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Maladaptive Daydreaming, comorbidities and treatment using Acceptance and Commitment Therapy (ACT): A quantitative and qualitative inquiry

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Abstract

Almost two decades ago, a new mental health condition was identified as Maladaptive Daydreaming (MD), which consists of an "extensive fantasy activity that replaces human interaction and/or interferes with academic, interpersonal and vocational functioning". Literature on MD is growing with every passing year; however, it is still an under-recognized condition by mental health professionals, as it has not been acknowledged as a mental health issue by classification systems such as the DSM. As a consequence, people with MD either get misdiagnosed or disregarded. To this day, no clinical intervention has been adapted to specifically treat MD, although it was reported to cause significant impairment to those who suffer from it. In an effort to better understand MD and its consequences on an individual's life, as well to examine accompanying mental health issues, the following study aims to assess the prevalence of comorbid disorders in individuals with MD as previous research has reported potential association mental health conditions occurring in parallel to MD. Moreover, a qualitative analysis will be made to better understand key elements of MD such as: problems due to it, its contributors and strategies used to reduce it. A sample of 35 individuals with MD were recruited for the present study and were assessed using clinical interviews. The findings of the current study found a high prevalence of both anxiety and depression which aligns with previous studies. Moreover, almost 80% of our sample has already gone for consultations for reasons other than MD. The most prevalent problems due to MD reported by our participants were lack of attention, procrastination and issues with social interactions due to the time spent on MD or their need to engage in MD, whereas contributors of MD were psychological difficulties, dissatisfaction and MD being a habit. Several strategies were reported to reduce MD such as being occupied, avoiding music or setting a time frame to daydream. On the basis of these findings, a proposition of an adapted-

ACT intervention techniques was presented. As this is only a suggestion, future studies are invited to apply this technique on people with MD in order to test its efficacy.

Keywords: Maladaptive daydreaming, mental health disorder, intervention, ACT.

Abbreviations

MD: Maladaptive daydream

MDer(s): Maladaptive daydreamer(s)

DSM-5: Diagnostic Statistical Manual 5

ACT: Acceptance and Commitment Therapy

CBT: Cognitive Behavior Therapy

MI: Motivational Interviewing

Table of Content

1. Introduction

Daydreaming is a temporary disconnection from the current world, which can be defined as being inattentive to present tasks (Stawarczyk et al., 2011). Almost 96% of Americans experience daydreaming as a normal cognitive process (Singer, 1975). It allows individuals to shift their attention from external stimuli or current activities to an internal world (Markman et al., 2012) and mentally evade there; this can have positive or negative outcomes.

When we think of mental imagery, several concepts might come to mind. For many, mental imagery provides a chance to predict future events based on previous experiences or situations. They can provide potential answers to "what if?" scenarios based off of a given circumstance or situation. For instance, an individual playing chess predicts what the consequences of their next move are (Moulton & Kosslyn, 2009). It has come to light that daydreaming tends to focus on actual goals (Baird et al., 2011; Poerio et al., 2015; Smallwood et al., 2009), hence providing creative solutions for obstacles. Hassabis and colleagues (2007) detailed specific activation of brain areas such as the hippocampus, the ventromedial prefrontal cortex and others in individuals with rich inner imagery. This result suggests that mental imagery involves an active, resource-intensive process.

The two most common forms of mental imagery and imagination are daydreaming and mind wandering. The first consists of engaging in ideas and thoughts that might not be linked to the present moment and the second would imply the activity of daydreaming while doing a specific task (Singer & Schonbar, 1961; Smalwood & Schooler, 2006). Daydreaming has been said to be correlated with expressing oneself and exploring things in a creative way (Singer & Schonbar, 1961; Singer & Antrobus, 1963), which explains the positive correlation of mind wandering with creativity and creative activities (Baaas, 2015; Baird et al., 2012).

As summarized by Zedelius and colleagues, (2016), previous pioneering work differentiated between three different styles of daydreaming. The first one is the "*positive-constructive daydreaming"* and consists of positive thoughts, imaginative planning and interpersonal curiosity. The second one is the "*guilty-dysphoric daydreaming"* which consists of more negative emotions such as

feeling guilty or being afraid to fail. And the last one is "*poor attentional control"* or the inability to pay attention to one's surroundings (Giambra, 1980, 1989, 1995; Huba et al., 1981; Singer, 1975; Singer & Antrobus, 1963, 1970; Singer & Schonbar, 1961).

Daydreaming does not generally provoke or induce problematic situations to a majority of individuals. By contrast, some adaptive outcomes can come out of it, such as creativity, enhancing social skills as well as planning skills (Glausiusz, 2009; Killingsworth & Gilbert, 2010). Previous research has shown that almost half of their participants experienced at least one episode of daydreaming during a specific task (Killingsworth & Gilbert, 2010), which further normalizes the experience of daydreaming. Consequently, Killingsworth and Gilbert (2010) concluded that "a human mind is a wandering mind, and a wandering mind is an unhappy mind".

When individuals fail to adjust to their surroundings and experience dissociation from reality due to daydreaming, this is when we individuals may be affected by Maladaptive Daydreaming (MD) (Somer et al., 2016). This condition was firstly introduced by Somer (2002) stating that MD is "an extensive fantasy activity that replaces human interaction and/or interferes with academic, interpersonal or vocational functioning". MD is characterized by a strong desire to be immersed in vivid and detailed imagination or fantasies, which is frequently initiated or perpetuated by kinesthetic activities and/or music (Soffer-Dudek et al., 2021). Given that individuals with MD spend almost half of their waking time daydreaming (Bigelsen & Schupak, 2011; Bigelsen et al, 2016), this condition has detrimental effects on individuals' everyday functioning, life goals and education. Individuals with MD usually try to seek help but without any results. They are either dismissed and misunderstood, or treated for their comorbid disorders that were not associated with MD (Somer, Somer & Jopp, 2016b).

So far, no clear treatment plan has been designed to address MD symptoms and no school of psychology has adapted any therapy intervention specifically for MD. The purpose of this paper was therefore to estimate the prevalence of the comorbid disorder in an MD sample using a newly developed MD-specific clinical interview and then, to adapt a psychotherapeutic intervention aimed to treat symptoms of MD.

2. Literature review

2.1. Why do people daydream ?

Daydreaming can be defined as a normal mental or cognitive activity that numerous people experience. It consists of being separated from reality for a certain period of time and evading into a different world of personal fantasy (Klinger, 1991; Singer, 1966). Our minds are said to wander from the present time in almost 50% of the time while we are awake (Killingsworth & Gilbert, 2010). While daydreaming can happen in a spontaneous way, it can also be voluntarily chosen when someone engages in their inner world and disconnects from the external one (Seli et al., 2014). Some of the reasons why people indulge in daydreams can be: planning for the future, improving creativity or engaging in creative processes, thinking about one's narration or even as a mechanism to avoid boredom (Mooneyham & Schooler, 2013; Smallwood & Andrews-Hanna, 2013; Smallwood & Schooler, 2015).

Creativity and creative expression are two common factors associated with daydreaming (Singer & Schonbar, 1961). Actively daydreaming about tasks not related to the current moment was associated with higher creativity, a concept called "incubation" (Sio & Ormerod, 2009). People who daydream would usually engage in creative activities and would also have a higher level of creativity (Baas, 2015; Baird et al., 2012).

An important aspect to better help understanding the association between daydreaming and creativity would be to further explore the diverse styles of daydreaming mentioned in the introduction.

The first style is "positive constructive daydreaming". People doing this elaborate creative thoughts and images, and are capable of reflecting on their daydreams. These individuals are able to accept and appreciate their daydreams, and daydreaming brings them pleasure. This form of daydreaming is not associated with mental distress; on the contrary, it brings general well-being and positive emotions which allow people to evolve and grow. "Positive constructive daydreaming" was found to be predictive of personal growth, with people focusing more on the future and on their aspirations (Blouin-Hudon & Zelenski, 2016; Singer, 1975).

The second style is "guilty-dysphoric daydreaming". Blouin-Hudon and Zelenski (2016) report this style to be associated with accomplishment as well as failures, while Singer (1975) argued that it was related to achievements and heroic acts. These daydreams are usually characterized by guilt, shameful and hostile thoughts and images, which positively correlated it with depressive symptoms or negative emotions which results in a lower general well-being (Blouin-Hudon & Zelenski, 2016; Singer, 1975).

Thirdly and lastly, the "poor attentional control style" includes unorganized thoughts. People with this style are usually distracted and often have lower independence, self-acceptance, happiness and satisfaction. Feelings of dissatisfaction or unhappiness might be the reason why people get distracted from current events or reality. This style was also negatively associated with positive emotions, meaning that the more this style was present or endorsed, lower levels of positive emotions and general well-being were found (Blouin-Hudon & Zelenski, 2016, Singer, 1975).

Some other benefits of daydreaming can also be noted on different levels. For example, emotional regulation was positively associated with daydreaming and mind wandering (Poerio et al., 2015, 2016, Singer, 1975). Daydreaming can also be a useful mechanism to take some distance from stressful situations (Antall & Kresevic, 2004; Singer & Antrobus, 1966). It can also be used as a mechanism against loneliness: people daydreaming about significant others feel more connected to them, which can allow for a stimulation of human interactions (Mar et al., 2012). Daydreaming about significant others was also correlated with feelings of love and happiness (Poerio et al., 2015).

Smallwood et al. (2013) conducted a study in which participants either received an instant financial reward or received a bigger financial reward if they were patient. People who daydreamed about situations unrelated to the present tasks were shown to be more patient. People who waited for the bigger reward were able to resist the temptation of the instant financial reward and therefore received the more valuable outcome. Daydreams or task-unrelated thoughts allow people to be more patient and make better choices related to their future in the long-term.

As much as daydreaming was associated with creativity, better general well-being, patience and problem-solving skills, it was also linked with several anxiety measures (Singer & Rowe, 1962). As mentioned earlier, out of the three types of daydreams, two were associated with higher distress as well as lower general well-being, which brings out the following question: *When does daydreaming become maladaptive?*

2.2. From Daydreaming to Maladaptive Daydreaming (MD)

Several philosophers and early psychologists studied the phenomenon of daydreaming and were particularly interested in the fantasy and imaginative world such as William James and C. G. Jung (Rozuel et al., 2012; Singer, 2003). Sigmund Freud, widely considered to be the father of psychoanalysis, explained this activity as an adaptive process arising from socially unaccepted desires such as erotic and egoistic tendencies. These tendencies could indicate neuroticism or a risk factor for psychosis (Morrison, 2016). The literature before 2002 focused on daydreams in general and not on MD. Perhaps the oldest case of MD before the phenomenon was introduced, was reported by Anna Freud (Freud, 1999), who reported a case of someone whose life was dominated by repetitive scenarios, constantly enlarged and expanded upon.

When people detach from reality and fail to make sufficient or suitable adjustments to their surroundings or circumstances, the phenomenon of daydreaming might shift to become MD (Somer et al., 2016). Professor Eli Somer first explained MD as a clinically relevant condition by describing 6 cases suffering from daydreams, defining it as an "extensive fantasy activity that replaces human interaction and/or interferes with academic, interpersonal, or vocational functioning." (Somer, 2002).

People with this condition are often referred to as maladaptive daydreamers (MDers). They engage in highly developed immersive daydreams for hours, which are often accompanied by repeated behaviors such as fidgeting or pacing (Somer et al., 2016). The fundamental feature of MD is an extraordinarily vivid imagining activity, with the person completely immersed in daydreaming to the point of eliciting overwhelming emotions or sensations. These mental processes interfere with a person's everyday functioning and hinder them from completing their daily tasks (Schimmenti et al.,

2019). Many MDers have attempted and failed many times to control their daydreams as a result of their compulsion. As a consequence of this sensation of compulsion to daydream, several studies have connected MD to addictive behavior (Pietkiewicz et al., 2018; Sharma & Mahapatra, 2021; Soffer-Dudek et al., 2021). Some of the main characteristics of this condition can be: engaging in long periods of intense and detailed daydreams, difficulties in falling asleep, having a hard time finishing daily tasks, engaging in repetitive movements (with the hands or legs), and changes of facial expressions or even whispering or talking while being in the daydream (Bigelsen et al., 2016). MDers sometimes use music to initiate or deepen their daydreams, or use repetitive behaviours as ritual to access the daydream (Bigelsen & Schupak, 2011; Greene et al., 2020; Somer, Somer & Jopp, 2016a); they can also sometimes have kinesthetic activities that accompany their daydreams (Bigelsen et al., 2016). Another factor that facilitates going into daydreams can be being alone. MDers have better access to the state of consciousness which allows them to go into the daydream when they are alone (Bigelsen et al., 2016).

The first study on MDers was conducted in 2002 by Somer in which he led a qualitative study on 6 individuals identified as MDers where he hypothesized that this condition was a traumatic dissociation from negative experiences from the past. He argued that people with this condition have a predisposition to seek refuge into an imaginary world in order to avoid the real world. This hypothesis was then tested in later studies stating that MD often offers a compensation to those who face difficulties in real life (Somer et al., 2016). MD was also associated with clinically significant distress because it impacts professional, personal and social functioning (Somer, 2002).

A previous model for MD developed by Somer, Somer & Jopp (2016a) showed that excessive MD, being socially isolated and distress were all correlated with one another. This would mean that the more intense the emotional distress or the social isolation was, the higher the likelihood of engaging in MD would be. The opposite is also true as MD can also influence social isolation. Another circular feedback was also reported when MDers engage in daydreams, they might feel ashamed and then attempt unsuccessfully to treat MD or control it (Somer, Somer & Jopp, 2016a).

The themes of the daydreams can vary from one MDer to another. In a case study, an MDer shared that their themes revolved around them as better version of themselves and having power (Sharma & Mahapatra, 2021). A comparison between MDers and non-MDers showed that those with MD tend to daydream about fictional worlds and characters whereas the other group daydreamed about real life situations (Bigelsen et al., 2016). Two more common themes were also identified; the first one being relationships and family life and the second one about social status which can include success, fame or being recognized (Somer, Somer & Jopp, 2016b).

2.3. An Ontological Examination of MD

In order to better understand the nature of MD, certain psychopathology concepts were argued to be the potential basis of MD.

Since the start of the investigation of MD, MD was assumed to be the consequence of traumatic events (e.g., Somer, 2002). Various studies since then have tried to empirically find a relationship between trauma events and maladaptive daydreaming (Somer & Herscu, 2017; Somer et al., 2021). However, other studies found no obvious link between MD and trauma surviving, and many MDers reported no childhood trauma, implying that there are other pathways to MD (Bigelsen & Schupak, 2011; Somer et al., 2016). More recently, Somer suggested that MD may have a genetic component because it was identified in several members of the same family (Somer, 2018), which may present such an alternative pathway. Trying to better understand the nature of MD and its development, and to further position MD in the context of pathology, research has tried to find associations with other mental health disorders. Self-reported obsessive-compulsive behaviors and thoughts, dissociative absorption, attention deficit, and a strong sense of presence during daydreaming were found to be linked to the MD scale, although psychotic symptoms were not (Bigelsen & Schupak, 2011; Somer & Herscu, 2017; Somer & Lehrfeld, 2016; Somer, 2018). In this section, we will describe potential basis of MD such as deficit of attention, dissociative disorder and behavioral addiction.

2.3.1. MD and deficit of attention

Inattention symptoms are mostly associated to attention deficit hyperactivity disorder (ADHD) in the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM 5), coupled with symptoms of mind wandering during the completion of key daily tasks that may interfere with attention (American Psychiatric Association, 2013). Mind wandering is widely defined in ADHD research as a passive mental activity that consists of connected concepts that are unrelated to the task at hand and are not initiated by a stimulus (Bozhilova et al., 2018).

People with ADHD often feel their brains are elsewhere in the absence of a visual stimulation, and they are quickly distracted, demonstrating weak or shifting attentional capacity, as well as disordered behavior and mental regulation (Bozhilova et al., 2018). MDers also struggle to maintain their concentration and complete tasks, according to various research (Theodor-Katz et al., 2022). As a result, one can wonder about the relationship between MD and ADHD, and whether MD is a type of ADHD in which daydreaming is a prominent symptom. In fact, a study indicated that the inattentive type (the one characterized by mind wandering) was observed in 27 of 30 MDers diagnosed with ADHD (Somer et al., 2017).

A distinction between MD and ADHD is required in order to one day acknowledge MD as a distinct mental illness and develop therapy strategies that focus on MD's unique characteristics. MD and mind wandering differ in 3 key aspects; the spontaneous, nondeliberate nature of thoughts in mind wandering, as opposed to the *conscious activation of the daydream* that exists in MD, is one of the most notable differences between maladaptive daydreaming and mind wandering that is present in ADHD (Seli et al., 2015). The second feature that distinguishes the two is *awareness*; with ADHD, the mind wanders without notice and is similarly interrupted, whereas in MD, the MDer is aware that he is daydreaming and becomes frustrated when interrupted (Soffer-Dudek & Somer, 2021). *The lack of guidance* is the third and most crucial aspect of mind wandering; in contrast, MD involves a complicated, fanciful narrative plot. Taken together, it appears that, contrary to MD, mind wandering is characterized by the distractibility and inattention in what we think to be "real" ADHD: a

spontaneous, nondeliberate mental activity of changing thoughts with minimal awareness of their continued occurrence (Irving, 2016).

Participants in the study who have MD have consistently blamed their lack of attention functions on MD, claiming that their MD came before their ADHD. A concomitant attention disorder cannot adequately explain MD. The fact that 23.1 % of identified MDers did not fulfill criteria for attention deficit/hyperactivity disorder, demonstrating that ADHD cannot fully account for MD, adds to the aforementioned assertion (Somer et al., 2017). This distinction is critical in determining the best treatment for MD.

2.3.2. MD as a Dissociative Disorder

MDers describe an absorptive, intense imagining experience, which leads to wonder if MD is a dissociative disorder. Indeed, along with amnesia and depersonalization, absorption and daydreams have been identified as significant components of dissociative disorders (Ross et al., 2020). In prior studies found, MDers have been found to have high scores on questionnaires measuring dissociative symptoms such as the DES (Sandor et al., 2021), with high scores on the absorption subscale and low scores on the amnesia and depersonalization items compared to individuals without MD (Dell, 2019; Ross et al., 2020; Somer, Lehrfeld et al., 2916).

These findings demonstrate that absorption is a factor in both MD and dissociative disorders. Furthermore, research has shown that absorption does not always have a psychopathological component, and that it can be a natural quality in a person, such as being engaged in an outward activity such as reading and forgetting about the surroundings, or being absorbed inwardly when daydreaming. Furthermore, unlike dissociative disorders, absorption is not linked to trauma. MD might be viewed as being at the pathological end of the absorption trait spectrum in this sense. Moreover, because absorption is not a mental activity linked to trauma, MDers with a pathological form of absorption may not have suffered childhood trauma as shown in several studies (Bigelsen & Schupak, 2011; Somer et al., 2016). As a result, treatment specific to dissociative disorders may not be used for MD (Somer, 2018).

2.3.3. MD and Behavioral addiction

Several behaviors have been discovered to have an addictive component to them; they prioritize short-term benefits over negative consequences such as impaired functioning and reduced behavior regulation (Petry et al., 2018). Non-substance or "behavioral" addictions were born out of these similarities to substance addiction (Dell, 2019; Somer et al., 2017). MD has a reputation for being addictive; many MDers have mentioned that they want to daydream first thing in the morning, or to return to their daydreams after having been interrupted. For now, Somer and colleagues have been considering MD as an addictive behavior (Dell, 2019; Somer et al., 2016; Somer et al., 2017).

2.4. Comorbidities associated with MD

As MD has so far not been recognized as a mental disorder by neither the DSM-5 (American Psychiatric Association, 2013), nor the International Classification of Diseases 11 (ICD-11) (World Health Organization, 2019), MDers have been given different diagnosis that might not necessarily match with their condition. For instance, one misdiagnosis might be schizophrenic disorder as the symptoms overlap with MD, however MDers are able to make a distinction between the real world and the imaginative world, while schizophrenic individuals cannot do so (Bigelsen et al., 2016). In line with increased pathology in MDers, Somer et al. (2017) showed that almost 75% of the MDers have symptoms of more than three psychiatric disorders and 41.1% met the diagnosis criteria of more than four. The most common disorders are ADHD, anxiety disorder, depressive disorder and obsessive-compulsive disorder. At first, in his earlier research, Somer (2002) linked MD with dissociation, in his most recent work, he classified MD under dissociation disorder, obsessive-compulsive disorders and behavioral addictions (Somer, 2018).

In the following section, we will describe links and overlaps between MD and the most prominent mental health issues related to it, namely, anxiety disorders, depressive disorders, obsessive compulsive disorder and post-traumatic stress disorder. Through the different previous research on this topic, we will gain insight on the interplay of MD with these diverse mental disorders in a first place, in order to be able to establish an integrative and adapted therapeutic intervention.

2.4.1. Anxiety disorders and MD

As defined by the DSM-5, "anxiety disorders include disorders that share features of excessive fear and anxiety and related behavioral disturbances. Fear is the emotional response to real or perceived imminent threat, whereas anxiety is anticipation of future threat." (American Psychiatric Association, 2013). The DSM-5 distinguishes different disorders within the anxiety disorders, such as: panic disorder, agoraphobia, social phobia and generalized anxiety all of which can cause clinical impairments in the lives of those who have them.

Early work shows that daydreaming is associated with anxiety (Singer & Rowe, 1962) and previous research showed that almost a quarter of MDers experience social isolation and have impaired social skills, which can be a factor that develops or maintains MD (Bigelsen & Schupak, 2011; Somer, Somer & Jopp, 2016a, 2016b). Consequently, social anxiety was a significant contributor to MD: as it had an indirect effect and was associated with a fantasy addiction which in turn was strongly correlated to MD (Somer & Herscu, 2017). A Saudi Arabian study with a total of 380 participants was conducted in 2020 using scales to measure MD and generalized anxiety. In their sample, 70% were MDers and a prevalence of generalized anxiety was present in 80% of their sample. The authors explained the high prevalence of MD and generalized anxiety by the fact that MD might be used as an escape from reality, and that anxiety may be due to the impairment of managing the daydreams and the daily tasks (Alenizi et al., 2020). This aligns with earlier results where 7% and 71.8% of the MDers in two studies, respectively, had anxiety (Bigelsen & Schupack, 2011; Somer et al., 2017). Moreover, high levels of anxiety and social anxiety were reported by MDers when they experienced intense levels of MD (Soffer-Dudek & Somer, 2018). As explained by the maladaptive daydreaming model, higher self-isolation and distress can be correlated with a higher need to engage in MD and the other way is also valid were engaging in MD can be associated with shame, isolation and distress or anxiety (Somer, Somer & Jopp, 2016a).

2.4.2. Depressive disorders and MD

The DSM-5 defines depressive disorders with the presence of irritability, sadness, emptiness, somatic and cognitive alterations that impact's the person's functioning. The two disorders evaluated in this paper are major depressive disorder (MDD) and persistent depressive disorder (dysthymia) as defined by the DSM-5. These two types of depression disorders are both characterized by a depression or low mood as well as a lack of interest and significant alteration in food, sleep or concentration.

Higher levels of depression were reported by MDers when they experience intense days of daydreams (Soffer-Dudek & Somer, 2018). One out of four MDer participants reported having been diagnosed previously with MDD, and those currently have MDD reported an elevation in MD during the pandemic (Somer et al., 2020). Somer et al. (2017) reported almost 67% of the participants reported depressive disorder and more than a quarter of the participants had one suicidal attempt in the past.

2.4.3. Obsessive Compulsive Disorder (OCD) and MD

OCD as defined by the DSM-5 involves the presence of obsessions and compulsions. Obsessions are persistent and unwanted thoughts or images that are repetitive and intrusive. People with obsessions try to get rid of them. In response to these obsessions, people feel the need to perform compulsions which are actions someone might do to calm the obsessions.

MDers have higher OCD symptoms than non-MDers (Bigelsen et al., 2016). The common feature between OCD and MD might be dissociation as it was association with MD. This is the case when MDers narrow their attention regardless of their surroundings which was called a dissociative absorption (Bigelsen et al., 2016; Ross, 2018; Soffer-Dudek & Somer, 2018; Somer & Herscu, 2017; Somer, Lehrfeld et al., 2016). Dissociation was also associated with OCD and considered to be a predictor as well (Belli et al., 2012; Pozza & Dèttore, 2019; Soffer-Dudek, 2017). MD was strongly correlated with obsessions and compulsions but a more significant correlation was reported with the obsessions (Salomon-Small et al., 2021).

2.4.4. Post-Traumatic Stress Disorder (PTSD) and MD

PTSD can develop after being exposed to an actual or threatened death or a violence. The person can either directly experience the event, be a witness or learn that someone close to them was a victim of a traumatic event. Symptoms of PTSD can include intrusive memories of the event, dreams, dissociative reactions, avoidance, distorted cognitions, hypervigilance.

The very first pioneer work on MD by Somer in 2002 was conducted on six patients who were treated for trauma-related childhood experiences. Another paper reported a case study of a participant who experienced an uneventful childhood who had nevertheless developed MD (Schupak & Rosenthal, 2009). MD mediated the association between childhood trauma and dissociation in people recovering from substance use disorder, which makes these individuals who experienced childhood traumas at a higher risk of MD and dissociation (Somer et al., 2019). Indeed, childhood trauma and neglect where both identified as antecedent factors of MD (Somer, 2002; Somer, Lehrfeld, Bigelsen & Jopp, 2016). One theory might be that children who experienced trauma engage in daydreams and fantasies as a defense mechanism again these events (Somer, 2002; Somer & Herscu, 2017). Additionally, MDers who survived child sexual abuse and were probable MDers experienced higher distress and social phobia than non-MDers child sexual abuse survivors (Abu-Rayya et al., 2019).

2.5. Interventions for MD

After describing underlying causes of MD and the multiple comorbidities that come with, this following section will be dedicated to the therapeutic interventions tested for MD so far. As the development of MD interventions is only in its beginning, additional techniques and tools are presented, which might be useful for creating an integrative intervention to specifically treat MDers with their comorbidities.

In a previous case study published by Eli Somer (2018), one MDer was treated using cognitive behavior therapy (CBT) based interventions and reported a significant reduction of time spent on daydreams and on the Internet as well as an increase in social functioning (Somer, 2018). More specifically, in the treatment plan the author listed the several intervention techniques used to tackle

all the difficulties of the participant; the first one being Motivational Interviewing (MI), which is primarily used to improve motivation and commitment to change and solve ambivalence linked to give up or to stick with the problematic behavior (Miller & Rollnick, 2015). In their book, Miller and Rollnick (2015) list four core processes of MI. The first one is *engaging* which mainly focuses on the therapeutic relationship as well as being empathetic with the patient, whereas the second key element, *focusing*, evolves around the development of change as well as the problem at hand. The third element that aims to obtain the motivations of the clients is called *evoking* which focuses on what the patient prioritizes in life and what strategies they may have. And finally, the last one called *planning*, is the act to commit to change and present a concrete action plan. MI helped the participant who had MD to reflect on his motivations to change MD and be aware of the consequences resulting from MD.

The second intervention technique used was CBT to help the participant control and frame his daydreams as well as his Internet usage. Furthermore, CBT was shown to be effective for both anxiety and depressive disorders in various studies (Bogucki et al., 2012; Fennel, 2012; Hans & Hiller, 2013; Hofmann et al., 2014; Kaczkurkin & Foa, 2015; Norton & Price, 2007; Olatunji et al., 2010; Watts et al., 2015). Similarly, OCD and PTSD were shown to be efficiently treated by CBT as well (Abramowitz, 2006; Eddy et al., 2004; Kar, 2011). As depressive, anxiety disorders, PTSD and OCD were highly prevalent in previous MDer samples as well as in our study, CBT may be particularly helpful.

The third intervention technique used in Somer's case study was mindfulness. Mindfulness can refer to a state of awareness (Germer et al., 2005), more specifically it's about being more aware, in the present moment and non-judgmental towards oneself (Kabat-Zinn, 2009). Somer used mindfulness with his participant to increase his attention on the present moment and to reduce his mind wandering.

A second case report of MD applied multiple integrative techniques in order to help their participant be in control of their MD (Schimmenti et al., 2019). In their paper, the participant expressed the need to prioritize their goals such as educational duties and other hobbies as well as working on their social anxiety. The participant kept a diary where she took notes of what she felt and thought of

in regards to her MD. The intervention proposed in the current manuscript – Acceptance and Commitment Therapy (for details, see below) - was used on the participant, but not to directly work on the MD, rather to work on the social anxiety which was beneficial. This intervention helped the participant accept her socially reserved part as being normal. Another technique that was used in this report was mindfulness, which helped the participant focus on the here and now.

2.6. Acceptance and Commitment Therapy (ACT)

The main core of ACT is to allow people to experience their surroundings and their reality in a meaningful and different direction. ACT teaches individuals to accept the difficulties of life and negative thoughts and emotions while at the same time helping commit to take a stand and make a plan to reach a more meaningful life (Harris, 2019). Another essential value of ACT is being mindful of the action that one might do. This can be explained by the fact of being conscious and aware of the surroundings and the activities, which was then called "psychological flexibility".

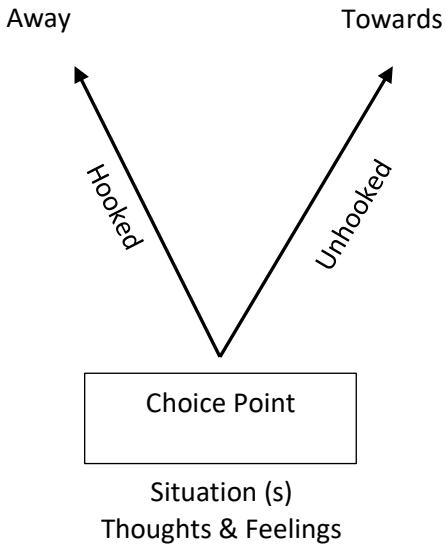
ACT in considered to be a mindfulness-based intervention, we can find that the concept of "observing self" is a main element in this technique where clients refer to their internal self with no efforts to change or evaluate themselves. Moreover, the idea is to see oneself as different from the negative thoughts and emotions and accept things as they are and taking action into replacing maladaptive behaviours with adaptive ones to reach one's goals (Baer, 2003; Hayes & Wilson, 1994). ACT helps individuals to modify their associations to certain events instead of controlling the emotions or thoughts associated with it (Hayes, 2004). A center-concept here would be *psychological flexibility* which refers to when individuals are able to modify their behavior in order to serve a certain set of values (Hayes et al., 2011). Six main skills would be developed in order to acquire psychological flexibility, the first one being staying mindful in the present moment and observing all that is happening on the outside as well as the inside. The second one is keeping a general perspective on emotions and thoughts. Identifying and being able to clarify hopes and values consists of the fourth core skill. Then comes the ability to commit to an action plan in respect of the hopes and values. The last two skills are being able to accept undesired emotions and taking a step back on thoughts that contradict the values,

respectively. Individuals would be able to better observe their behaviors and assess whether or not these behaviors are helping them move forward to their values, and this concept is introduced as "workability" (Hayes et al., 2009; Hayes et al., 2011).

A typical road map is used in ACT to help clients build a better life and be the person they want to be, is called the "choice point". The actions done by individuals that are helpful to them are called "towards moves". It can be seen when individuals actively act to make their life more meaningful. These actions help people build a better life for themselves. However, when individuals are doing something to take them away from their goal and not working effectively on the person, they would like to become we would then call these actions "away moves". These two moves can occur simultaneously with everyone. Emotions and thoughts appear when we are in a difficult situation, and when they show up, we might get be stuck with them, or "hooked" by them. While in difficult situations, we might physically be hooked and act in a certain way depending on the context, or we might even shift out concentration from the current task and mentally evade someplace else. On the other hand, we. Can get "unhooked" by these situations, feelings or thought and engage in towards move to change something to the better. While unhooking oneself, we will be able to do more "towards moves". Here comes the "choice point" to decide how to unhook ourselves and use strategies towards the goals we want. This is the principal idea of this therapy (Harris, 2019).

The following road map called the "choice point" was represented by Harris (2019) in his book "ACT: Made Simple", where he explained the different key words and strategies used in this therapy.

Figure 1. Choice point of ACT (Harris, 2019).



The reason why ACT was used in the current paper as a tentative intervention for MD It because of the variety of integrative techniques we can find in the treatment.

3. The Present Study

The present study aimed to firstly to develop an empirical overview on the association of MD with different comorbid disorders as evaluate the characteristics of MD which should be considered in therapy.

As the condition of MD is still considered to be recent, the literature is scarce when it comes to planning interventions to treat it. Throughout the research and because of the high comorbid disorders, individuals have been misdiagnosed and were not satisfied with the help received.

Due to this literature gap, many research questions can be asked: What are the main comorbidities associated with MD? Why are MDers considered to be in distress? How can MDers be able to use strategies to reduce their MD? Are there any interventions or techniques that can tackle the different aspects of MD?

In order to answer these questions, the present study will be divided into two parts each with its own objective:

In part one, we will first analyze different comorbid disorders associated with MD in a sample of 35 MDers. We hypothesis to find a high prevalence of participants who meet depressive and anxiety disorders. The aim of this analysis is to provide the literature with a data base of the different psychiatric disorders found in the MD population for it to be later on recognized as a disorder on its own.

In part two of the analysis will aim at identifying key elements of MD that could be eventually used to conceptualize a treatment plan for MDers. Three qualitative analyses will be done to analyze each of the following elements: problems due to MD, factors maintaining MD and strategies to help reduce MD.

The use of the comorbid descriptive and qualitative analyses will complement one another in order to provide information useful to consider in the development of new ACT approach for MD presented in the discussion.

4. Methods

4.1. Participants

The current study was conducted under the Research Center for Psychology of Health, Aging and Sport Examination (PHASE) at the University of Lausanne from September 2021 till March 2022. This was a continuing of previous research where the data collection had already started in 2020.

The sample of this study consisted of 35 participants (Male n= 5, females n= 30). The age of the participants goes between 19 and 70 years old (M= 26.40, SD= 8.95). The country of origin varied from Europe, to America and Asia; most of the participants were French citizens (54.3%) but also from Switzerland (22.9%) Canada (11.4%), Lebanon (2.9%), Germany (2.9%) and Belgium (2.9%). The majority of the sample were students 17 (48.6%) or employed 13 (37.1%) where only 2 (5.7%) were unemployed and 1 (2.9%) had retired. Missing values are those who did not to wish to answer to the questions ***(Table 1)***.

Table 1. Sociodemographic Characteristics of the Participants (N=35)

Variable	N (%)
Gender	
Male	5 (14.3%)
Female	30 (85.7%)
Country	
France	19 (54.3%)
Switzerland	8 (22.9%)
Canada	4 (11.4%)
Belgium	1 (2.9%)
Germany	1 (2.9%)
Lebanon	1 (2.9%)
Missing	1 (2.9%)
Professional situation	
Student	17 (48.6%)
Employed	13 (37.1%)
Unemployed	2 (5.7%)
Retired	1 (2.9%)
Missing	2 (5.7%)
	Mean ± SD
Age (in years)	26.40 ± 8.95

Participants MD level assessed with the MDS-16 (Somer, Lehrfeld et al.,2016) varied between the participants from a minimum score of 34 to a maximum score of 97. Of the 35 participants of this study who completed the MDS, 3 (8.6%) had a score between 35 and 50, 8 had a score between 51 and 60 (22.9%), 12 had a score between 61 and 70 (34.3%) and the remaining 12 participants were split equally where 6 scored between 71 and 80 (17.1%) and 6 scored above 81 (17.1%). ***(Table 2)***.

The inclusion criteria were being able to speak French and identifying as MDer and the exclusive criteria were non-French speakers, non-MDers and those who did not wish to participate in the study.

Table 2. Participants' MDS score

MDS Score (%)	N (%)
35-50	3 (8.6%)
51-60	8 (22.9%)
61-70	12 (34.3%)
71-80	6 (17.1%)
>81	6 (17.1%)
Minimum	34
Maximum	97
Mean	66.63
SD	13.943

4.2. Measures

Participants filled out the questionnaire and were then interviewed on the basis of three clinical tools.

Maladaptive daydreaming Scales (MDS) (Somer, Lehrfeld, Bigelsen & Jopp, 2016). This self-reported assessment was firstly developed to evaluate the quantity of MD. It is composed of 14 questions to which answers vary from 0% (asymptomatic) to 100% (full presence of symptoms). The internal consistency of this scale was highly evaluated with a Cronbach's alpha of .95. This scale can discriminate between MDers and non-MDers and is considered to be a highly reliable scale with a sensitivity of 95% and a specificity of 89%. An example of the items is: « Certaines personnes remarquent que certains types de musiques peuvent déclencher leurs rêveries. Dans quelles mesure la musique active-t-elle vos rêveries ? ».

Structured Clinical Interview for Maladaptive Daydreaming (SCIMD) (Somer, Soffer-Dudek, Ross & Halpern, 2017). The SCIMD was administered as the first part of the interview and it consists of 10 questions with sub-questions). This interview allows us to diagnose MD if participants answer affirmatively to inclusion criteria or questions. This interview showed a high reliability.

SECCA-MD (de Vries, 2010). The SECCA is a functional analysis assessment that evaluates the situations, emotions, cognitions, contexts and anticipations. This assessment was administered after the SCIMD. The goal of this assessment is to better understand the daydreams in their contexts while taking into consideration the last episode. At first, a synchronic functional analysis is carried out where we are interested in the current dimension with in particular items on the context, the MD in itself and the consequences that it could have. In a second step, a diachronic functional analysis is carried out that focuses on the history of MD and consultations of the person, as well as the theories that they could have on their MD.

Mini International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998) is a structured diagnostic interview. This interview was the last part of the interview session and aimed to identify different psychiatric disorders as is assesses 17 different pathologies based on the DSM-IV and the ICD-10: « episode dépressif majeur, episode dépressif majeur avec caractéristiques mélancoliques, dysthymie, risqué suicidaire, episode (hypo)-maniaque, trouble panique, agoraphobie, phobie sociale, trouble obsessionnel compulsive, état de stress post-traumatique, dépendance alcoolique, troubles liés à une substance, troubles psychotiques, anorexie mentale, boulimie, anxiété généralisée, trouble de la personnalité antisociale. »

4.3. Procedures

A descriptive study was conducted on a sample of 35 MDers. In response to the COVID-19 pandemic, interviews were conducted online through Zoom application. The recruitment process started by word of mouth and by posting a brief of the study on various social media platform specific for MD such as Facebook or Reddit pages. The duration of an individual interview was around one hour and a half. Consent forms were collected before each interview and consent was taken to record the interview for internal use and supervision. The participants had every right to stop the interview or not answer to questions and leave the study at any time. Two Master's student and one Doctoral student participated in the recruitment of participants and were supervised by the person responsible of the study.

4.4. Analyses

4.4.1. Descriptive statistics for the comorbidities of MD

In a first place, a descriptive analysis will be carried out to evaluate the comorbid disorders associated with MD. The two measures used will be the MDS and the MINI. The rationale of this analysis was to explore the prevalence of each disorder evaluated by the MINI in our sample.

According to the MINI's coding, each disorder is coded by 0 = not present and 1 = present, knowing that all participants scored a minimum of 35 on the MDS to be included in the study and considered to be an MDer.

4.4.2. Thematic analysis (TA)

In order to adapt a therapeutic intervention for MD, we used qualitative analyses to understand what were the main consequences of MD, what contributes to MD as well as the strategies used to reduce it. The goal of this analysis was to be able to identify patterns and themes to address using ACT as a suggested therapeutic intervention. Questions regarding specific aspects in MD were assessed in the SECCA using a deductive method in order to identify several themes.

The purpose of TA is to report themes within collected data and it describes the data in its details. What is most important, is that it allows a global interpretation of the studied topic (Boyatzis, 1998). TA is considered to be a flexible qualitative method in which repeated patterns can be identified and analyzed (Braun & Clarke, 2006). The importance of categorizing in themes has been highlighted as one of the few common elements across several qualitative methods (Holloway & Todres, 2003), implying that certain qualitative approaches can be more inclusive than others. A theme indicates some level of structured response or meaning within the data set and takes into account relevant information from the data in regards to the research topic (Braun & Clarke, 2006).

According to Braun & Clarke (2006) there are six main phases for the process of TA:

1- Familiarize oneself with the data: When researchers are engaged in the data collection, they are expected to have some prior information or knowledge regarding the data. The process of immersion includes going through the data, and looking for recurrent patterns

in it. During this phase, it was recommended to take notes during the readings of the data and write down coding ideas. In this current paper we went through audios and scripts and took notes after each interview and while reviewing all the data we wrote memos of the main characteristics or eventual themes in the data.

2- Generate initial codes: After going through the data and the answers given by the participants, we would already have had a general idea of the most interesting points in the data. This would eventually help produce the first coding of the data. The coding can be a semantic content or a latent one. The semantic content could be the vocabulary of a certain theme whereas the latent one would be finding an underlying theme that is hidden to a statement. Coding was assessed from each drawn question by the interviewer to as many eventual themes.

3- Search for themes: After coding all the data, sorting the codes into themes and to assemble all applicable coded data inside the themes need to be done. For example, several codes could intertwine and be unified into one theme. A table was used in this study as a visual aid to group codes into themes. Some sub-themes can be created within broader themes.

4- Review themes: The main purpose of this phase was to fine-tune the potential themes. Some themes may be supported by data more than others. While refining the themes extracts of each theme should be looked at as well as looking for coherent patterns within the data which may represent additional insights to better understand the phenomenon. We assembled extracts into one table for each theme to confirm that if the coded data extract matched the identified theme or if they needed to be moved into a different theme.

5- Define and name themes: After finalizing the thematic map of the data, we define what all the themes are about. A detailed analysis will be conducted for each theme while associating it the research topic of the paper.

6- Produce the report: The analysis should be summarized while choosing some coherent examples from the extracted data set to convey the core argument of the analysis.

Five questions ***(table 3)*** from the SECCA-MD were used in the qualitative analysis to identify problems due to MD, contributors of MD as well as strategies used by the participants to reduce their MD.

Table 3. Questions analyzed from the SECCA-MD

Questions
"How and when are these daydreams problematic?"
"Do these daydreams prevent you from doing something? If yes, what?"
"What contributes to the fact that you daydream?"
"Do you see factors that maintain your daydreams?"
"Do you have any strategies to reduce your daydreams? If yes, what are they?"

5. Results

5.1. Comorbid disorders in MD

The following section provides us with an overview of the common comorbid disorders found in our sample of 35 MDers.

With the use of the MINI, several comorbid disorders were identified ***(table 4)***. The comorbidities most often found in our sample were depressive and anxiety disorders. The prevalence of anxiety disorders was present in 25 (71.4%) participants whereas depressive disorders were prevalent in 18 (51.4%) of our sample. Several anxiety disorders were reported, generalized anxiety and agoraphobia being the two most prevalent found in 15 (42.9%) and 14 (40%), respectively, of the total sample. Social phobia was found in 14 (40%) participants followed by panic disorders found in 9 (25.7%) of the data. Within depressive disorders, MDD was present in 18 (51.4%) participants as being the most prevalent comorbid disorder followed by dysthymia which was reported by eight (22.9%) participants and MDD with melancholic characteristics found in (14.3%) participants. Other comorbid disorders were also found such as PTSD and OCD, the first one found in 11 (31.4%) participants and the second one in 6 (17.1%). At last, suicidal risk was found in eight (22.9%) participants.

Table 4. Prevalence of the comorbid disorders within the sample of MDers.

Comorbidities	N (%)
Anxiety disorders	25 (71.4%)
Generalized anxiety	15 (42.9%)
Agoraphobia	14 (40%)
Social phobia	11 (31.4%)
Panic disorder	9 (25.7%)
Depressive disorders	18 (51.4%)
MDD	18 (51.4%)
Dysthymia	8 (22.9%)
MDD with melancholic characteristics	5 (14.3%)
PTSD	11 (31.4%)
OCD	6 (17.1%)
Suicidal risk	8 (22.9%)

Data also revealed that only ten (28.6%) MDers had sought out mental health professionals for their MD **(Table 5).** However, 28 (80%) of our participants consulted a professional for other difficulties that they may be facing.

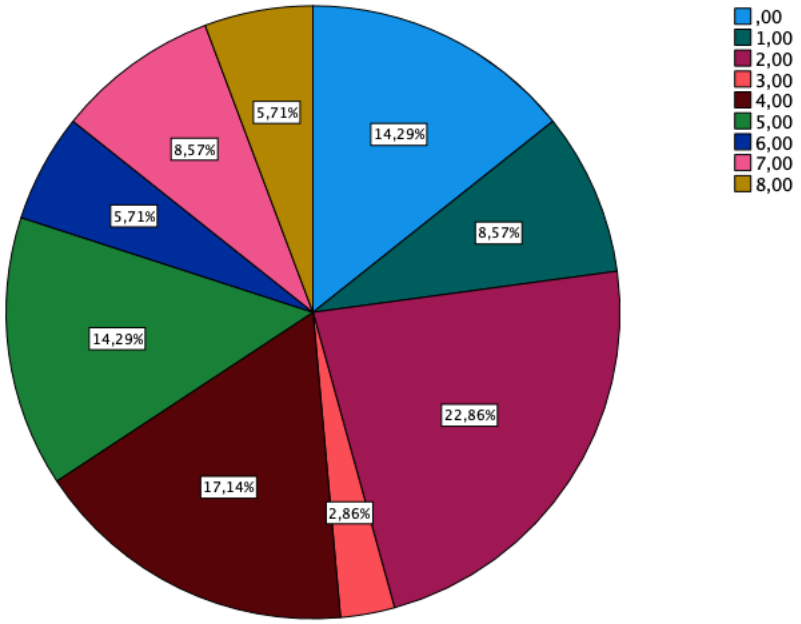
Table 5. Descriptive analysis of consultations by MDers.

Consultations for MD	N (%)
No	25 (71.4%)
Yes	10 (28.6%)
Consultations for other reasons	N (%)
No	6 (17.1%)
Yes	28 (80.0%)
Missing	1 (2.9%)

The following pie chart **(Figure 2)** represents the number of diagnoses given for each participant, where only five (14.29%) participants did not fall under any diagnosis, but 30 (85.7%) met the criteria with at least one diagnosis. Three participants (8.57%) had one diagnosis whereas 8 (22.89%) participants had

2 diagnoses. Moreover, 1 (2.86%) participant had 3 diagnoses, 6 (17.14%) had 4 diagnoses, 5 (14.29%) were given 5 diagnosis and 2 (5.71%) were given 6 diagnoses. Lastly, 3 (8.57%) participants were associated with 7 diagnoses and only 2 (5.71%) were associated with 8 diagnoses. The mean number of the diagnoses observed in the sample was 3 diagnoses (M= 3.43, Std= 2.43).

Figure 2. Number of diagnoses given to the 35 MDers



5.2. Qualitative analyses

5.2.1. Problems due to MD:

Two questions from the SECCA-MD related to the problems that MDers might face due to their MD were taken in order to analyze them. Several themes can be found within the answer of each participant. These questions were: "How and when are these daydreams problematic?" as well as "Do these daydreams prevent you from doing something? If yes, what?". Participants' answers mentioned most often issues related to attention, followed by issues with social interactions, and procrastination.

Table 6. Qualitative analysis of the problems due to MD.

Problems due to MD	Examples	N (%)
Attention		20 (57.1%)
Attention - Concentration	« Etudier, lire, écrire, me concentrer, écouter, parler, toute action que je dois faire ou prendre d'information. »	14 (40%)
Attention - Distraction	« Je serais plus active sans mes rêveries. »	11 (31.4%)
Issues with social interaction	« En famille je m'isole. »	15 (42.9%)
Procrastination	« Quand je dois faire quelque chose, cela repousse toute mes activités. »	6 (17.1%)
Not problematic	« Cela me cause rarement des problèmes. »	9 (25.7 %)

Theme 1: Attention - Concentration

For 40% of our sample, MD interferes with participants' daily tasks and decreases their concentration. Focusing on some tasks would seem difficult as they wouldn't be concentrated to study, read or even listen to the conversations happening around them. Many of the participants seemed bothered by their lack of concentration as it doesn't let them complete their daily tasks.

« C'est vraiment très compliqué pour moi de rester concentré longtemps au boulot. »

Theme 2: Attention - Distraction

This theme could interplay with the first the theme of "Concentration", however we differentiate between the two due to the following reason; MD can distract people from doing certain things or from staying up-to-dated with their daily routine. One third of our sample said that MD can be a source of distraction to them. We can also explain this distraction by a loss of time as some participants prefer engaging in daily tasks instead of daydreaming, however they feel compelled to daydream. Being distracted might prevent participants from being proactive in their life and enjoying the daily moments.

« J'ai plus tendance à rêver qu'à vivre ma vie (…), cela m'empêche de faire toute sorte d'activité (…), je serai plus active sans elle (…) »

Almost more than half of our sample 20 (57.1%) of the total sample reported attention being the most prevalent problem due to MD.

Theme 3: Issues with social interaction

The following theme was shared by almost half of our participants (45.7%). MD can prevent some participants from engaging in conversations or maintaining their social relationships as they feel drawn into their daydream and they prefer to stay isolated. Several participants expressed the need to self-isolate, even during social settings to be able to daydream or else they would feel frustrated. Moreover, while in the daydreams in social settings, they might not tolerate being interrupted which makes them more likely to be isolated to prevent people from interfering with their daydreams.

« Quand je suis en société ou en soirée par exemple (…), je m'isole ou sinon je m'énerve car les gens m'interrompent au milieu de ma rêverie. »

Theme 4: Procrastination

Procrastinating can be represented when participants postpone their current task in order to engage in daydreams. This explains this uncontrollable need to engage in MD instead of completing daily projects or tasks, which was present within our sample (14.3%). While engaging in MD, participants might not be able to stop which makes them procrastinate and continue the daydream.

« En termes de temps, je préfère faires des rêveries que travailler (…), je révise moins et je procrastine mes tâches quotidiennes(..) »

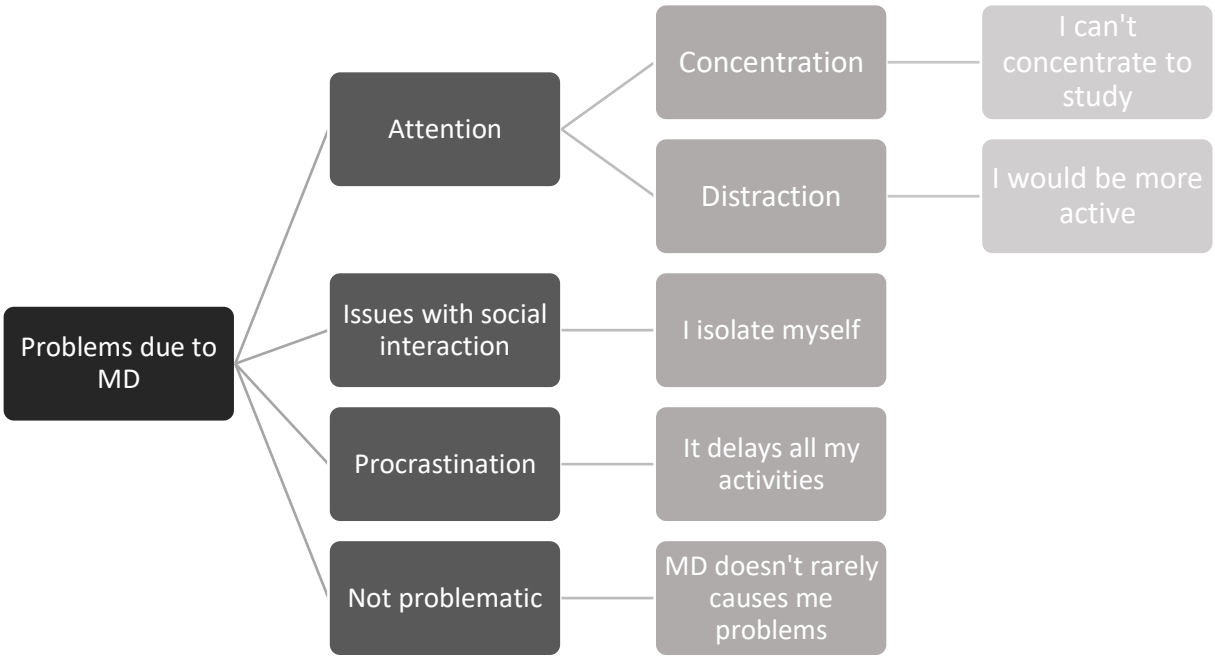
Theme 5: Not problematic

As much as for some participants, MD can be problematic and interfere with several functioning of their life, for some other (22.9%) of our data, MD does not seem to be problematic. On the contrary, for some it might be a source of pleasure or leisure activity as it allows them to develop their creativity and explore new worlds in their minds.

« J'arrive à combiner mes tâches et rêver en même temps (…), Je trouve que les rêveries m'aident à m'évader (…) »

The following figure **(Figure 3)** summarizes the main themes for the problems due to MD

Figure 3. Summary figure for the themes of the problems due to MD



5.2.2. Factors that contribute to MD:

In the following section, two other questions were selected from the SECCA-MD that tackled the factors contributing to MD. Each participant reported either one or several themes at the same time. The two questions were: "What contributes to the fact that you daydream?" and "Do you see factors that maintain your daydreams?". The contributors that were mostly reported were psychological difficulties followed by dissatisfaction and MD being a habit. The four least contributors reported were lack of interest, MD being pleasant, music or video games and voluntarily keeping it.

Table 7. Qualitative analysis of the factors that contribute to MD.

Contributors to MD	Examples	N (%)
Psychological difficulties	« Mauvaise expérience et d'autres traumas. »	15 (42.9%)
Dissatisfaction	« Je suis toujours préoccupée dans ma vie personnelle, donc je rêve pour avoir une meilleure vie. »	8 (22.9%)
Habit	« C'est une question d'habitude. »	6 (17.1%)
Lack of interest	« Mon manque d'intérêt, faut que je me trouve quelque chose qui m'intéresse. »	3 (8.6%)
Pleasant	« C'est satisfaisant, ça me pousse à me cultiver pour enrichir mes scénarios. »	3 (8.6%)
Music – Video games	« A chaque fois que j'écoute des musiques. »	3 (8.6%)
Voluntarily	« Je les maintiens volontairement, je ne cherche pas activement à m'arrêter, j'en ai vraiment besoin. »	1 (2.9%)
Don't know	« Je ne comprends pas, tout va bien dans ma vie maintenant. »	4 (11.4%)

Theme 1: Psychological difficulties

The most shared theme by our participants was psychological difficulties (42.9%). Indeed, this theme was recurrent as being one of the main factors maintaining MD. Several psychological difficulties were noted across the participants; trauma, anxiety, distress, OCD, self-esteem and social phobia.

> « Le fait que je ne suis pas très bien psychologiquement (…), peur d'abandon (…), mauvaise expérience et d'autres traumas… »

Theme 2: Dissatisfaction

The dissatisfaction as a reason to daydream was reported by 22.9% of our data stating that they feel dissatisfied in their personal life and they would rather escape into daydreams. Some

participants shared that they don't like their current life and feel frustrated so they would rather go into a world they can control and brings them comfort. Dissatisfaction was also mentioned by participants who didn't enjoy their current jobs or educations and felt the need to escape their actual life into a better world.

« Je n'aime pas ma vie actuelle, je suis frustrée et insatisfaite ce qui me pousse à créer un monde où je peux tout contrôler (…), le manque de contrôle dans ma vie (…), je ne suis pas forcément satisfaite dans mon travail et je ne trouve pas d'épanouissement… »

Theme 3: Habit

The following theme was shared by 17.1% of our sample stating that MD started becoming like a habit to them. The more people daydream, the more they might feel that it has become a part of them and that it is an activity of their everyday life just like any other routine or habit they have. Some people expressed the development of this habit due to the lockdown and some other stated that the more time passes the more it feels like a habit.

« J'en ai fait plus durant le confinement (…), je trouve que c'est une question d'habitude. »

Theme 4: Lack of interest

The theme of lack of interest was reported by three participants (8.6%) who felt they have no interest in anything that they might be doing. This theme can be intertwined with the previous one where a lack of interest can make people feel dissatisfied with their life or with their job. One of the participants shared not being interest in life in general as if the real world doesn't interest them much because of the difficulties of life.

« J'ai un manque d'intérêt, faut que je me trouve quelque chose qui m'intéresse (…), j'ai l'impression que le monde réel ne m'intéresse pas tant que ça (…), créer un univers à soit peut-être beaucoup plus attrayant que la réalité. »

Theme 5: Pleasant

The activity of daydreaming can be a source of pleasure for some participants (8.6%). The pleasure gained from this experience can reinforce the MDers to engage in more daydreams. This activity can allow people to enrich their scenarios and creativity.

« C'est satisfaisant, ça me pousse à me cultivar pour enrichir mes scénarios… »

Theme 6: Music – Video games

Three of the participants shared that music and video games contributed to their MD. Video games can be stimulating and help people go into daydreams, the same seems true for music.

« La musique peut maintenir mes rêveries (…), mes rêveries se maintiennent à chaque fois que j'écoute des musiques… »

Theme 7: Voluntarily

One participant expressed that they voluntarily maintain their daydreams. Daydreams can be a source or leisure or stimulation and some would rather keep doing it than engage in other activities. One participant stated that they really need daydreams hence the reason they voluntarily keep it, which may stand in contrast to free will.

« Je les maintiens volontairement, je ne cherche pas activement à l'arrêter (…) j'en ai vraiment besoin. »

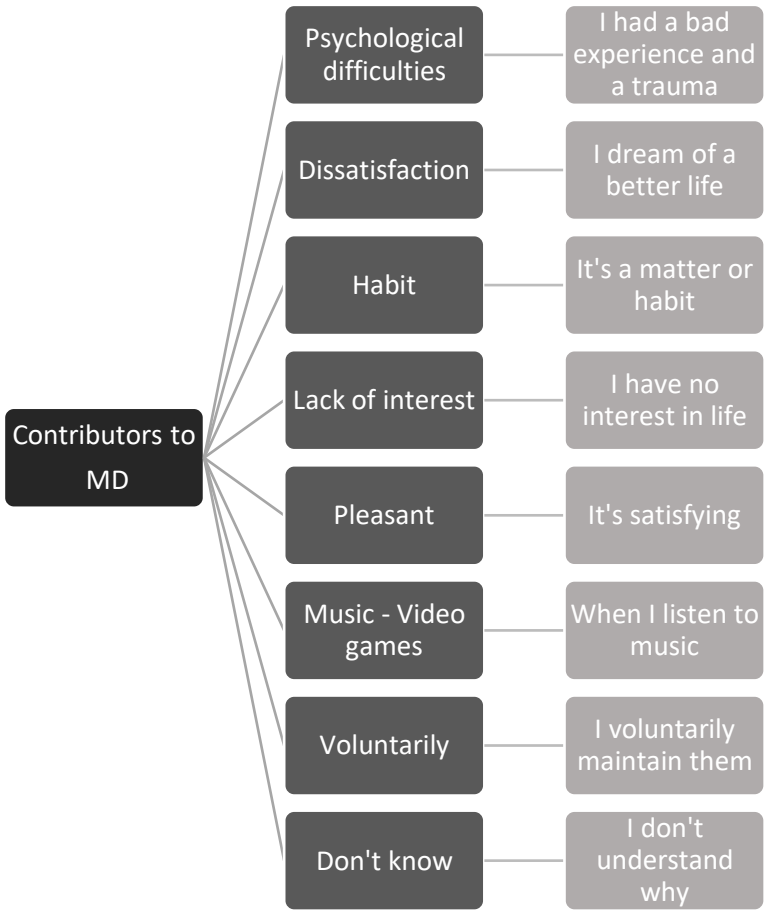
Theme 8: Don't know

Lastly, there was a group pf people stating that they don't know what contributes to their daydreams (11.4%). The reason behind the lack of knowledge might come from the scarce literature upon this topic. Further participants might just be unaware of what exactly in their life is contributing to their MD, at a certain point in their life. The following answer represents a participant that doesn't know nor understand why their daydreams were still present as everything it going well at the moment. This may mean that things have been difficult before but these difficulties are no longer present.

« Je ne comprends pas car maintenant tout va bien, peut-être l'habitude ou quand je m'ennuie (…) »

A summary of the previous themes is represented by the following figure **(Figure 4).**

Figure 4. Summary figure for the themes of factors contributing to MD



5.2.3. Strategies to reduce MD:

The following question revolves around the strategies that participants used to control or reduce their MD: "Do you have any strategies to reduce your daydreams? If yes, what are they?". Some participants shared some strategies used and some other reported that they did not have any. Being occupied was reported as the mostly used strategy, followed by avoiding music, setting a time frame and medications.

Table 8. Qualitative analysis of strategies to reduce MD.

Strategies to reduce MD	Examples	N (%)
Being occupied	« Créer un programme structuré, continue la tâche que je fais, des fois faire du mindfulness. J'essaie de rester occupée. »	16 (45.7%)
Avoiding music	« Ne pas écouter de la musique sans rien faire. »	4 (11.4%)
Time frame	« Technique de mettre un réveil pour contrôler la durée. »	4 (11.4%)
Medications	« J'ai essayé Xanax mais je ne l'ai pas aimé. »	1 (2.9%)
No strategy	« Je n'ai pas encore trouvé des stratégies. »	13 (37.1%)

Theme 1: Being Occupied

The strategy theme that was shared by almost half of the sample (45.7%) to reduced MD was to stay occupied. Staying occupied can reduce the free time in which the mind can wander off the daydreams and it gives them a task to work on, hence more cognitive demands. Some participants shared the need to stay busy and occupied all day to avoid having daydreams while others preferred staying out with friends while staying active at the same time.

« J'essaie de m'entourer des gens et d'être sur les réseaux sociaux pour s'occuper l'esprit (…), juste en faisant une force mentale (…), j'ai trouvé comme conseil de compter des nombres »

Theme 2: Avoiding music

Music can be stimulating for some participants (11.4%) and they would rather prefer avoiding any sort of music to not engage into the daydreams.

« J'essaie de cacher mes écouteurs et me déconnecter du Wi-Fi pour ne pas écouter de la musique ou même changer les mots de passe pour ne pas avoir accès (…), je ne mets pas de la musique quand je suis en voiture pour éviter de partir en rêverie… »

Theme 3: Time Frame

Putting a time frame was considered by some of the participants (11.4%) as an effective strategy to reduce daydreams. They indicated that time frame gives a sense of security and control to be able to get out of the daydream. Allowing oneself a specific time dedicated to daydreams instead of letting it take control helped participants to reduce their daydreams.

« Au lieu de plonger dans la rêverie, je fais un temps précis, ou je peux m'inquiéter ou rêver (…), je mets un réveil pour contrôle la durée de la rêverie ou je sors dehors car c'est moins immersif. »

Theme 4: Medications

Only one participant in our sample found medications to be efficient to reduce MD. Thus, one person cited that their medications inhibited some functions and reduced the likelihood of engaging in daydreams. However, the participant stated that they did not like the medication without specifying the reason.

« Les médicaments (Xanax) me je n'aime pas. »

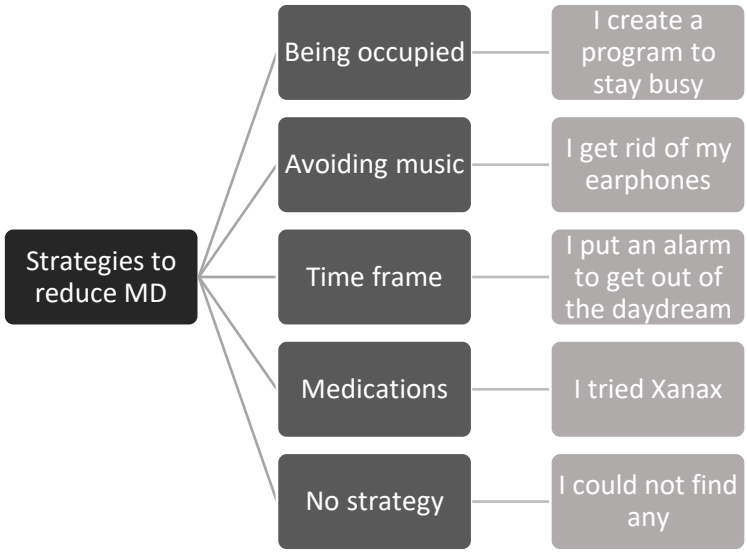
Theme 5: No strategy

Une grande partie des participants (37.1%) n'a toujours pas trouvé une stratégie spécifique pour réduire ou contenir les rêveries. Comme cette condition est assez récente, les études sur les stratégies et interventions sont minimes, donc les personnes ne peuvent pas se baser sur des références scientifiques. Some participants tried without any success to reduce their daydreams and they keep trying to find new strategies.

« Je n'ai trouvé aucune stratégie pour le moment (…), j'essaie toujours mais je ne trouve pas. »

The main strategies used to reduce MD are represented in the following figure **(Figure 5).**

Figure 5. Summary figure for the themes strategies to reduce MD



6. Discussion

The goal of the present study was to enhance the understanding of MD, a so far underacknowledged mental health condition, and to identify key aspects which could be addressed by therapy. To do so, a twofold approach was chosen: first we assessed comorbidity of MD, to learn more about potential symptom overlap, but also to gain a wider perspective of co-occurrence issues. Second, we explored problems experienced due to MD, factors that maintain MD as well as strategies to help reduce them.

Based on a sample of 35 individuals with MD, clinical interviews and qualitative coding of their responses led to the identification of depression and anxiety disorders as most prevalent comorbidities. Furthermore, most important problems associated with MD were social issues and attentional issues such as concentration and distraction. The two most often mentioned factors contributing to MD were psychological problems and dissatisfaction. Being occupied was the most frequently mentioned strategy against MD. Findings are discussed in more detail in the following part and are used to develop thoughts regarding a MD-specific ACT intervention.

6.1. Comorbid disorders in MD

The current study showed that the majority of the participants had at least one psychiatric diagnosis which confirms previous literature stating that people with MD have also other psychiatric conditions (Somer et al., 2020; Somer et al., 2017).

More than 80% of our sample had at least 2 psychiatric diagnoses. The prevalence of several diagnoses occurring at the same time could eventually explain the distress lived by MDers. Previous research on the comorbidities of MD had found similar results where almost 75% of the sample met criteria for more than 3 different diagnoses (Somer et al., 2017).

The descriptive analysis of the consultations done by MDers **(Table 4)** showed that 80% of our sample had already sought help for reasons other than their MD. These results confirm our findings on the high prevalence of different comorbid disorders with MD. People with MD seem to have more mental health issues, including psychiatric disorders, but this does not mean that MD should therefore

be considered as a psychiatric disorder. MD should be considered as a psychiatric disorder as it tends to have negative outcomes on the functioning of people and as they wish to get rid of it.

In the present study, a high prevalence of depressive and anxiety disorders was found. Almost three quarter and half of our sample were found to have anxiety and depressive disorders, respectively. The most common disorders were MDD, generalized anxiety and agoraphobia. These findings align with previous analysis of frequencies of the psychiatric diagnosis in MDer, where more than half of the sample had MDD (Somer et al., 2017). Moreover, a high prevalence of anxiety disorders was previously reported where 43.59% of the sample had social anxiety disorder and 28.21% had generalized anxiety disorder (Somer et al., 2017).

In the current study, 31.4% of our participants were found to have current PTSD. This parallels much work on the importance of traumatic events. The first paper on MD, Somer (2002) described 6 cases of MDers who lived traumatic experiences during their childhood and at the same time started engaging in MD as a way of coping with the trauma allowing them to take distance from the event. A positive association was previously found between the likelihood of escaping into a fantasy world with past traumatic events. Although there has been debates about the role of trauma where trauma has been argued to have a key role in the development of MD, those who lived traumatic experiences were more likely to engage in MD and evade into a different world (Somer, Somer & Jopp, 2016a). Furthermore, childhood trauma was argued to be one of the main contributors of MD (Somer & Herscu, 2017).

OCD was found to be prevalent in 17.1% of our sample. Previous research found a positive association between MD and obsessive-compulsive symptoms which can explain the high prevalence of participants who meet the criteria of OCD in our sample (Salomon-Small et al., 2021). The authors of the previous study found that MDers has high level of compulsions such as checking. They explained that while in the daydream, people may feel detached. Another common characteristic between the two could be that in MD, individuals do not feel bodily sensations such as hunger (Bigelsen et al., 2016). Individuals with OCD may count on external stimuli instead of their internal sensations meaning they

might have an impairment of their bodily perceptions (Exrati et al., 2018; Liberman & Dar, 2018). Moreover, one previous article successfully used SSRI to treat MD which it also used to treat OCD (Schupak & Rosenthal, 2009).

Several comorbid disorders were found to be highly prevalent among our sample of 35 identified MDers. Depressive and anxiety disorders were the most two common where more than half of the sample had one of these diagnoses. Moreover, PTSD and OCD were also reported as comorbid disorders. These findings can represent the distress MDers might be facing as the majority of the sample had at least two psychiatric diagnoses and almost three quarter of the sample sought professional help for reasons other than their MD.

6.2. Key elements of MD

6.2.1. Problems due to MD:

When asked what issues MDers experience due to their daydreaming, the most often reported problem was reduced attention, including both concentration and distraction. Participants of the current study reported not being able to concentration on their daily tasks, such as reading, studying, working or even engaging in conversation and that their mind wanders off into the daydreams. These finding parallels previous work which found a high prevalence of attention-deficit hyperactivity disorder (ADHD) among a sample of MDers (Somer, Soffer-Dudek & Ross, 2017), where 27 over 30 participants diagnosed with ADHD were identified to be the of Inattentive Type. Being distracted or lacking the concentration can be explained by one symptoms of ADHD where individuals might "not seem to listen when spoken to directly" which can be the explained by the fact that they aren't mentally present but rather evaded into their daydreams (American Psychiatric Association, 2013). Furthermore, Bigelsen et al. (2016) found significant effects between MD population and non-MD while measuring the inattention symptoms of ADHD. Being distracted and mind wandering to an internal world was often experienced by people with ADHD without any specific stimulus (Bozhilova et al., 2018). However, this association between MD that MDers often have an ADHD diagnosis in addition does not mean that MD can only be explained by ADHD. Instead, Theodor-Katz et al. (2022)

stated that MD is considered to be a mental condition on its own which can cause attention difficulties and might have an association with ADHD, but not the other way around. To further solidate this argument, the participants of our study reported other problems due to MD, meaning that inattention is among several other problems caused by MD that may not be related to ADHD.

Social isolation was reported by being the second most important problem due to MD by 45.7% of our study participants. Reduced social contacts and isolation have been identified as important factors associated with MD (Somer, Somer & Jopp 2016a). When daydreams are excessive, they are likely to lead to social withdrawal (Somer, 2002). An impairment in social life can be caused by the fantasies in MD as fantasies can become dysfunctional (Pietkiewicz et al., 2018). Going into the daydreams require generally a quiet environment where MDers will not be interrupted, which prevents them from being around people and socializing. MDers tend to isolate themselves or avoid crowds in order to daydream and not feel conflicted if their daydream stopped or was interrupted. The MD activity increases during isolation and social distancing (Somer et al., 2020), which explains the vicious cycle of isolating oneself to go into daydreams. In previous research, 24% of the sample reported having difficulties on social levels due to fantasizing (Bigelsen & Schupak, 2011).

The third problem caused by MD was procrastination. The following theme can be considered to be a consequence of the inattention theme, where participants are not concentrated enough to do their daily tasks which leads them to procrastinate their work and engage in MD instead. No previous research studied the association of MD with procrastination. However previous work linked MD with emotional regulation and the later was correlated with procrastination (Greene et al., 2020; Wypych et al., 2018). Low emotional regulation strategies and emotional difficulties were previously associated with MD (Wen et al., 2017; West & Somer, 2019). On another hand, low emotional regulation strategies were found to predict procrastination (Harrington, 2005; Sirios & Pychyl, 2013). Thus, one could speculate whether emotional regulation may mediate the relationship between MD and procrastination.

Participants reported several problems due to MD such as reduced attention which included concentration and distraction, social isolation as well as procrastination.

6.2.2. Contributing factors to MD

Being asked which factors would contribute to MD, participants mentioned eight aspects. The more prevalent theme psychological difficulties were reported by almost half of the sample (42.9%). In line with theory, but also with respect to comorbidities, the previous results of our study showed a high prevalence of comorbid disorders within the MD sample which explains the contribution of psychological difficulties to MD. The most recurrent psychological difficulties reported were: trauma, anxiety, social phobia, OCD and self-esteem. In our study, PTSD was prevalent in almost one third of our sample which confirms previous research stating that adult MDers who lived through traumatic events during their childhood may engage into the daydreams as an escape from the reality world (Sandor et al., 2021). Several participants shared that one of the factors that might contribute to their MD were previous traumas and difficult periods during their life. Another difficulty reported was anxiety, reported by 10 participants, which parallels prior work that found GAD to be highly present in MDers (Abu-Rayya et al., 2019; Alenizi et al., 2020)., as well as reports that social phobia being linked to MD in prior work (Somer & Herscu, 2017). The participants of our current study reported that they seeked refuge as an escape in daydreams in order to have an improved self when they lack confidence or when faced with social situations. In these daydreams, participants report feeling more secured and in control which brings them comfort.

Being dissatisfied was reported as being a contributor to MD in 22.9% of our sample and lacking interest was reported by 8.6%. A lower life satisfaction as well as less happiness was reported by MDers as compared to before the COVID-19 lockdown (Somer et al., 2020). These findings can explain the contribution of dissatisfaction in our sample. As MD was previously explained as a way to escape the real world and the struggle of the daily life, while feeling Dissatisfied or lacking interest, MDers could escape into an inner world to find pleasure or satisfaction. Engagement in daydreams can be a coping strategy against distress (Winnicott, 1971). We can also hypothesis that the presence of

the lack of interest can be seem due to the high prevalence of MDD in our sample, as anhedonia is a core symptom of depression that decreases the experience of pleasure where a reduction in the reactivity to pleasant stimuli is noticeable (American Psychiatric Association, 2013; Treadway & Zald, 2011).

Another factor contributing to MD was that MD became a habit. Out of habit or without a clear solution to their problems, some people can make a regular use of it.

MD being pleasant was reported as a contributing factor by some of our participants (8.6%) which aligns with previous studies stating MDers reported not only negative issues related to MD, but also positive experiences (Bigelsen & Schupak, 2011). In our sample, one participant shared that MD can help them enrich their scenarios in a creative way and that it's a source of comfort. In fact, creativity has been previously positively associated with daydreaming by Singer & Schonbar (1961).

Music and video games were identified as contributors to MD by 8.6% of our sample, which aligns with previous studies stating that music can facilitate daydreams but also that daydreams provoked by music can reduce certain emotions (Somer, Somer & Jopp, 2016a). A previous case study reported that daydreams can be triggered by surfing on the web while watching pornography, which is in line with the participants in our study stating that video games or music could contribute to MD (Pietkiewicz et al., 2018). Previous literature assessed the association of MD with behavioral addictions. Somer (2018) considering MD to fit in behavioral addiction as a psychopathological category, among three others.

Keeping the daydream voluntarily was only reported by one of the participants. This can explain the positive outcomes of MD mentioned previously where people escape to their daydreams as a way to cope with distress and it makes them feel safe or happy. However, the participant stated that they need the daydreams which makes us question how much free will they might have to continue or stop them.

The last theme was those didn't know what contributed to their daydreams (11.4%). The literature it still limited when it comes to explaining etiologies or risk factors. Given that research on

MD only emerged some years ago, and that still little of its findings were made its way into main stream media, it is not surprising that MDers have little knowledge as for what might contribute to their MD.

Factors contributing to MD varied across our sample from psychological difficulties, dissatisfaction as well as being a habit being the most reported.

6.2.3. Strategies to reduce MD

The different strategies participants used to reduce their levels of daydreams was analyzed, unfortunately little previous research has assessed strategies to reduce MD.

The most often mentioned strategy to reduce MD was being occupied where several participants (45.7%) explained that they try to have a busy schedule to avoid daydreaming. Some of the activities to keep them busy were: watching movies, videos or reading. Some other explained that they try to find something else pleasant to do or try to visually concentrate on certain tasks. The above activities are all connected to mind stimulation to keep the brain busy by doing mental activities not related to MD. Staying occupied might distract MDers from daydreams and might help them focus on other tasks

The second strategy to curb MD, avoiding music was identified by 11.4% of our data. As music was previously explained as being stimulating and can facilitate daydreams, some participants said they would avoid it to not enter into the daydreams. In order to avoid music, some participants reported hiding their earphones or disconnecting from the Wi-Fi to not be able to listen to music or they might even change their password to not have access.

Setting a frame work was identified to limit MD by 11.4% of our data. Some participants reported putting an alarm to stop the daydream or to set up a structured program to organize their tasks. By putting a limited time frame to MD during which they give themselves the permission to daydream, it allowed MDers to more easily get out of the daydream and continue their tasks.

One participant reported that medications have helped them to reduce daydreaming. A previous case study of an MDer reported that fluvoxamine helped the patient control the daydreams

(Schupak & Rosenthal, 2009). The participant of the current study reported taking depressive medication but did not like it and stopped it without mentioning the reason.

The rest of the participants have found no strategy to limit MD, which brings us to the last theme from the analysis reported by 37.1% of our sample. Some participants have tried a few techniques but with no success and some others have not found anything that helped reduce their MD. As no previous work has tackled interventions or strategies for MD, it is quite normal to find a high prevalence of MDers who still do not have any tool to reduce or control their MD.

With that being said, the rationale of this study is to utilize the three above topics and adapt them to the "choice point" from ACT.

Several strategies were reported by participants that helped them reduce their daydreams such as being occupied, setting time frames or even avoiding music. These strategies vary from individuals to another depending on what subjectively works better for them. This gives hope to other MDers that some strategies can indeed reduce daydreams even though no intervention or techniques are investigated yet.

6.3. Application proposal for ACT-MD interventions

Based on the findings of this current study, an adapted MD-intervention will be proposed to fill in the gap of the literature on interventions for MD. Around 70% of our sample did not seek any treatment or professional help with regards of their MD. This might be due to the lack of interventions or because MDers were misunderstood that they decided not to consult anyone. As ACT is part of the behavioral and cognitive therapies in somehow regroups the three techniques used by Eli (2019) into one approach. The only difference would be the acceptance part, and in this case, it would be accepting MD as being part of MDers' identity but take an action to control it. One of the examples could be accurate for those who have lived childhood traumas and use MD as a strategy to cope. They can channel their suffering into an activity that might help them avoid negative feelings related to the event. Not only would ACT allow MDers to accept their MD, but also its contributors whether they were present (anxiety, depression) or past (previous traumas).

The first paper to try and treat MD was published in 2019 where several techniques were used in an integrative way. Several approaches were used – that primarily focused on substance use and OCD treatment-, such as MI, CBT and Mindfulness training. Schimmenti and colleagues (2019) then presented a case in which they used ACT and mindfulness techniques with an MDer. ACT, however, was used on social phobia specifically and not on MD. The integration of these intervention techniques was the first of its kind in the literature and the first ever reported try to treat MD.

Based on the findings on problems, contributors and strategies analyzed in this study, we suggest an adapted treatment intervention for MD, based on ACT. This therapy is considered to be a "third wave" approach (Hayes, 2004; Hayes et al., 2006; Ost, 2008). According to Steven Hayes the developer of ACT, the "third wave" therapies aim to alter the role of psychological experiences instead of altering the experience itself.

The following hexagon called "The ACT Hexaflex" represents the six main values and processes of ACT adapted to MD (Harris, 2019).

The first one focuses on staying in touch with the *present moment*. In other words, it means being conscious of the external world as well as the internal one. In MD, there is an inability to stop the daydream as it is considered to be an addictive and captivating activity (Somer, 2002), therefore MDers have a hard time engaging in the here and now.

The second one, *acceptance*, means to allow while "letting be" the intrusive experiences as well as emotions and thoughts. Letting them in and run freely through the mind is assumed to prevent individuals from engaging in fighting against them. MDers expressed psychological difficulties as well as dissatisfaction with their daily life, and reported that evading into daydreams would relief them from the everyday difficulties. The acceptant here would be to allow these difficulties to run freely without actively seeking to fight them.

Defusion is the third core element, initially meaning "cognitive defusion", which can be explained by stepping back and detaching oneself from one's thoughts. We allow thoughts, or in this case MD, to "guide us, but not dominate us" (Harris, 2019).

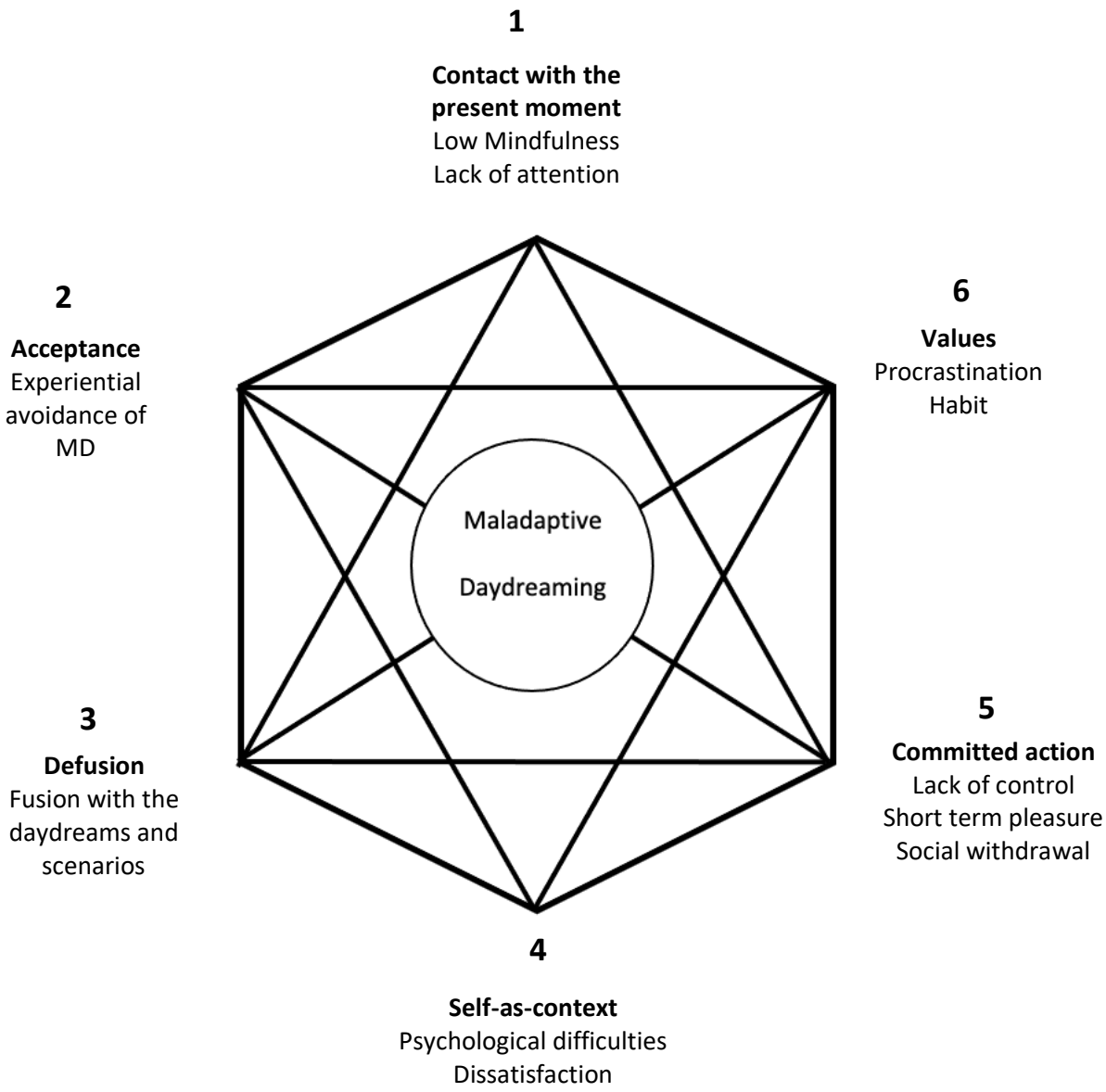
The fourth is the "*self-as-context*", which means to observe oneself and notice what is happening around. In MD, we can find the lack of interest in one's life or dissatisfaction as component of this concept. In that case, observing oneself would help MDers gain introspection as well as insight on what is happening around them and trying to focus their attention on the outside.

Above and beyond the four principles of mindfulness in ACT, a fifth key value is the "*committed action*", where people take a step forward while focusing on their values. MDers have difficulties to reduce MD or be able to control it, and a part of our sample has not been able to find any strategy to reduce it. Moreover, engaging in MD can provide MDers with a short-term pleasure, but might not provide them with a long-term one. As one of the main components of ACT would be to take an action and commit to it, the goal would be to have a concrete action plan that MDers can achieve. This action plan would be based on the goals of the MDers as well as their values to help them see what they want to accomplish in their life and what matters the most to them.

Finally, the sixth element of ACT are the "*values*", which means people reflect on what their goals are and what values they have. MDers report having a lack of attention and a procrastination, as well as a lack of social interaction where they feel the need to self-isolate in order to engage in daydreams. The goal would be to help them find their values and their goals, in order to overcome the difficulties that they may face in life. By difficulties, these may be the contributors of MD but also to work on the problems due to MD.

The following hexagon **(Figure 6)** allows to illustrate the key aspects found in the sample of this study representing potential connections for an ACT intervention. The first part of the study allowed us to have a better understanding of the different comorbid disorders found in MD, each of which can be tackled using ACT.

Figure 6. Conceptual ACT hexalfex for MD (Adapter from Harris, 2019).



The *contact with the present moment* would be represented in MD by the lack of attention and mindfulness strategies. As mindfulness allows individuals to focus on the here and now in a non-judgmental way, it would help MDers to focus their attention on their surroundings and what is happening with them in the present. The same would go to the lack of attention represented by concentration and distraction as some participants reported lack of concentration on the current task and evading into the daydreams. While presenting the hexaflex, Harris presented "three Ds" that represent *inflexible attention*: "distractibility, disengagement and disconnection". All three can be

present in MDers where they feel distracted from the daily tasks and would disengage while losing their involvement. Harris explained the disconnection when people are not conscious of their own thoughts and feelings and do not have enough self-awareness (Harris, 2019).

The *acceptance* would be accepting MD as a normal activity instead of trying to get rid of it. Instead of avoiding or scaping this unwanted experience that is accompanied by thoughts, emotions. Participants shared that either they tried without success or were not able to find strategies to reduce their MD. This shows us how clinically impairing MD might be and how much MDers want to reduce it or avoid it.

Defusion and acceptance could go hand in hand as the defusion would mean defusing oneself from the daydreams. Instead of letting MD dominate, letting it guide would give it much less power.

All MDers have a background story just like anyone else and this represents who they are. Psychological difficulties and dissatisfaction reported as contributors to MD may seem as main components of MDers life that are contributing to their MD or distress. The main idea here would be to understand that the past experiences and stories do not represent the essence of MDers. *Self-as-context* would consist here of observing what is happening and see the self as being "nothing more or less than a complex cognitive construction, a rich tapestry of words and images" (Harris, 2019).

In the *committed action*, elements that pull MDers way from their goals and values are present such as lack of control, short term pleasure and social withdrawal.

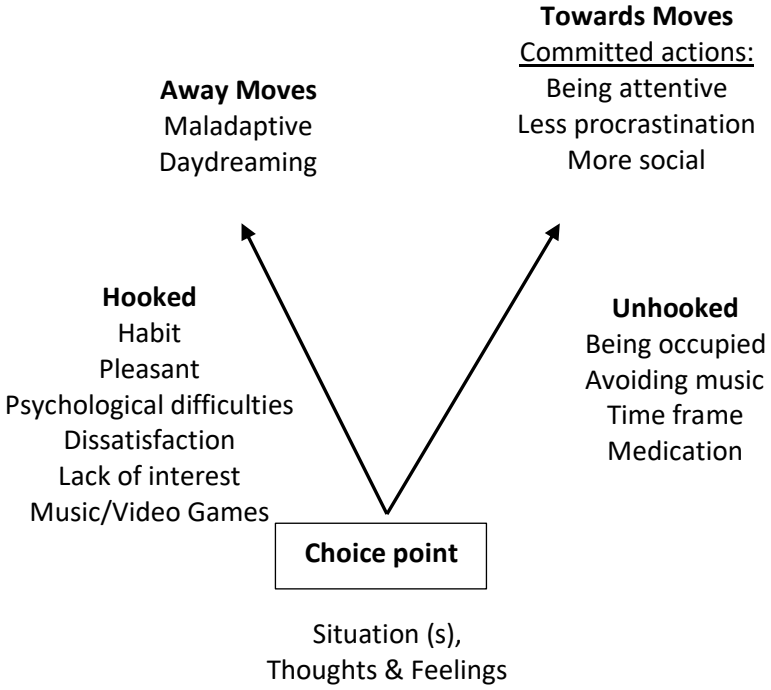
With the experiential avoidance and fusion, the values might be less present in the daily life. The goal in ACT would be to reinforce the values. With the presence of values, MDers might be able to be more motivated to achieve them instead of procrastinating the tasks.

As one of the goals of the current study was to propose a therapeutic intervention for MD, the following part will consist of a conceptualization of the "choice point" **(Figure 7)**. The second part of the analysis allowed us to identify central problems and useful strategies helpful to conceptualize the core ACT elements to represent in the "choice point" of an ACT-based intervention or therapy

approach for MD. The problems due to MD, contributors of MD as well as strategies used to reduce it were presented in the "choice point" of ACT.

The choice point represents a general idea of the ACT model that showcases several problems as well as the way to handle them (Harris, 2019). Additionally, it allows individuals to be more aware of the moments and situations in which they are faced with choices that may involve their values. The awareness gained from the choice point offers individuals the flexibility to commit an action (Harris, 2017). In this choice point, towards moves are the behaviours done to reach one's goals and achieving the person one wants to become. On the other hand, away moves are considered to be things that keeps us away from what we want to build. The ideal goal of ACT would be to stop or reduce these away moves. Moreover, the thoughts and emotions could hook people, making them do more away moves. When people are capable to unhook themselves from the thoughts or emotions, they would more likely be able to do towards moves. The choice point in MD case would depend on each MDer depending on what they choose. By unhooking themselves they would more likely to achieve towards move and the same is true when they hook themselves and end up doing more away moves.

Figure 7. The choice point for MD (Adapted from Harris, 2019).



We can consider MD as being the "away move" on the top left side of the "choice point"; participants shared the need to reduce MD as it is pushing them away from their goals and values. The factors contributing to MD on the left side can be considered to be as the elements that hook MDers to continue daydreams. In a way, the themes reported as contributors can hook MDers' attention and concentration and make them do more the "away move" which increases daydreaming activity.

On the top right side of the choice point, we can see that the problems due to MD can be the goals of MDers, where MD is preventing them from achieving these goals or values. For example, one of the problems was that MD causes some participants to procrastinate. Ideally, a goal would be to decrease procrastination and focus more on one's target. These "towards moves" are reinforced by the strategies to reduce MD on the right side, reported by the participants that can unhook them from difficulties and push them to do more "towards moves". Staying occupied for instance, can reduce MD and help participants focus more on their daily tasks or avoid self-isolation and be more social.

When MDers endure hardship situations in their everyday life, they are usually accompanied with thoughts and feelings, and based on these people might choose to get hooked or unhooked. One example can be that if an MDer was at home working (situation) and felt down (emotion), they might reminiscence about past or current experiences (thoughts). Here, MDers can either choose to hook themselves through the contributors reported above and dive into the MD, or choose to unhook themselves using the strategies and continue working instead of procrastinating or losing attention. This choice that they would take is what is represented by the "choice point" at the bottom.

6.4. Clinical Implications

The results of the current study could provide a first step into integrating a therapeutic approach to treat MD and the comorbidities associated with it. Clinicians should take into consideration the comorbid disorders associated with MD and understand what exactly is causing them distress. The present study suggested a clinical intervention adapted for MD in order to treat this condition and comorbidities associated with it.

6.5. Limitations

This study is not without any limitations. Our sample consisted of 35 MDers, however it does not represent the entire population of MDers, hence the reason generalized conclusion cannot be drawn. Moreover, the suggested intervention-model remains a theorical model that needs to be tested on MDers to see how they would respond to it. As clinical interviews were assessed on secured online platforms, information may not be completely accurate and answers might be subject to change as per participants' comfort.

7. Conclusion

The results of the present study showed a high prevalence of anxiety and depressive disorders among 35 MDers as well as OCD and PTSD. Moreover, 30 participants met at least one clinical diagnosis and three quarter of our sample already sought professional help for reasons other than their MD. These results confirm previous findings suggesting that MDers are clinically distressed and might suffer from mental illnesses other than MD. MDers seem to have a high prevalence of comorbid disorders which may explain why MDers are in distress. The MD alone might cause clinical distress to the majority of MDers, let alone the weight of the comorbid disorders associated with it. This was also an aspect of the current study were two third of the sample had consulted a mental health professional for reasons other than their MD and more than half of the sample did not consult for their MD. The analysis of the problems due to MD gave us a better insight on the several functions affected by MD whether it was on a social or mental level and it highlights how much MD interferes with daily tasks and might prevent some people from achieving their goals. MD can be maintained by several factors and contributors and looking to reduce these contributors might help understand how MD can be reduced or how to avoid triggering it. It was reported that some strategies were indeed found to reduce MD which gives hope for future research to find more strategies so MDers can apply them and choose the ones that fit them best.

Based on these findings, an integrative intervention was suggested for MD. This intervention called ACT was adapted using the key elements of this study and conceptualizing MD while using its theoretical concepts. The current study aims to allow clinicians to have a first-hand adapted-intervention to help MDers and allow them to have a safe space not be dismissed or disregarded. More research is needed to apply this intervention on MDers and see its efficacy. With the application of this MD-intervention, MDers would eventually be able to talk about their MD and seek treatment to be able to control it. Working on the values and motivations of MDers may eventually remind them of the person they want to be and adopt unhooking strategies to reach their goals and be who they want to be.

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