012).

Nevertheless, this approach has also received criticism. For instance, Borsboom, Cramer, and Kalis (2018) call the neurobiological perspective that mental disorders can be explained ultimately in terms of specific dysfunctional neurobiological conditions “explanatory reductionism”. They reject this idea considering that many causal connections in mental disorders cannot be understood without referring to mental states. Many psychopathology networks depend to some extent on cultural and historical variations, which makes them partially context dependent. In this line of reasoning, the neurobiological approach, or explanatory reductionism, is not a feasible strategy to understanding mental disorders. Additionally, a “one-size-fits all” approach does not always apply to mental disorders (Wier, 2012). Specifically, McNally, who is a clinical psychologist, argues that although certain disorders may fit the biological model, others may be more physiological in nature (Wier, 2012). Mental disorders such as depression and anxiety do not have a as clear biological foundation. They are likely to have multiple causes, including genetic, biological and environmental factors. According to Tripathi, Das and Kar (2019), the expression of genes is influenced by the psychosocial environment. Contrary to the neurobiological perspective, also known as explanatory reductionism, mental disorders are not only explained by biology and genetics, but rather by a complex interaction between the psychosocial environment and biology. Therefore, according to these clinicians and researchers, in order to understand mental disorders, placing an emphasis only on the biology is not enough as it may overlook important environmental, behavioral, and/or social factors that contribute to the mental disorder.

In conclusion, researchers and clinicians are divided when it comes to explaining mental disorders solely from a neurobiological perspective. Even though neuroimaging studies have contributed to our understanding of mental disorders, they have not contributed much progress in the treatment of mental disorders.

3.5 Biopsychosocial model

Nowadays, it is widely accepted in the clinical community that the development of mental disorders is explained by the complex interaction of three major dimensions: the biological, psychological and social dimensions (Tripathi, Das & Kar, 2019). This is the biopsychosocial model (BPS) first proposed by George Engel in 1977 and is until this date used to explain and define mental disorders. Contrary to the previously analyzed perspectives, the biopsychosocial model provides a more holistic approach to mental disorders. BPS argues that pathological distress is not just caused by biology but is rather due to a complex interaction of biological, psychological and social factors. For instance, patients diagnosed with depression have dysfunctional schemas throughout their life that cause them chronic stress (Schotte et al., 2006). Such schemas are negative patterns of thinking and are part of psychological factors. Social factors for depression could involve divorce and lack of social support or any other negative life event, while biological factors entail neurohormonal dysregulation and genetic predisposition. All three factors influence each other interdependently and consequently cause distress to the individual.

Even though BPS has been accepted globally by clinicians and researchers, there is still doubt on the validity of the model (Tripathi, Das & Kar, 2019). One of the main reasons is that there is a lack of consensus among researchers on how the biological, psychological and social dimensions of the model interact with each other and result in the development of mental disorders. Another reason for doubting BPS is that neurobiological breakthroughs have changed the way many researchers and clinicians think about mental disorders. Specifically, new technological and scientific advances have led to biological discoveries that provide “a more evidence-based, objectively verifiable and biologically grounded medical discipline of psychiatry” (Tripathi, Das & Kar, 2019). This results in psychosocial aspects of BPS thought as “outdated”.

3.6 The DSM-5

The latest version, fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) was released in 2013 by the American Psychiatric Association (APA) and is widely used by researchers, clinicians and other mental health professionals all around the globe. The DSM-5 provides a list of mental disorders with a description and a set of diagnostic criteria for each disorder, which must be present before diagnosing the disorder. Moreover, it is not necessary for patients to meet all criteria in order to be diagnosed with a disorder, but rather meet a certain amount out of a longer list of symptoms (e.g. five from nine). The DSM has been for years a standardized terminology used for mental health research and diagnosis of

mental disorders that provide a common language internationally used by clinicians. Although it is not without its faults or criticism, it has helped structure and organize all mental disorders into categories.

A general definition is given by the DSM-5 ¹ for the superordinate, general concept of mental disorder. This definition contributes in delimiting the boundaries of mental disorders:

“A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, such as the death of a loved one, is not a mental disorder. Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above.” (APA, 2013, p. 20)

The definition uses the term “syndromes”, which is further elaborated in the Glossary of Technical Terms in DSM-5 as “a grouping of signs and symptoms, based on their frequent co-occurrence that may suggest a common underlying pathogenesis, course, familial pattern, or treatment selection” (APA, 2013, p. 830). Thus, patients must fit the criteria/symptoms in order to be diagnosed with a mental disorder. Nevertheless, this does not imply that all patients of the same mental disorder also fit the same criteria. Some constructs of mental disorders are of polythetic nature, without any specific symptom being mandatory. In other words, each patient is different and will probably have a combination of different criteria that correspond to the mental disorders. To give an illustration, patients with Borderline Personality disorder must meet at least five out of nine symptoms, which also means that the five criteria can be combined in 126 different ways (Widiger, 2012).

Furthermore, according to Wakefield's theory, both previously mentioned requirements for mental disorders, harm and dysfunction, are mentioned in the definition of the DSM-5. The DSM-5 acknowledges the value component by referring to different forms of negative consequences such as “significant disturbance in an individual's cognition, emotion

¹ Due to the alignment of the two classification systems, DSM-5 and the International Classification of Diseases (ICD-11), only the DSM-5 definition will be used in this literature review.

regulation and behavior”, but also “significant distress in social, occupational and other important activities”. The factual component is also mentioned here as “a dysfunction in the psychological, biological, or developmental processes underlying mental functioning”. However, the definition does not mention anything about a function that failed to perform the way it was biologically or evolutionary designed. Moreover, the DSM-5 definition does acknowledge the influence of cultural and social norms on mental disorders. For instance, an individual’s “culturally approved” response to the death of a loved one should not be regarded as a mental disorder. This is also an argument Wakefield would agree with unless it was “due to a failure of some internal mechanism to perform a function for which it was biologically designed”, in that case it would be considered a mental disorder. Even though, the DSM-5 recognizes the impact that sociocultural norms have on mental disorders, it is not as radical as social constructivism to argue that mental disorders are solely constructed by society.

Moreover, the definition of the manual portrays three sources of etiological nature, psychological, biological and developmental processes that cause dysfunction in three areas of mental functioning; cognition, emotional regulation and behavior. This falls within the category of the biopsychosocial model since there is a complex interaction of all three major dimensions. However, according to researchers and clinicians that is not always the case. According to Probst (2015), the etiology of a mental disorder should ultimately lie within the psychological processes and not within biological mechanisms. In other words, what causes a mental disorder should be psychological disturbances and not physical disorder. However, the neurobiological perspective or *explanatory reductionism* would argue that the etiology of mental disorders lies within the biological processes (brain) and not within psychological mechanisms.

Thyer (2015) criticized the DSM-5 for adding a new mental disorder called Obstructive Sleep Apnea-Hypopnea (OSAH) that is caused by “repeated episodes of upper (pharyngeal) airway obstruction (apneas and hypopneas) during sleep” (APA, 2013, p. 379). This condition is distinctly caused by a somatic problem and not psychological. Thus, OSAH should not be listed as a mental disorder since the main cause of this condition is strictly physiological and not psychological. Another similar case is that of Alcohol intoxication that is categorized in the DSM-5 as a mental disorder. According to Thyer (2015), labeling conditions, such as OSAH and Alcohol intoxication, as mental disorders is a fundamental error. Many researchers such as Thyer and Probst (2015) believe that such conditions to be listed as mental disorders do not “make any scientific sense”, since they are not of psychological origin. Overall, the definition of the DSM-5 has distinguished mental disorders from non-mental disorders and its

standardized terminology enhances the communication between clinicians. However, classifying conditions with a clear biological etiology (OSAH) or temporal condition (alcohol intoxication) that have no link to psychological processes is a major flaw in the classification of mental disorders, according to Thyer (2015).

In an attempt to provide a general definition of mental disorders, this chapter has focused on four different perspectives; pragmatism, social constructivism, Wakefield's theory of harmful dysfunction and neurobiological perspective. Having analyzed each one's positive and negative attributes this chapter then went on to analyze the definition of the DSM-5. This study will now go on to discuss orthorexia nervosa before discussing as to what extent orthorexia nervosa may be considered a mental disorder.

Chapter 4. Orthorexia Nervosa

As stated earlier, orthorexia nervosa (orthorexia nervosa) was a term first coined by Steven Bratman in 1997 to describe a pathological fixation on healthy eating. Ever since there has been a debate whether orthorexia nervosa should be added in the classification systems along with the other eating disorders: anorexia nervosa, bulimia nervosa and binge-eating disorder. There have been many proposals for the inclusion of orthorexia in the DSM-V and DSM-5. However, orthorexia is not (yet) formally classified as a mental disorder. According to Vandereycken (2011), orthorexic behavior patterns are often observed by professional clinicians, but there is not enough research done and evidence found to prove the legitimacy of orthorexia. This chapter will focus on the definition of orthorexia nervosa, the diagnostic criteria proposed by Moroze et al. (2014) and by Dunn and Bratman (2016), the measure and prevalence of orthorexia, the psychological, social, cognitive impairments and the overlap of orthorexia with other mental disorders. On another note, this chapter will refer to individuals suspected with orthorexia as patients or orthorexic. It is to be noted that this choice of terms does not automatically attribute a mental disorder to orthorexic but is rather used for the sake of an easier reading.

4.1 Definitions

The term orthorexia nervosa is derived from the Greek word “orthos” which means straight, correct, right and “orexis” meaning hunger or appetite. Orthorexia nervosa has been described by researchers as “maniacal obsession” for healthy eating (Donini et al., 2004) or as “highly sensitive eating behavior disorder” (Bosi, Camur & Güler, 2007). Orthorexia does not yet have a universal definition, but it is defined by many researchers as Bratman first defined it, pathological fixation with healthy eating (Strand, 2004). According to Cena et al. (2018), orthorexia nervosa has been defined by different researchers with four different terms. Most often used term to describe orthorexia is “obsession”, but other terms such as “fixation”, “concern” and “preoccupation” have also been used. Although different terms are used to define orthorexia nervosa, the explanation is always the same since this obsession, fixation, concern and preoccupation is about healthy eating. According to Donini et al. (2004), orthorexia is expressed in a qualitative way and not a quantitative manner as seen in anorexia and bulimia. Simply put, people with orthorexia carefully select their food intake based on the

perceived quality of the food, while people with anorexia and bulimia worry about the quantity of their food intake (calories). Furthermore, orthorexic individuals are extremely preoccupied with thoughts and worries on eating unhealthy food and they end up spending a significant amount of time scrutinizing the source, processing and packaging of the food (Koven & Abry, 2015). For example, they will analyze for a long time whether vegetables have pesticides, preservatives or contain toxic chemicals such as plastic-derived carcinogenic compounds. Even though orthorexia nervosa is driven by the desire to achieve optimum health, it may lead to malnourishment. This is mainly due to dietary restrictions and in extreme cases, people with orthorexia would rather starve than consume food that they consider to be impure and unhealthy (Bosi, Camur & Güler, 2007).

4.2 Diagnostic Criteria

There are no generally accepted diagnostic criteria since orthorexia is not in any classification system. Nevertheless, some researchers have proposed their own recommendations for diagnostic criteria, but those have not been examined in a clinical sample of patients. First preliminary criteria for the diagnosis of orthorexia were proposed by Donini and colleagues in 2004. Their study results revealed that orthorexic subjects have certain characteristics that show their feelings towards food. Such characteristics are guilty feelings when not eating healthy and obsessive planning, purchase and preparation of food that are considered to be healthy. Another characteristic of orthorexia according to Donini and colleagues (2004) is a strong desire to eat when feeling nervous, excited, happy or guilty. Most of the orthorexic subjects use the adjective “dangerous” to describe conserved food, “artificial” for industrially produced food and “healthy” for biological food. Later on, in 2014 Moroze and colleagues proposed the first commonly used diagnostic criteria, which are the following:

“Criterion A: Obsessional preoccupation with eating “healthy foods,” focusing on concerns regarding the quality and composition of meals. (Two or more of the following.):

1. Consuming a nutritionally unbalanced diet owing to preoccupying beliefs about food “purity.”
2. Preoccupation and worries about eating impure or unhealthy foods and of the effect of food quality and composition on physical or emotional health or both.
3. Rigid avoidance of foods believed by the patient to be “unhealthy,” which may include foods containing any fat, preservatives, food additives, animal products, or other ingredients considered by the subject to be unhealthy.

4. For individuals who are not food professionals, excessive amounts of time (eg., 3 or more hours per day) spent reading about, acquiring, and preparing specific types of foods based on their perceived quality and composition.
5. Guilty feelings and worries after transgressions in which “unhealthy” or “impure” foods are consumed.
6. Intolerance to other’s food beliefs.
7. Spending excessive amounts of money relative to one’s income on foods because of their perceived quality and composition.

Criterion B: The obsessional preoccupation becomes impairing by either of the following:

1. Impairment of physical health owing to nutritional imbalances (eg., developing malnutrition because of an unbalanced diet).
2. Severe distress or impairment of social, academic, or vocational functioning owing to obsessional thoughts and behaviors focusing on patient’s beliefs about “healthy” eating.

Criterion C: The disturbance is not merely an exacerbation of the symptoms of another disorder such as obsessive-compulsive disorder or of schizophrenia or another psychotic disorder.

Criterion D: The behavior is not better accounted for by the exclusive observation of organized orthodox religious food observance or when concerns with specialized food requirements are in relation to professionally diagnosed food allergies or medical conditions requiring a special diet.”

After Moroze and colleagues (2014) proposed these criteria, there has been a second attempt to establish diagnostic criteria for orthorexia by Dunn and Bratman (2016). The criteria proposed by Dunn and Bratman (2016) also focus on the fact that orthorexic eating behavior determines body image, self-worth, identity and/ or satisfaction. Furthermore, Dunn and Bratman (2016) criticized Moroze and colleagues (2014) for not addressing weight loss nor fluid diets in the criteria since both are considered to be important characteristics of orthorexic individuals. Thus, they proposed new diagnostic criteria for orthorexia with the goal to improve its conceptualization, which would lead to more accurate diagnosis. Additionally, according to Dunn and Bratman (2016), anecdotal evidence and case studies are convincing enough to pursue whether orthorexia nervosa is a distinct mental disorder by using the proposed

diagnostic criteria they have developed. On the other hand, Moroze et al. (2014) argue that there is a lack of empirical evidence and since diagnostic criteria have not been validated (yet), orthorexia cannot be studied well. The debate is ongoing about the criteria of orthorexia. But what can be considered progress in the pursue of whether orthorexia is a distinct mental disorder is that some proposed diagnostic criteria remain consistent across studies. For example, such diagnostic criteria are feelings of anxiety and guilt after violation of healthy diet, interpersonal distress, malnutrition and elimination of food groups.

4.3 Measures of Orthorexia Nervosa

The first measurement tool for orthorexia consists of a 10-item dichotomous rating scale and was developed by Bratman and Knight (2000). Although it was not used much in research for orthorexia, it became the foundation for another measurement tool called ORTO-15 (Koven & Abry, 2015). Donini and colleagues (2005) developed the ORTO-15 questionnaire for the diagnosis of orthorexia. The questionnaire consists of 15 multiple choice items such as “In the last 3 months, did the thought of food worry you?”, “Do you feel guilty when transgressing?”, “At present, are you alone when having meals?” etc. Each item is required to be answered with “always, often, sometimes or never”. People are defined as orthorexic only when they score below 40 points in the questionnaire. In case the score is over 40 then subjects are closer to normal standards of eating behavior. The ORTO-15 is the most widely used measure of orthorexia and has been translated in numerous languages. However, according to Roncero, Barrada and Perpiña (2017), it has been inconsistent across different studies. Thus, researchers conducted a study on the Spanish population to analyze the psychometric properties of the ORTO-15. The results of the study suggest that the psychometric properties of the Spanish version of the questionnaire are not adequate. Additionally, scientists continue to argue that new instruments are necessary for the measure of orthorexia and that the overall content validity of the questionnaire is doubtful. Another study led by Missbach and colleagues (2015) analyzed the psychometric properties of a German version of the ORTO-15 and it has similar results to the study of Roncero, Barrada and Perpiña (2017): psychometric properties proved to be weak with moderate internal reliability and validity. Even though, ORTO-15 is the most used measure of orthorexia in research studies, it entails basic psychometric flaws and thus should be constructed from scratch or replaced by another more reliable measurement tool. Additionally, there are other proposed diagnostic tools for orthorexia that have not been used as much compared to ORTO-15. Such measurement tools are the Eating Habits Questionnaire, the Dusseldorf Orthorexia Scale, the Barcelona Orthorexia Scale and the Teruel Orthorexia

Scale (Valente, Syurina & Donini, 2019). What has been noticed when studying these tools is that they are based on different conceptualizations of orthorexia. Thus, before developing a measurement tool for orthorexia, first an agreement must be reached on the diagnostic criteria.

4.4 Prevalence

Given the fact that ORTO-15 has some serious psychometric flaws makes it difficult to determine how trustworthy the estimates of orthorexia nervosa's prevalence truly are. Research shows that the prevalence has a wide range starting from 6.9% (Donini et al., 2004) to 57.6% (Ramacciotti et al., 2011) in the general population and is higher in some populations more than others (Koven & Abry, 2015). Both studies of Donini and colleagues (2004) and Ramacciotti and colleagues (2011) used subjects from the general population but with different measurement methods to estimate orthorexia. Donini et al. (2004) measured orthorexia in their preliminary study and the measurement method consisted of scale 7 of the Minnesota Multiphasic Personality Inventory (MMPI) to determine obsessive compulsive traits and phobia. In combination with a points system in which subjects had to rate different types of food as "healthy" and "non healthy". One year later, the same researchers developed their own psychometric tool, ORTO-15 that turned out to be more unreliable than their first measurement method. After that, ORTO-15 became the most commonly used psychometric tool for the diagnosis of orthorexia. Ramacciotti and colleagues (2011) also used ORTO-15 to measure orthorexia and their results showed that more than half of their sample subjects were orthorexic. Moreover, even higher prevalence rates are found in high risk groups such as healthcare practitioners, athletes and performing artists. Aksoydan and Camci (2009) investigated the prevalence of orthorexia among Turkish performance artists and found that the highest prevalence is among opera singers that reached 81.8%. Other studies report that the prevalence among resident medical doctors is 45.5% (Bosi, Camur & Güler, 2007), 12.8% in dieticians who were assessed as orthorexic and 34.9% in dieticians that had "some orthorexic behavior" (Kinzl, Hauer, Traweger & Kiefer, 2006). Furthermore, there are contradictions regarding which sex group is more prevalent. Some researchers found that orthorexia is more common in women, with the female to male gender ratio being 2:1 (Ramacciotti et al., 2011) while others claim the opposite (Donini et al., 2004; Fidan et al., 2010). In general, there is not enough epidemiological research to determine an honest number of the prevalence of orthorexia, neither are the measures that are used trustworthy. According to Alvarenga et al. (2012) the cutoff point value of 40 in ORTO-15 seems inappropriate. These researchers argue that a condition that is not yet considered a mental disorder should not have any cutoff score at all.

Overall, orthorexia estimates found by using ORTO-15 are inappropriately high both in general and specific populations. Such estimates run the risk of medicalizing normal behavior. Thus, more research is needed to construct a new valid and reliable measurement tool for the detection of orthorexia.

4.5 Physical consequences

As mentioned before, even though orthorexia nervosa is prompted by a desire to improve one's health, it can lead to nutritional deficiencies and even to medical problems. According to Koven and Abry (2015), patients diagnosed with orthorexia nervosa may develop similar medical conditions developed by patients with anorexia nervosa, such as osteopenia, anemia, hyponatremia, metabolic acidosis, pancytopenia, testosterone deficiency, and bradycardia. However, there is a lack of empirical studies and most scientific evidence of the physical consequences of orthorexia nervosa comes from case reports (Strahler & Stark, 2020). Most of the case reports describe individuals who are underweight, malnourished and suffer from other medical consequences that are related to orthorexia nervosa. Bosi, Camur and Güler (2007) specify that this obsessive eating behavior leads individuals to follow strict diets or exclude major food groups from their diets. Thus, it comes as no surprise that most case reports describe individuals that are malnourished and underweight. For example, Moroze et al. (2014) describe an underweight 28-year-old man, who was admitted to an academic medical center, suffering from malnutrition, testosterone deficiency, constipation, bradycardia, poor dentition, osteoporosis, leukopenia, thrombocytopenia, starvation hepatitis, and metabolic alkalosis. He had shortly been treated for an eating disorder not otherwise specified but did not follow through the whole treatment. He focused on the purity of the food and was also making his own protein shakes instead of buying already made formulas at the stores. Moreover, during his admission, he described his condition as "treating my body like a temple and giving it the pure building blocks it needs". Clinicians judged his way of thinking destructive and dangerous. Moroze and colleagues (2014) argue that the presentation of this patient is more consistent with orthorexia nervosa than any other eating disorder. Additionally, research conducted by Oberle, Karle and Patyk (2019) studied people with orthorexia nervosa that used nutritional supplements and complementary and alternative medicine (CAM) techniques. Although the goal of these individuals was to achieve optimum health, they still experienced poor physical health. The physical consequences of these patients studied in the research are detrimental. All of them began with a desire to be physically healthy, but they ended up jeopardizing their physical health due to their obsessions.

4.6 Social and psychological characteristics

In a self-report questionnaire, 35.4% of undergraduate students with orthorexia nervosa symptoms were dealing with distress in areas of social life, family and school (Hayes, Wu & De Nadai, 2017). Another research that also worked with university students as participants found that extreme interest in healthy or orthorexic eating is related to behavior that is interpersonally distressing (Dunn, Gibbs, Whitney & Starosta, 2016). In other words, these students had conflicts with friends and family members due to their strict diet. Moreover, people with orthorexia nervosa are likely to socially isolate themselves, since their obsessions with healthy eating prevent them from eating with family and friends who do not follow the same dietary plan (Mathieu, 2005). Also, they develop a sense of superiority about their dietary plan (Mathieu, 2005) and intolerance towards people with other food beliefs (Moroze et al., 2014). In general, they avoid social gatherings that involve food and their obsessions consume most of their time diminishing their quality of life (Oberle & Lipschuetz, 2018).

Psychological impairments include feelings of guilt, shame and self-loathing when dietary restrictions are transgressed (Varga et al., 2013; Koven & Abry, 2015; Moroze et al., 2014; Oberle & Lipschuetz, 2018). In fact, violations of the dietary rules might lead to self-punishment by following an even stricter diet than previously followed such as cleansing fasts (Koven & Abry, 2015). According to Bratman, orthorexic individuals are more attracted to strict and complicated diets and they have “a need to punish themselves” (Mathieu, 2005). Another psychological symptom is worrying about eating impure or unhealthy food and the effects of unhealthy eating on physical and emotional health (Moroze et al., 2014). According to Varga and colleagues (2013), “obsessionality, ideological constriction and reduced flexibility are typical” in orthorexic individuals. This pattern of eating makes orthorexics feel in control when consuming “pure” foods with an illusion of self-content. In addition, orthorexic individuals report lower well-being, lower satisfaction in life and higher stress levels compared to non-orthorexia nervosa individuals (Strahler et al., 2018). Other studies found a positive correlation between orthorexia nervosa and negative affect, depressive and anxiety symptoms (Strahler & Stark, 2020). Specifically, people with a strong interest in healthy eating suffer from fear of negative evaluation, anxiety appearance and low satisfaction. Overall, scientific evidence proves that people with orthorexia nervosa suffer from a great deal of psychological distress. However, Kathy Kater, who is a psychotherapist and had orthorexic individuals as clients, says that these persons tend to be anxious and perfectionists, but they can sooth feelings of anxiety by following a diet according to what they believe to be pure and healthy (Mathieu,

2005). Thus, from the perspective of her patients, orthorexic eating patterns might not be causing a significant amount of psychological suffering. However, this claim is an experience by one clinician without any valid supporting evidence.

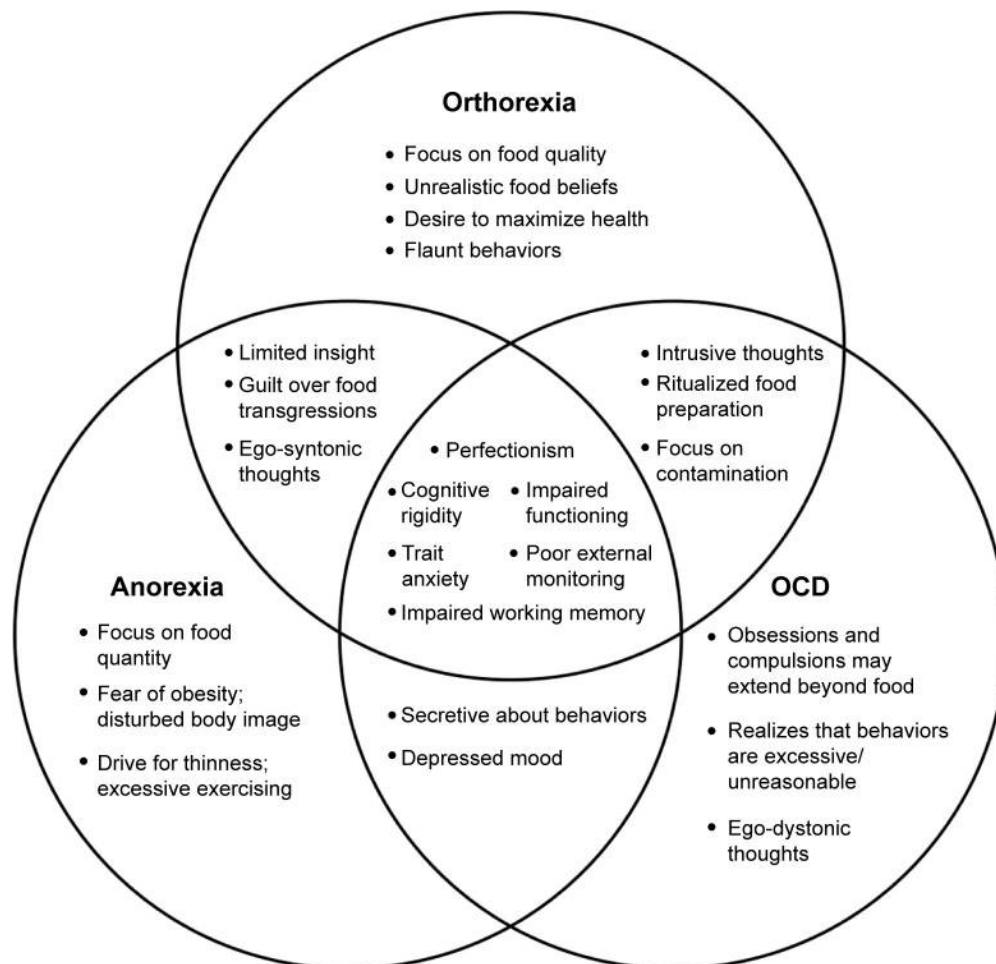
4.7 Neuropsychological impairments

There is little known about the neuropsychological profile of orthorexia nervosa. Most of the research is focused on the physical and psychological impairments. However, the first study that investigated the neuropsychological factors of orthorexia nervosa presented important findings (Koven & Senbonmatsu, 2013). Koven and Senbonmatsu (2013) examined whether orthorexic individuals experience the same cognitive problems as patients with Anorexia Nervosa (AN) and Obsessive-Compulsive Disorder (OCD) by using standardized clinical neuropsychological tests. Their results showed that orthorexia nervosa is correlated to similar cognitive problems that are also seen in AN and OCD. Specifically, orthorexia nervosa symptoms are associated to areas of executive functioning such as set-shifting, self-monitoring and working memory. Set-shifting refers to flexible problem solving. Orthorexic individuals have a weakness in set-shifting since they are not flexible enough to move from one situation to another. They develop strict dietary rules and have an inflexible approach concerning food consumption and preparation. This way of living prevents them from partaking in situations in which eating rules are hard to follow (e.g. eating in restaurants), thus their cognitive flexibility and improvisation skills decline. Furthermore, self-monitoring involves the capacity to focus on what impact one's own behavior has on other people. Orthorexic individuals exhibit excessive focus on themselves, their bodily health and purity of food and that prevents them from paying attention to social and environmental cues. People with orthorexic behavior scored very low in self-monitoring in this respect (Koven & Senbonmatsu, 2013). Lastly, working memory involves the capacity to keep information online for short periods of time to finish a task. Preoccupation with food can possibly weaken the capacity of working memory. Besides this research on the neuropsychology of orthorexia nervosa, up to now there is no published research on genetic, psychophysiological, neurochemical or neuroanatomical that correlate with symptoms of orthorexia nervosa (Koven & Abry, 2015).

4.8 Comparison with other mental disorders

Distinguishing orthorexia nervosa from other mental disorders is essential for its recognition as a distinct mental disorder. Nevertheless, many mental disorders are included in the DSM-5 as distinct mental disorders, but are overlapping with others. Comorbidity is a serious, but

common problem among mental disorders. The lifetime prevalence of one mental disorder is 46.4% while the lifetime prevalence of two mental disorders is 27.7% (AL-Asadi, Klein & Meyer, 2015). Orthorexia nervosa seems to share common traits with anorexia nervosa (AN) and obsessive-compulsive disorder (OCD), sparking debate whether it should be considered a distinct mental disorder (Koven & Abry, 2015). Both orthorexic and anorexic individuals share traits of perfectionism, high trait anxiety and high need to exercise control. They also are achievement-oriented, which leads them to believe that deviating from their diet is a failure of self-control. However, orthorexia nervosa and AN differ from each other since the focus of orthorexia is on food quality and desire to optimize health, while the focus of anorexia is on food quantity and drive for thinness without any nutritional concerns.



Venn Diagram by Koven & Abry (2015)

In addition, many clinicians have argued that orthorexia nervosa might not belong to the category of eating disorders but should instead be included in the same group as OCD (Mathieu, 2005). Richard Persikoff, a professor of psychiatric and behavioral sciences, states that some

of his patients with traits of anxiety and perfectionism have obsessions about food that also develop compulsions to create the perfect diet (Mathieu, 2005). He continues to argue that “obsessions are as varied as the creativity of the mind”. In this line of reasoning, orthorexia nervosa might be another form of OCD, since it is not clear how orthorexia is different from obsessive compulsive behaviors such as repetitive hand washing (Mathieu, 2005). On the other hand, Koven and Abry (2015), argue that there is a significant difference between orthorexia nervosa and OCD and that is the nature of the obsessions. In orthorexia, obsessions are perceived as ego-syntonic. In other words, the behaviors, beliefs and feelings are in sync with the needs, goals and self-image of the individual. Thus, orthorexic individuals do not view their own health fixation as harmful or dangerous (Łucka et al., 2019). Moreover, obsessions in OCD patients are perceived as ego-dystonic and have the opposite effect of the ones in orthorexia nervosa. Ego-dystonic obsessions are described as “thoughts, impulses or emotions in conflict with personal self-image, which are perceived as not belonging to one’s own personality” (Barthels, Meyer & Pietrowsky, 2015). According to Barthels, Meyer and Pietrowsky (2015), only small correlations between orthorexia nervosa and ego-dystonic obsessive-compulsive behavior were detected. Even though this is an important difference between orthorexia nervosa and OCD, more research is needed to prove the ego-syntonic and ego-dystonic nature of the two mental disorders. Additionally, symptoms of orthorexia bear resemblance to symptoms of other mental disorders such as obsessive-compulsive personality disorder (OCPD), somatoform disorders and schizophrenia. “Perfectionism, rigid thinking, excessive devotion, hypermorality, and a preoccupation with details and perceived rules” are all similarities between orthorexia nervosa and OCPD (Koven & Abry, 2015). Also, the anxiety observed in patients of somatoform disorders is very similar to the one of orthorexic patients since both of them are preoccupied with health-related worries. Lastly, there is one case study that showed an adult woman with orthorexic behavior also developing schizophrenia. The co-occurrence of schizophrenia and eating disorders in general is found to be low. However, researchers discuss similarities between the two disorders. Specifically, one feature that seems to be the main reason of overlap is food-related magical thinking (Koven & Abry, 2015).

Overall, orthorexia nervosa is overlapping with different mental disorders but the strongest correlation is between orthorexia nervosa’s symptoms and the symptoms of OCD. The debate is still ongoing among clinicians and researchers, making it difficult to determine which place orthorexia nervosa has in the classification system. Moreover, there is no common agreement on the definition and diagnostic criteria of orthorexia nervosa. The estimates of orthorexia nervosa are also inconsistent and unreliable since the ORTO-15 has fundamentally

flawed psychometric properties. Studies that investigated orthorexia nervosa may have contributed to the evaluation and progress of this phenomenon, however the results of the studies have not reduced the criticism. In view of the claims made, concluding remarks will be discussed in the next chapter of this literature review.

Chapter 5. Conclusion

The aim of this thesis is to answer the research question “*Which are the argumentations in the debate whether Orthorexia Nervosa should be considered a mental disorder?*”. Based on the theories described in the previous chapters, this section relies on several more philosophical (pragmatism, social constructivism, Wakefield’s theory) and more scientific perspectives (neurobiology, biopsychosocial model and the DSM-5) to provide a critical, yet constructive stance concerning orthorexia nervosa.

The first perspective that was investigated in light of the research question is pragmatism. According to pragmatism, it is not important to discuss or make any claims about the reality of orthorexia nervosa as a mental disorder. The approach presented by pragmatism, when it comes to the status of the reality of mental disorders, is neutral and avoids any metaphysical speculation. As Kendler (2016) argues, and as his arguments were discussed in chapter 1, pragmatism focuses on the question whether the psychometric tools and treatment methods for mental disorders work satisfactorily. Hence, from this perspective, orthorexia nervosa can be considered a mental disorder as long as its measurement tools and treatment methods work successfully. However, given the fact that it is a recently identified condition, there are no treatment methods for orthorexia nervosa that could be judged as successful or unsuccessful, thus no arguments can be made about the effectiveness of treatment methods. Additionally, this review has explored orthorexia nervosa’s measurement tools, specifically ORTO-15, which is the most common psychometric tool to date to measure orthorexia nervosa and has been used in almost all studies analyzed in this paper. The estimates of orthorexia nervosa using ORTO-15 are varied and inconsistent. Researchers who analyzed the psychometric properties of ORTO-15 have found that they are fundamentally flawed with weak to moderate internal reliability and content validity (Roncero, Barrada and Perpiña, 2017; Missbach et al., 2015). Some researchers argue that the reason behind this issue is the inappropriate cutoff point value of 40 (Alvarenga et al., 2012). In view of the statistical reliability issues and with regards to pragmatism, orthorexia nervosa should not be considered a mental disorder at this point in time since its measurement tools do not work successfully. Also, authors on the topic are divided on which diagnostic criteria are the most appropriate to identify orthorexia nervosa. Overall, the literature suggests that the lack of findings leaves room to research more correct scales and tools to measure orthorexia nervosa, and consequently more empirical evaluations are needed before assessing whether orthorexia nervosa should be evaluated as a mental disorder.

The main argument of a social constructivist view is that a phenomenon such as orthorexia nervosa is completely created by the social cultural influences. Many others recognize the enormous influence of social media and the like, but still feel that the occurrence of the phenomenon does not entirely depend on culture (Kendler, 2016). Additionally, it is generally accepted by clinicians and researchers that the expression of mental disorders is influenced by sociocultural norms and thus is different between Western and non-Western societies (Calzada et al., 2017; Löwe & Gerloff, 2018; Matsumoto & Juang, 2016). According to these authors, culture plays an important role when it comes to the expression and development of mental disorders, however according to them, culture alone cannot be the cause for the development of mental disorders. Social constructivism alone cannot explain why not all persons living in a certain culture and under the same conditions develop orthorexia. For example, why does one young relatively wealthy woman in a Western country develop orthorexia while her twin sister stemming from the same family and living under the exact same conditions does not develop orthorexia? Social constructivism cannot answer this question. There are many risk factors such as genes, personality traits, education, upbringing that influence the development of mental disorders. These individual differences explain why some people develop a mental disorder while others do not. After studying the material, I have to conclude that the perspective of social constructivism views culture as the only cause of mental disorders. Even though evidence shows an association between orthorexia nervosa and social media, there is no research that proves orthorexia nervosa to be constructed solely by culture. More research is necessary to study the precise relationship of orthorexia nervosa and popular media, and on the interplay between contextual and individual factors affecting orthorexia nervosa symptoms.

Furthermore, from the perspective of neurobiology, also known as explanatory reductionism: “mental disorders are nothing but biological diseases” (Wier, 2012). In other words, the field of neurobiology perceives mental disorders as merely brain disorders, without accounting for social and environmental factors. According to the neurobiological perspective, orthorexia nervosa could be considered a mental disorder only if its condition can solely be explained by neurobiological factors. However, the neurobiological research of orthorexia nervosa is at its infancy and this makes it difficult to determine if this phenomenon should be considered a mental disorder. For example, a study conducted by Koven and Senbonmatsu (2013) found that orthorexic individuals have similar cognitive problems seen in individuals diagnosed with anorexia nervosa and obsessive compulsive disorder. As mentioned in chapter 4, research found that orthorexic individuals face problems in specific areas of executive

functioning such as set-shifting, self-monitoring and working memory. Besides these evaluations, little is known about the neurobiology of orthorexia nervosa, which reconfirms that conclusions on orthorexia nervosa as a brain disorder or biological disease cannot yet be made. Hence, according to the neurobiological perspective, orthorexia nervosa should not be considered a mental disorder since it can not be solely explained by biological factors.

In addition, Wakefield's harmful dysfunction theory argues that in order for a condition to be considered a mental disorder, it is necessary for it to consist of the value component and the factual component. According to the value component "a condition is a mental disorder only if it is harmful according to social values" (Wakefield, 2007). However, according to the factual component, it can only be considered a mental disorder if this harm is "due to a failure of some internal mechanism to perform a function for which it was biologically designed" (Wakefield, 2007). Orthorexia nervosa satisfies the criteria of the value component since it leads to harmful physical, social, psychological and cognitive consequences. Many case reports described orthorexic individuals as underweight, malnourished and diagnosed with other medical conditions such as anemia, testosterone deficiency etc. (Moroze et al., 2014). Even though orthorexic individuals are motivated by a desire for optimum physical health, they end up experiencing poor physical health due to their obsessions with pure and healthy eating. Furthermore, studies showed that symptoms of orthorexia nervosa are related to interpersonal distress since orthorexic individuals have very often conflicts with friends and family members due to their strict dietary planning (Dunn, Gibbs, Whitney & Starosta, 2016). Also, orthorexic persons frequently socially isolate themselves due to fear of transgressing their diet (Mathieu, 2005). Moreover, orthorexic patients suffer from feelings of guilt, shame and self-loathing when dietary restrictions are transgressed (Varga et al., 2013; Koven & Abry, 2015; Moroze et al., 2015; Oberle & Lipschuetz, 2018) with a tendency to punish themselves in order to compensate for the transgression (Mathieu, 2005). What can be retrieved from the above studies is that orthorexia is characterized by significant psychological, social and physical distress.

However, contrary to the previous studies, some researchers argue that there is not as much distress in orthorexic individuals as many scholars claim. This is mainly due to the ego-syntonic nature of the obsessions; orthorexic people do not perceive their obsessions as harmful to their health (Koven & Abry, 2015; Lucka et al., 2019). Nevertheless, there was still a small correlation found between orthorexia nervosa and ego-dystonic obsessive-compulsive behavior. In order to confirm the pathological distress of orthorexic individuals, more research is needed to study the ego-syntonic and ego-dystonic nature of orthorexia nervosa. This way it

can be studied whether orthorexia is harmful on a pathological level. Although there are many indicators of harmful consequences, it cannot be concluded that orthorexia nervosa fits the criteria of the value component, since there is no agreement among researchers about the ego-syntonic and ego-dystonic nature of orthorexia's obsessions. In addition, it is not known whether experiencing symptoms of orthorexia is due to "an inability of some internal mechanism to perform its natural function" (Wakefield, 1992). Research has found that humans are genetically hardwired to prefer caloric dense foods such as those high in sugar and fat (Trivedi, 2012). Nevertheless, there is no empirical evidence that this internal mechanism driven by caloric dense foods is not functioning in patients suffering from orthorexia nervosa. Thus, more research is necessary for the study of orthorexia nervosa in relation to Wakefield's factual component.

The last perspectives of this literature review are the biopsychosocial model and the DSM-5 definition of mental disorders which are both in line with orthorexia being a mental disorder. As noted before, the DSM-5 definition is in alignment with the biopsychosocial model, therefore these two perspectives will be discussed together. Both perspectives claim that all mental disorders are defined and explained by a pathological dysfunction in biological, psychological and social processes. Orthorexia nervosa is a condition defined and explained by all these three factors. As mentioned before, orthorexic individuals suffer from social, psychological, physical and cognitive impairments. However, the degree of pathological suffering still needs to be studied further. Moreover, the DSM-5 definition for mental disorders includes socially deviant behavior (e.g. political, religious or sexual) as exclusion criteria. Likewise, diagnostic criteria of orthorexia nervosa proposed by Moroze et al. (2014) also mention a similar exclusion criterion (Criterion D) that claim orthorexic eating should not be better explained by religious eating.

According to the perspectives of pragmatism, social constructivism and neurobiology, orthorexia nervosa cannot be considered a mental disorder. Nevertheless, from the perspective of Wakefield's theory, DSM-5 definition and the biopsychosocial model, orthorexia nervosa can be considered a mental disorder, but only to a certain extent. This entails that providing a scientific label to orthorexia nervosa as a mental disorder remains a complex nature. At the same time, there are orthorexic symptoms indicating abnormal eating behaviors, which have harmful consequences on orthorexic individuals. This hints that fixation with healthy eating should not be taken lightly or considered as merely another popular eating trend. Further research is needed to determine whether orthorexia nervosa should be considered a mental disorder. Specifically, it would be helpful if studies integrate an adequate sample representative

of the relevant population together with reliable measurement tools. In this way, the methods may present more generalizable findings and replicable external validity. Also, paying attention to the effect of control variables in the conceptual models of future studies may help to highlight causal effects on orthorexia nervosa and avoid endogeneity issues.

As may be observed each perspective has a different approach and not all perspectives discussed consider orthorexia nervosa to be a mental disorder. According to pragmatism, social constructivism and the neurobiological perspective, orthorexia nervosa is not a mental disorder. However, according to Wakefield's theory, the DSM-5 definition and the biopsychosocial model, orthorexia nervosa fits the criteria for a mental disorder. Every perspective sheds a light on certain elements of orthorexia nervosa, but seems to ignore other characteristics, the biopsychosocial model and the DSM-5 take in account different sides. Additionally, the argumentations of pragmatism, social constructivism, Wakefield's theory and neurobiology do not notice any truth outside their own perspective. Another way to describe this notion would be by using a metaphor of a person wearing glasses with pink lens. Since the shades are pink the person sees the whole world in pink. Therefore, he/she does not see the rest of the colors in the world. While perspectives such as pragmatism, social constructivism, Wakefield's theory and neurobiology focus on specific elements, in the same way colored glasses do, they also miss out on other elements which is a detrimental downside. For example, neurobiology argues that all mental disorders are reduced to brain disorders. Thus, the main criteria for a condition to be considered a mental disorder is a neurobiological dysfunction. However, as discussed before not all mental disorders have a clear biological foundation. So, by excluding these mental disorders would be highly unfavorable to the people suffering from them since they would not be acknowledged, and they would also not receive any treatment. On the other hand, perspectives such as the biopsychosocial model and the DSM-5 do not make such extreme exclusions. Both perspectives seem to recognize the complexity of mental disorders. As also mentioned before, it is now known that different factors are responsible for the development of mental disorders and that the etiology of mental disorders is not solely attributable to sociocultural factors (social constructivism) or neurobiological dysfunctions.

In general, there is little empirical research conducted making it difficult to determine with certainty whether orthorexia nervosa should be considered a mental disorder. However, the main argumentations partaking in the ongoing debate of whether orthorexia nervosa should be considered a mental disorder have been identified and discussed. Also, research studies that were analyzed in this literature review prove this condition to be not just a new eating trend but rather a serious condition that could potentially be labelled as a mental disorder (Morozé

et al., 2014; Koven & Abry, 2015; Dunn & Bratman, 2016). Orthorexic individuals deal with severe symptoms that cause significant psychological, physical and social distress. Even though it is not clear yet whether this distress is pathological, it can be concluded that it is not just a new lifestyle phenomenon due to the harm it causes to orthorexic people. Moreover, striving for optimal health is something admirable, but when it has such dire consequences on orthorexic individuals it is very concerning. One could argue that a moderate or healthier approach to clean eating is to be envied. However, the fact that it causes psychological, physical and social distress to the orthorexic people should not be taken lightly. Furthermore, since there is not much research done yet, due to the fact that orthorexia nervosa is a rather new phenomenon, it cannot be concluded with certainty whether orthorexia nervosa should be considered a mental disorder. Hence, more research is necessary in order to determine the real nature of orthorexia nervosa. Nevertheless, this literature review has contributed to the existing literature by providing a more profound understanding of the debate surrounding orthorexia.

There are certain limitations and implications regarding the available research used in this literature review. Firstly, orthorexia nervosa is a new phenomenon that has not been studied sufficiently. Also, studies investigated the pathology of orthorexic eating by providing evidence on psychological, social, physical and cognitive impairments of orthorexic individuals (Koven & Abry, 2015; Moroze et al., 2014; Hayes, Wu & De Nadai, 2017; Mathieu, 2005). However, these studies were also criticized for using unreliable and inconsistent measurement tools. Thus, one must be cautious when interpreting the results, and avoid drawing general conclusions, given the limited replicability of the methods and scales used in those studies. Also, the research results are not representative of the population since the studies have been conducted on student samples in non-clinical settings, high-risk samples and case studies. Another implication is that there is no unanimous consensus among scholars on the criteria and measurement tools of orthorexia nervosa, making it difficult to conclude with certainty whether orthorexia nervosa should be considered a mental disorder.

Chapter 6. Discussion

The aim of this review is to investigate which argumentations are partaking in the debate whether orthorexia nervosa should be considered a mental disorder. Six theoretical viewpoints with corresponding argumentations were selected; pragmatism, social constructivism, Wakefield's theory, neurobiology, the biopsychosocial model and the DSM-5. Firstly, this literature review explored all different perspectives with a critical analysis of the advantages and disadvantages of each point of view separately. Secondly, the phenomenon of orthorexia nervosa was explored along with evidence-based studies that investigated this new condition for a more objective and profound understanding of the research problem. Particularly, existing studies conducted on the definition, diagnostic criteria, measurement tools, prevalence and comparison of orthorexia nervosa with classified mental disorders were synthesized and evaluated.

All in all, each of the six perspectives has its strong and weak points. The argumentation of social constructivism is that mental disorders are solely created by sociocultural norms. Considering historical descriptions of mental illnesses, social constructivism seems to have a point. For example, Elaine Showalter (1985) demonstrated in her book, "The Female Malady: Women, Madness and English Culture", how cultural ideas of proper female behavior shaped definitions of female mental disorders. Showalter (1985) showed that female mental disorders were not so much a deviation, but a logical effect of the role women were expected to play. Walker Bynum (1987) came to a similar conclusion in her research on females fasting. When a woman refused food in the Middle Ages this had a religious significance and not a psychological meaning. On the other end of the spectrum, it would be hard to prove that orthorexia nervosa is a condition created by sociocultural norms. There are a few studies that claim orthorexia nervosa to be influenced by certain eating trends portrayed on social media. Such is the study of Turner and Lefevre (2017), who found that Instagram use is positively associated with symptoms of orthorexia nervosa. Another finding of the study was that Twitter had a small positive correlation with orthorexia nervosa. However no other social media platforms had an influence on the condition. The findings of Turner and Lefevre (2017) indicate that social media may play a role in the onset and as well as in progression of eating disorders. As stated before, people's interest in healthy clean eating has grown over the last years. Popular media, social media, cookbooks and magazines frequently promote "clean eating" by including images and recipes of healthy food. So, there has been a general inclination towards eating healthy. However, this does not prove without any doubt that

orthorexia was created by these new sociocultural standards. Completely opposed to the social constructivist perspective, is the neurobiological perspective. Where social constructivism argues: “there is nothing but culture”, neurobiologists seem to state: “there is nothing but biology”. However, the problem with neurobiology is that many mental disorders do not have a clear biological foundation. Thus, to not recognize such conditions as mental disorders leave many questions about many mental disorders unanswered.

Wakefield’s theory seems to include both argumentation of social constructivism and neurobiology. The value component of harmful dysfunction is similar to social constructivism in a sense that it recognizes the influence of culture, but it is less radical than social constructivism. The factual component states that for a condition to be a mental disorder there must be a biological dysfunction. This view is similar to the neurobiological view without reducing all mental disorders to brain disorders. Additionally, two argumentations provided by the biopsychosocial model and DSM-5 is that mental disorders are complex in nature and include different factors such as biology, psychology and environment. The biopsychosocial model and the DSM-5 include all components of the definition of mental disorders from the previous perspectives. Moreover, unlike the other perspectives, the Biopsychosocial model and DSM-5 include a third component which is psychology. Lastly, pragmatism argues that any condition can be considered a mental disorder as long as its measurement tools and treatments work successfully. This perspective provides a completely different definition of mental disorder compared to the other perspectives. However, one very crucial disadvantage of this perspective is that by its pragmatic purpose of only noticing what works and what does not work, it seems to disregard the entity of mental disorders. The suffering of mentally ill people, can not be recognized, in this pragmatic view, if their condition does not have successful measurement tools and treatments.

Overall, providing a general definition of mental disorders is not an easy task. All six perspectives have a different approach and add a unique outlook on what mental disorders are. One cannot argue which perspective is wrong and which is correct, because each perspective contributes a different point of view to the general definition of mental disorders. However, one can conclude which perspectives are the best to explain a complex new phenomenon such as orthorexia nervosa. The biopsychosocial model and the DSM-5 seem to explain what mental disorders are the best since both views include multiple components of mental disorders. Mental disorders are complex in nature. For example, social experiences such as abuse can shape the human brain and cause new experiences. Nowadays we know that genetic predisposition and personality traits also play a role in developing mental disorders. Research

showed that there are many risk factors involved and this makes it difficult or even impossible to state that there is a single risk factor for the development of mental disorders. So the views that takes into account more factors, in this case: biology, psychology and environment seems to approach reality the best.

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