



Assessing the relationship between unmet belongingness needs and maladaptive daydreaming

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Assessing the relationship between unmet belongingness needs and maladaptive daydreaming

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Abstract

Maladaptive daydreaming (MD) is characterized by intense and immersive daydreaming that interferes with daily functioning and causes distress and dysfunction. Prior research has indicated that MD might serve as a coping mechanism for individuals with unmet social and emotional needs, yet its relationship with the need for belongingness has been underexplored. This study investigated the relationship between MD and belongingness, hypothesizing that individuals with MD exhibit lower levels of perceived belonging and higher need to belong, using fantasies and parasocial relationships to replace the social connections they crave but are not obtaining in real-life. The study recruited 217 participants from online forums discussing MD and related conditions. Findings revealed a significant negative correlation between MD and sense of belonging, suggesting that higher MD levels are associated with lower feelings of social integration and acceptance. Contrary to expectations, no linear relationship was found between MD and the need to belong. The study supports the notion that MD may function as a compensatory mechanism for unmet needs for belongingness. These findings suggest that therapeutic interventions aimed at addressing these unmet social needs could be key to effectively managing MD.

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Chapter I.

Introduction

Daydreaming has long fascinated researchers across various disciplines due to its ubiquity in human experience. Defined by Singer (1975) as spontaneous and self-generated mental activity that unfolds in the absence of external stimuli, daydreaming serves adaptive functions, enabling individuals to process complex information, grasp abstract concepts, recall past events, and plan for the future (Baird et al., 2011; Schooler et al., 2011). However, in some individuals daydreaming can evolve into a maladaptive form (Somer et al., 2016). Somer (2002) introduced the term “maladaptive daydreaming” (MD) to describe a condition characterized by vivid, emotionally charged, and long-lasting fantasies that result in detrimental effects to an individual’s life such as attention deficit, missed responsibilities, impaired productivity, social isolation, increased anxiety and sleep disturbances (Bigelsen et al., 2016; Ferrante et al., 2022; Greene et al., 2020, Schimmenti & Caretti, 2019; Somer et al., 2017a). Various studies indicate that MD is related to social anxiety, depression, suicide ideation, dissociative disorders, obsessive-compulsive disorder, and a history of childhood trauma (Abu-Rayya et al., 2020; Somer & Herscu, 2017; Somer et al., 2017a; Ross et al., 2020).

The literature suggests that maladaptive daydreamers often resort to fantasy as a coping mechanism to offset emotionally distressing states. It seems that these individuals are trying to fulfill unmet emotional needs, often engaging in parasocial relationships: one-sided, non-reciprocal relationships with media figures, fictional characters, or idealized versions of real people (Horton & Wohl, 1956). MD can also manifest in

fantasies of perfect friendships, supportive families, and professional acclaim (Bigelsen et al., 2016). These findings imply that the nature of MD is predominantly social and that the aspirational drive to experience affection, recognition, and value is met through these constructed narratives. Brenner and colleagues' (2022) research revealed that maladaptive daydreamers exhibit separation insecurity, difficulties with emotion regulation, and anhedonia, while craving intimacy, approval, and recognition, concluding that fantasy in this population has a compensatory role in regulating unmet psychological needs.

Baumeister and Leary (1995) posited that humans possess a fundamental “need to belong”, expressed by a motivation to establish and maintain relatedness to others through stable and strong interpersonal relationships. Independently, Hagerty and colleagues (1992) identified what they called a “sense of belonging”, defined as the evaluative feeling of fit and involvement with an environment, where the individual feels a strong sense of affiliation and connection with a group. Baumeister and Leary (1995) explained that, from an evolutionary perspective, being part of a group or having many acquaintances is not enough to secure resources, protection, mates, and help. Rather, the quality and depth of social bonds determine how much support one can obtain. Thus, they argued that people tend to seek to establish and maintain lasting, positive, stable, and significant interpersonal relationships with a few other people who share mutual concern for the welfare of one another. When belonging needs are not fulfilled, people normally are motivated to seek out interpersonal contact and form close bonds with a few others (Baumeister & Leary, 1995). However, in the context of maladaptive daydreamers, this

natural inclination to seek out and forge new meaningful relationships appears to be hindered.

The MD literature raises the question of whether maladaptive daydreamers struggle to seek and maintain proper and satisfactory interpersonal relationships due to factors such as past trauma, mental illness, impaired emotion regulation, or antisocial personality. When these individuals' inherent need to belong remains unfulfilled, and traditional avenues for connection are unsuccessful, they may instead retreat into the solace of their imaginations, nurturing parasocial relationships. Baumeister and Leary (1995) argued that the human need to belong influences a broad spectrum of behaviors including the pursuit of power, approval, intimacy, and social engagement, suggesting that unmet belongingness could be linked to various maladaptive behaviors and psychological conditions. Yet, the specific association between MD and the concept of belongingness remains underexplored, with scant attention devoted to understanding the underlying motives and psychological needs prevalent among maladaptive daydreamers. This study seeks to bridge this gap by probing the association between the complex and vivid daydreaming in MD and the broader construct of belongingness, seeking to understand whether the immersive fantasies of MD might correlate with both the individuals' sense of belonging and their need to belong.

The History of Psychological Study of Daydreaming

The understanding of daydreaming has evolved substantially over the past century. In 1908, Sigmund Freud associated daydreaming with psychopathology, hysteria, and neurosis and regarded it as a manifestation of unconscious conflicts and wishes (Person et al., 1995). The psychoanalyst Donald Winnicott (1953) recognized that

daydreams, which he referred to as “transitional phenomena”, play an important role in the early stages of an individual’s emotional growth and self-development, providing a bridge between the internal world of the imagination and the external reality. In Winnicott’s view, daydreaming allows individuals to explore and experiment with fantasies and creative thoughts, helping them develop a sense of continuity and a coherent self-identity. He considered daydreaming to be a normal and healthy aspect of a child’s imaginative life. Through daydreaming, children process emotions, gain a sense of control over their experiences, and gradually develop the capacity to distinguish between fantasy and reality. Winnicott (1971) described daydreaming as an essential component of a child's emotional well-being and adaptive functioning, manifested through play and creative activities.

Singer and McCraven (1961) were among the first to consider daydreaming a worthy topic of academic exploration. Their research estimated that almost everyone daydreams, even suggesting that all human thought can be classified as daydreaming in one way or another. Later, Klinger (1971) proposed the concept of “current concerns” as a central driver of daydreaming, suggesting that individuals often engage in daydreams that revolve around unresolved personal issues or unmet needs. These daydreams serve as a mechanism to process emotions, explore possibilities, and maintain a sense of continuity in one’s self-narrative.

The field of daydreaming research took hold with the publication of Jerome Singer’s (1975) book *The Inner World of Daydreaming*, although Singer had been researching and publishing about this topic for more than a decade. Singer’s book sparked renewed interest in the study of daydreaming among researchers and

psychologists. Prior to the publication of his book, daydreaming had received relatively little scholarly attention, and it was often dismissed as an idle or unimportant mental activity. Singer's work shed light on the richness and depth of daydreaming experiences, leading to increased research efforts to understand its functions, processes, and impact on individuals' lives. Singer emphasized the role of daydreaming in emotion regulation, creative problem-solving, and the construction of personal narratives. He proposed that daydreaming serves as a form of mental escape and recuperation, allowing individuals to recharge and rejuvenate their cognitive resources. He argued that daydreaming provides individuals with a private and imaginative space to explore their thoughts, emotions, and desires, thereby offering a break from the demands and stresses of daily life. Through daydreaming, individuals can process unresolved conflicts, engage in wish fulfillment, and gain insights into their inner world. Singer's research revealed that daydreaming is not a passive mental activity but an active cognitive process that involves complex thought patterns and emotional engagement. He argued that daydreaming allows individuals to engage in creative problem-solving, envision possibilities, and explore future scenarios. Moreover, Singer suggested that daydreaming plays a role in promoting self-awareness and a sense of identity, as individuals construct and revise their self-concept through imaginative introspection. In addition to its individual benefits, Singer also explored the social dimensions of daydreaming. He proposed that shared daydreaming experiences, such as engaging in storytelling with others, fosters social cohesion and a sense of belonging within groups or communities.

More recently, daydreaming has been associated with increased activity in brain areas involved in episodic memory retrieval, mental simulation, and social cognition,

highlighting its possible role in fostering creativity, empathy, and social understanding (Mooneyham & Schooler, 2013; Poerio & Smallwood, 2016). In fact, the mind seems to be wired to wander as evidence from the past two decades suggests that mental meanderings embody the brain's natural state, dubbed the "default mode network" (Raichle et al., 2001). Neuroimaging studies have found that daydreaming activates brain regions associated with the default mode network, which is involved in self-referential thinking and introspection (Kucyi & Davis, 2014).

Mind-Wandering Versus Daydreaming

Poerio and Smallwood (2016) defined daydreaming as an active process that occurs independently of external stimuli encompassing a range of self-generated thoughts that are unrelated to the immediate external environment, including fantasy, rumination and worry, autobiographical memories, and mental time travel. Although the terms mind-wandering and daydreaming are used interchangeably in popular speech and some literature, daydreaming is usually understood as a specific type of mind-wandering that involves the creation of narratives, scenarios, and vivid mental content (Smallwood & Schooler, 2015). Dorsch (2015) differentiated daydreaming from the phenomenon of mind-wandering, describing the former as imaginative mental agency with the goal of producing mental representations with a narrative structure, while the latter is characterized by less control over the stream of consciousness and the occurrence of more or less spontaneously generated thoughts that require little or no agency. According to this framework, daydreaming involves specific processes that may be absent in mind-wandering and spontaneous thought, such as fantasy, the creation of narratives, and the emotional connection to characters and stories. Nevertheless, both mind-wandering and

daydreaming are considered universal phenomena that arise from the interaction between external demands and internal mental states and are thus believed to have important adaptive roles (McMillan et al., 2013).

Adaptive Daydreaming

This section will review the literature on the adaptive aspects of daydreaming. Subsequently, I will examine the concept of maladaptive daydreaming, its implications, and its distinction from normative daydreaming practices.

One of the distinguishing features of the human mind is its ability to think beyond the present moment, remember the past, imagine the future, or even fantasize about things that do not exist or will ever happen (Buckner & Carroll, 2007). This ongoing stream of consciousness has been called stimulus-independent thought, task-unrelated thought, self-generated thought, daydreaming, and mind-wandering (Chou, 2018). Singer (1975) estimated that around 96% of Americans daydream on a daily basis. Killingsworth and Gilbert's (2010) large-scale study showed that people spend 30% to 50% of their time mind-wandering. Although this activity has gained a bad reputation in cultures where mindfulness and focus are highly valued, there is evidence that the wandering mind plays an important role in cognition and well-being (Corballis, 2015). Gruberger and colleagues (2011) described mind-wandering as "among the most robust and permanent expressions of human conscious awareness, classically regarded... as a core element of an intact sense of self" (p. 1).

Suddendorf and Corballis (2007) posited that the capacity to escape the present moment allows humans to reconstruct past events and project future ones, giving us the concept of time itself, resulting in an understanding of a "continuity between past and

future” (p. 301). Although Corballis (2013) has suggested that mental time travel is not exclusive to humans, by associating it with articulate language, we are able to communicate our thoughts about the “non-present” and thus work with others beyond the needs of the moment, a significant evolutionary achievement. In another paper, Corballis (2009) argued that language itself may have evolved to facilitate the communication of the products of our wandering minds, including ideas and plans about the future, memories, information about others, as well as pure fiction or any experience or knowledge not tied to the immediate environment. Imagining what does not exist or consuming the contents of someone else’s imagination, in contrast to just thinking about real world problems and situations, allows humans to create, learn, explore, and experiment with alternative paths and possibilities in a safe and unrestricted manner. Thus, evolution may have favored fantasy thinking as it conferred creative and resourceful individuals more survival and mating opportunities.

Among the most compelling evidence for daydreaming’s adaptiveness is fiction. Dubourg and Baumard (2021) have argued that a preference for imaginary worlds has evolved to help individuals explore possible scenarios and choose the best course of action or response to an environmental circumstance. They explained that fiction also has the purpose of exposing the mind to novel environments, propelling individuals to seek new sources of reward as learning experiences can be obtained within the safety of one’s mind. Although the authors have examined the role of fictional narratives in literature and movies, it is possible to extrapolate their conclusions to fiction created by the mind, as reports of daydreams closely resemble popular culture productions such as soap operas, movies, and books (Bigelsen et al., 2016). Some people even claim that they feel like

their ability to daydream vividly allows them to have an endless source of entertainment (Bigelsen & Schupak, 2011). Fiction enables humans to experience a vast number of social experiences with no risk (Tukachinsky, 2021) and may lead to increased social skills and abilities (Mar et al., 2006). Mar and Oatley (2008) explained that fictional literature “offers models or simulations of the social world via abstraction, simplification, and compression” (p. 173), creating a “deep and immersive simulative experience of social interaction for readers” (p. 173). Moreover, Hogan (2003) pointed out that narratives typically involve social themes, indicating that the desire to consume fiction may be motivated by the need to belong.

The adaptive role of fantasy, both in the form of consumption of fiction and daydreaming, has been explored by several scholars. Singer (1974) was the first to propose that daydreams have an adaptive purpose, suggesting that it is involved in anticipatory planning, preparation for novel situations, psychological homeostasis (e.g., escape tedious situations, mood alteration), and increased self-awareness. The evolutionary role of fantasy, including play, fiction, and daydreaming, was subsequently studied by Carroll (2018), Smallwood and Andrews-Hanna (2013), and Corballis (2013) who suggested that by allowing consciousness freedom from the present moment, mind-wandering is a clear evolutionary adaptation for the mind as the ability to imagine paves the way for creativity, planning, prospection, and complex cognition.

Poerio and Smallwood’s (2016) meta-analysis of neuroimaging studies has found that daydreaming and social cognition share a neural basis. The researchers argued that, although still underappreciated, this form of unconstrained cognition enables humans to navigate the social world by aiding the understanding of interactions and the pursuit of

social goals. In his work with children, Singer (1975) noted that they often create parallel worlds with imaginary characters to exercise the skills and concepts they are learning in the real world. Evolutionarily, this faculty would have been a tremendous advantage to help children prepare for adulthood (Corballis, 2015). Tukachinsky (2011) explained that daydreaming about romantic experiences, usually with celebrities and media figures, allows adolescents to practice romantic scripts and safely learn about relationships just by imagining them. Adults also daydream in a healthy manner. Baars (2010) proposed that adults use daydreaming to work out problems, rehearse future engagements, organize information, or even manifest suppressed desires.

Recent research has examined the role of daydreaming in emotion regulation. Some studies suggest that daydreaming may serve as a coping mechanism to regulate emotions and manage stress (Ruby et al., 2013). Thomson and Jaque's (2023a) research showed that daydreaming can provide emotional relief and contribute to psychological well-being, while negative daydreams may be used to prepare for potential adverse outcomes, contributing to adaptive emotional processing. The authors emphasize that negative daydreams may be linked with emotion regulation challenges.

As a widespread human phenomenon, daydreaming is believed to be a vital aspect of mental health and social cognition. The reviewed literature highlights the importance of daydreaming in fostering creativity, problem-solving, empathy, perspective-taking, autobiographical planning, self-reflection, facilitating self-awareness and helping individuals make personal and social decisions. Although the capacity to escape the present moment and spend time thinking, remembering, or imagining is a tremendous evolutionary achievement, it does not come without a cost.

Maladaptive Daydreaming

Despite the apparent benefits of daydreaming and its importance to learning, planning, and making sense of the world, it can become dysfunctional, causing distress, shame, anxiety, disrupting productivity, learning goals, and relationships. When daydreaming interferes with daily responsibilities and causes distress it becomes maladaptive as it is not serving its purpose. Excessive daydreaming is often associated with guilt, dysphoria, and a lack of attentional control that hinders the individual's ability to lead a successful and productive life, causing shame, distress, and dysfunction (Bigelsen & Schupak, 2011; Somer et al., 2017a).

Although the detrimental aspects of daydreaming have been a subject of scientific inquiry since at least Freud, it was only in the 1980s that a daydreaming disorder was first proposed. Wilson and Barber (1982) coined the term "fantasy proneness" to describe a tendency to fantasize in a manner approaching hallucination (e.g., having difficulty telling fantasy from reality) and report supernatural beliefs and experiences. Individuals with these tendencies were excellent hypnotic subjects. Further investigation revealed a strong correlation between fantasy proneness and both psychopathology (Rauschenberger & Lynn, 1995) and lower self-esteem (Greenwald & Harder, 1995).

Later, Somer (2002) identified a possible sub-group of fantasy-prone individuals who exhibited complex, persistent, and vivid daydreams but who did not share the supernatural beliefs and experiences described in Wilson and Barber's (1982) sample. To categorize this new group, Somer (2002) proposed maladaptive daydreaming (MD) as a new psychiatric disorder. Following his initial proposal, a growing body of research

began to delineate MD as a distinct psychiatric condition, emphasizing its unique characteristics and potential diagnostic criteria.

Studies conducted in the years following Somer's proposal have explored the depth and breadth of MD, revealing its significant impact on individuals' daily functioning and psychological well-being. Bigelsen and Schupak (2011) and Bigelsen and colleagues (2016) conducted in-depth qualitative analyses of self-reported experiences of individuals with MD, highlighting the intense emotional investment in daydreams, the difficulty in controlling the daydreaming episodes, and the consequent impairment in social, academic, and occupational functioning. These studies detailed the unique characteristics of MD, underscoring a compulsive, immersive, and often distressing pattern that stands in sharp contrast to typical daydreaming.

Additionally, the development of the Maladaptive Daydreaming Scale (MDS) by Somer and colleagues (2016a) facilitated empirical research by providing a tool for quantifying daydreaming severity and distinguishing between adaptive and maladaptive daydreaming. This scale helped solidify MD's status as a potentially diagnosable condition by demonstrating that individuals with MD score significantly higher on measures of daydreaming intensity, emotional attachment to daydreams, and distress caused by daydreaming compared to non-MD populations.

These subsequent studies have not only reinforced the idea that MD is a distinct psychiatric disorder but also paved the way for a more comprehensive understanding of its etiology, phenomenology, and impact on individuals' lives (Abu-Rayya et al., 2020; Bigelsen & Schupak, 2011; Brenner et al., 2022; Ferrante et al., 2022; Ross et al., 2020; Schimmenti & Caretti, 2019; Soffer-Dudek & Somer, 2018; Soffer-Dudek & Somer,

2021; Somer & Herscu, 2017; Somer et al., 2016b; Somer et al., 2017a; Somer et al., 2017b). The growing consensus among researchers is that MD represents a significant and distinct form of psychopathology, meriting further investigation and consideration in clinical settings.

Distinguishing Between Adaptive and Maladaptive Daydreaming

MD differs from normative daydreaming as it involves a large degree of fantasy (Bigelsen et al., 2016) and it generally causes significant distress and social impairment as these individuals refrain from social contact to engage with this internal world (Somer et al., 2017a) and feel ashamed, employing efforts to hide this habit from others (Somer et al., 2016b). Schupak & Rosenthal (2009) found that many individuals with MD experience significant distress and a desire to stop daydreaming, which contrasts with the often pleasurable nature of fantasizing seen in normative daydreaming.

While in normal daydreaming people may occasionally indulge in fantasies, even creating imaginary characters (e.g., an idealized romantic partner), they do not feel connected to these narratives and characters or distressed if they are unable to focus on their imagination (Soffer-Dudek & Somer, 2018). A key distinction in MD is the emotional connection that maladaptive daydreamers report feeling towards the fantasy they create and maintain. Some, for example, nurture the same fictitious characters for decades. These characters age appropriately and become part of their life's story (Bigelsen & Schupak, 2011).

Normal daydreamers allow their minds to wander for pleasure, having a higher degree of control over the behavior and being able to stop at will, whereas maladaptive daydreamers report feeling anxious when forced to stop daydreaming (Sándor et al.,

2021), and experiencing distress and a sense of longing if they are kept from engaging in these fantasies for any reason (Somer & Herscu, 2017). Maladaptive daydreamers also find pleasure in this activity, but may display signs of addiction, feeling unable to contain the urge to daydream (Pietkiewicz et al., 2018; Somer, 2018).

The volume of daydreams is also excessive in MD. Some maladaptive daydreamers report spending most of their waking hours immersed in fantasies, even while engaging in professional and social activities (Ross et al., 2020). While it is common for most people to engage in mind-wandering or daydreaming to some extent (Killingsworth & Gilbert, 2010), the level of absorption in MD seems to be more intense (Bigelsen et al., 2016). Maladaptive daydreamers experience daydreams that hold their attention for prolonged periods, demanding a significant amount of focus and mental resources.

Moreover, Somer (2018) described a key characteristic of MD as an enhanced capacity for immersive daydreaming. This trait allows individuals to experience vivid imaginary scenarios with a heightened sense of being “present” within these mental constructs, rather than in the actual moment. Consequently, MD is distinguished from normative daydreaming by the depth and duration of engagement in these imagined realities, leading to a psychological disengagement from the physical environment (Bigelsen et al., 2016). This intense inward focus and immersion mean that, unlike typical daydreaming, maladaptive daydreamers often experience a detachment from real-world interactions and settings, reporting a preference for their imaginary life (Somer, 2002). Table 1 provides a comparison between normal daydreaming and maladaptive daydreaming.

Table 1. Differences Between Normal and Maladaptive Daydreaming

Normal daydreamers	Maladaptive daydreamers
Occasionally indulge in fantasies	Frequently indulge in fantasies
Daydreams are rarely vivid or fanciful	Daydreams tend to be vivid and fanciful, involving complex narratives and characters
No or weak emotional connection to narratives and imaginary characters	Strong emotional connection to narratives and imaginary characters
Fictitious characters in daydreams (e.g., an idealized romantic partner) are short-lived	Fictitious characters in daydreams have complex personalities and are nurtured for longer periods (e.g., months or years)
Daydream for pleasure and entertainment	May daydream for pleasure and entertainment, but also daydream to soothe emotional pain and control anxiety
Are in control of the daydreams and able to stop at will	Are often unable to stop daydreaming at will
Absence of urge to daydream	Uncontrollable urge to daydream
Absence of distress if unable to engage with or continue a daydream	Distress if interrupted or unable to daydream for prolonged periods of time
No distress as a result of daydreaming, which is not disruptive to life	Distress experienced as a result of excessive daydreaming (due to impaired functioning and neglected responsibilities)
Do not seek opportunities to daydream	Proactively seek opportunities to daydream (usually by isolating oneself)
No self-consciousness about daydreaming	Shame and efforts to keep this behavior from others

Underlying Mechanisms of MD

Despite the pleasure and comfort provided by daydreaming, maladaptive daydreamers claim the condition causes them “agony due to its addictive and time-consuming properties” (Somer et al., 2016b, p. 471). Although not officially recognized

as a clinical disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), evidence suggests that MD shares common features with traditional behavioral addictions. Pietkiewicz and colleagues (2018) suggested that the impulsive, uncontrollable, and repetitive nature of daydreaming in MD resembles other addictive behaviors. At its core, addiction often reflects an attempt to fill voids or address unmet needs within an individual's life, with a deficient sense of belonging being one of the most poignant (Dingle, 2018). Individuals with substance use disorders often report lower levels of social support and higher levels of social isolation compared to the general population (Cacioppo & Patrick, 2008). Additionally, the concept of self-medication in the context of addiction points to the use of substances or behaviors to cope with emotional pain, including the distress arising from a lack of belonging (Khantzian, 1997).

Brenner and colleagues (2022) suggested that specific personality traits can influence the thematic focus of daydreaming experiences. The research found that individuals exhibiting grandiosity often engaged in daydreams centered around wish fulfillment, power, and dominance, suggesting that MD could serve as a stage for their aspirations and desires for superiority. Similarly, those characterized by separation insecurity predominantly fantasized about relationships, possibly reflecting a deep-seated yearning for connection and intimacy, which they might feel is lacking in their lives. Respondents with traits of anhedonia leaned towards daydreams providing escape and distraction from unpleasant realities, aligning with the trait's association with a lack of pleasure or disinterest in engaging with life.

Additionally, more recent evidence has pointed to a connection between MD and difficulties in emotion regulation. Thomson and Jaque (2023b) have shown that

difficulties with emotion regulation, particularly in managing impulsive behavior under negative psychological states and a lack of effective strategies for handling such emotions, are prominent predictors of MD. This association results in a vicious cycle where emotional distress triggers intense daydreaming, which in turn undermines the development of necessary emotion regulation skills. They also found that individuals with elevated MD showed greater challenges in managing their emotions, displaying impulse control difficulties, decreased acceptance of negative emotions, and challenges in mobilizing goal-directed behavior. The study suggests that maladaptive daydreamers struggle more significantly with regulating their emotions than non-MD sufferers, which can exacerbate the intensity and frequency of their daydreaming episodes.

Recently, Somer and his colleague, Soffer-Dudek (2021), proposed that MD might be a dissociative disorder. Dissociation has been explained as a “disruption of a united sense of self and a failure to accurately integrate multisensory information between self and social environment” (Cacioppo, 2016, p. 1). Dissociation is understood as a continuum of agency that ranges from non-pathological dissociation (e.g., highway hypnosis, multi-tasking, daydreaming while engaging in repetitive tasks) to dissociative identity disorder (DID), when there is a sense of disconnection from one’s own identity (Soffer-Dudek & Somer, 2021). Carlson and Putnam (1993) suggested that what they referred to as dissociative absorption encompasses a continuum of imaginative experiences that includes mild absorption, such as normative daydreaming and mind-wandering or getting lost in a book or movie, to more profound states of dissociation where individuals may experience a temporary detachment from reality. The authors acknowledge that dissociative absorption can be a normal and adaptive psychological

phenomenon, as it allows individuals to engage in creative activities, self-reflection, and imaginative thinking. It is a capacity to temporarily detach from the immediate environment and focus intensely on internal experiences. However, the authors also caution that excessive or maladaptive dissociative absorption may be associated with dissociative disorders and other psychological difficulties. When dissociative absorption becomes too pervasive or interferes with daily functioning, it could be indicative of underlying psychological distress or unresolved trauma.

As daydreaming takes the dreamer “elsewhere”, it is considered to be a type of dissociation. However, in MD individuals retain a reasonable level of control over reality, often carrying out automatic behaviors and even productive tasks such as writing while in this dissociated state (Bregman-Hai et al., 2018). Thus, Soffer-Dudek and Somer (2021) suggested that MD is an extreme form absorption, characterized by an intrinsic ability for immersive daydreaming, albeit still in the normality range of dissociation. In other words, MD may be a dissociative disorder, but unrelated to DID, the most pathological form of dissociation. The authors concluded that although most cases of immersive daydreaming are not related to extreme dissociation, MD increases the risk of developing DID when severe trauma is present.

Dissociation is often regarded as a defense mechanism that individuals may unconsciously employ to cope with overwhelming stress, trauma, or distressing experiences (Foa & Hearst-Ikeda, 1996). Winnicott (1971) described the case of a middle-aged woman who has been daydreaming compulsively since early childhood to deal with her self-perceived inadequacy. Her daydreams served as a form of dissociation, allowing her to retreat from the distressing realities of her life and create an alternative

world in her mind. Winnicott (1971) observed that she became absorbed in these inner fantasies, often losing touch with external reality and interpersonal relationships. In his words:

By means of the dissociation, reinforced by a series of significant frustrations in which her attempts to be a whole person in her own right met with no success, she became a specialist in this one thing: being able to have a dissociated life while seeming to be playing with the other children in the nursery. (...) As my patient grew older so she managed to construct a life in which nothing that was really happening was fully significant to her. Gradually she became one of the many who do not feel that they exist in their own right as whole human beings. All the time, without her knowing it, while she was at school and later at work, there was another life going on in terms of the part that was dissociated. Put the other way around, this meant that her life was dissociated from the main part of her, which was living in what became an organized sequence of fantasizing (p. 29).

This case study provided valuable insights into the use of daydreaming as a coping strategy in response to emotional challenges, and the ways in which the mind employs such imaginative defenses through the process of dissociation to preserve the integrity of the self. Dissociation in the context of MD can be seen as a coping mechanism, where the intense immersion into a daydream acts as a temporary escape from the discomforts of reality, including the acute pain of social disconnection. The literature suggests that this withdrawal into an inner world doesn't seem to be merely a retreat from external stressors but also an attempt to create an alternate realm where the individual feels a sense of connection and belonging that is missing in their real-life interactions. This perspective aligns with the theories suggesting that dissociative behaviors, including the vivid and immersive daydreams characteristic of MD, can be understood as compensatory mechanisms employed to manage emotional distress stemming from social isolation or rejection (Ferrante et al., 2022; Schimmenti, 2018).

Developmental Pathways of MD

Many maladaptive daydreamers report the onset of MD during childhood, with daydreams typically involving cartoon characters, and never grow out of it (Witkin, 2019). Although most sources agree that MD starts in childhood, or in rare cases, adolescence, there is still debate over what conditions heighten risk for it. A leading theory is that childhood trauma may increase risk for developing MD. Somer's (2002) initial paper on MD, based on trauma patients who were recovering from early traumatic experiences, lead him to suggest that adverse experiences in childhood were the main cause of MD. Subsequent studies examined this relationship and have found a correlation between trauma and MD (Abu-Rayya, 2020; Sandór et al., 2023; Somer et al, 2016b; Somer et al. 2021). In Bigelsen and Schupak's (2011) study, 27% of their sample reported childhood trauma, leading further studies to suggest that MD may have multiple developmental pathways (Soffer-Dudek & Somer, 2021). Nevertheless, Ferrante and colleagues (2022) contend that the range of emotional trauma that could drive a child to seek refuge in imaginary scenarios is very wide, thus further scrutiny is necessary when investigating the connection between MD and early psychological stress. Just asking participants if they experienced childhood trauma or wording questions in a way that suggests that the researcher is asking about extremely traumatic experiences may result in false negatives. The researchers concluded that emotional abuse in childhood generates an increased sense of shame and dissociation, leading a predisposed individual to hide in an imaginary world. For instance, the authors speculated that excessively critical parents can drive a child to repeatedly seek comfort in a daydream. An adult with this history would not report having experienced childhood trauma, although these painful episodes

may have left deep wounds. Schimmenti and Caretti (2016) also argued that emotional trauma usually produces silent evidence that the individual may not easily recognize. Emotional trauma that children are most vulnerable to are related to bonds with family and caretakers which form the base of an individual's sense of belonging.

Psychological Diagnoses Associated With MD

A large percentage of maladaptive daydreamers meet the diagnostic criteria for at least one DSM disorder (Somer, 2018). Among the conditions frequently associated with MD, Somer and colleagues (2017a) indicated that attention-deficit hyperactivity disorder (ADHD) is the most common, identified in 76.9% of cases, followed by anxiety disorders (71.8%), depressive disorder (66.7%), and OCD (53.9%). Furthermore, a recent systematic assessment of psychiatric comorbidity in MD conducted by Somer and colleagues (2017a) with 39 participants who met the criteria for MD revealed that 74.4% of MD sufferers meet the criteria for three disorders, and 41.1% meet the criteria for four or more. Table 2 displays the distribution of conditions diagnosed in MD patients according to Somer and colleagues' study.

The relationship between MD and the co-occurrence of certain psychiatric conditions remains an area of ongoing investigation. It is yet to be determined whether the propensity for excessive daydreaming contributes directly to the development of these conditions or if a constellation of underlying psychological factors predisposes individuals to both MD and other disorders. Incorporating the concept of equifinality, the idea that a specific end state can be reached by many potential means or through different paths (Cicchetti & Cohen, 2006), provides a framework for understanding the emergence of MD. This principle suggests that MD can develop through various routes—childhood

trauma is one pathway (Somer et al., 2021), but others might include emotional distress (Bacon & Charlesford, 2018; Ferrante et al., 2022), sexual abuse (Abu-Rayya et al., 2020), dissociation (Soffer-Dudek & Somer, 2021), impulse-control or obsessive-compulsion spectrum disorders (Somer, 2018), behavioral addiction (Pietkiewicz et al., 2018), social isolation (Rhue & Lynn, 1987), deficient emotion regulation (Greene et al., 2020), pathological personality traits (Horvath-Labancz et al., 2022), attention deficit (Theodor-Katz et al., 2022), low self-esteem (Greenwald & Harder, 1995), and disordered attachment styles (Costanzo et al., 2021). Equifinality underscores the idea that although there may be different precursors to MD, the end state—extensive engagement in daydreaming as a compensatory mechanism—remains the same.

Somer and colleagues (2016b) suggested that a feedback loop may be created when children with certain personality traits, such as shyness and creativity, discover the immense pleasure they can derive from their imagination. This activity may hinder their acquisition of social skills and engagement in the present moment, triggering a “spiral of increased social dysfunction” (p. 473). For instance, conditions such as social anxiety, commonly diagnosed in individuals with MD, may both contribute to and exacerbate this cycle. Social isolation and a history of childhood adversity, factors often present in the lives of those with MD, can lead to increased reliance on fantasy as a form of escapism (Somer & Herscu, 2017). However, even as the initial circumstances prompting this retreat into daydreaming may change or resolve, the habit itself can take on an addictive quality, persisting as a dominant coping strategy.

The possible functions and mechanisms of MD suggest that it operates not merely as a symptom but as a dysfunctional coping strategy. It provides individuals with a

psychological escape hatch through which they can momentarily disengage from the challenges of their external reality and engage with an inner world that is awash with the validation, understanding, and acceptance they crave. This internal engagement, while offering temporary relief and pleasure, may also perpetuate a cycle of avoidance, where daydreamers increasingly turn inward to fulfill their needs, further distancing themselves from actual interpersonal experiences and opportunities for genuine connection (Bigelsen et al., 2016). Over time, this behavior can either give rise to or exacerbate symptoms of mental illnesses such as depression and social anxiety, as the individual’s persistent avoidance and retreat into fantasy can hinder their ability to develop and maintain healthy coping mechanisms and social skills, ultimately exacerbating feelings of isolation and sadness (Ferrante et al., 2022).

Table 2. Psychological Conditions That Co-occur With Maladaptive Daydreaming

DSM-5 diagnostic categories	Frequency in MD patients
Attention disorders	76.92%
Anxiety disorders	71.79%
Depressive disorders	66.67%
Obsessive-compulsive and related disorders	53.85%
Sleep-wake disorders	23.08%
Bipolar and related disorders	15.38%
Substance related and addictive disorders	15.38%
Dissociative disorders	12.82%
Trauma and stressor-related disorders	5.13%
Feeding and eating disorders	5.13%
Disruptive, impulse control, and conduct disorders	5.13%
Schizophrenia spectrum and other psychotic disorders	2.56%

Note. Frequency of DSM-5 diagnostic categories according to the research of Somer and colleagues (2017a) with 39 participants. The authors also indicate that more than a quarter of the sample had at least one suicide attempt.

MD seems to be driven by a desire to leave the present moment and enjoy a more fulfilling life in an alternate mental universe (Bigelsen et al., 2016). The purpose of daydreaming for this population may be to soothe emotional pain, seek pleasure when little can be obtained from the environment, and replace psychological and social needs that might be missing from a sufferer's life such as friendships, romantic relationships, and professional success (Bigelsen & Schupak, 2011; Sándor et al. 2021; Soffer-Dudek & Somer, 2018; Somer, 2002). The qualitative studies included in this review revealed a portrait of the maladaptive daydreamer as an individual who is generally unhappy and faces psychosocial challenges, such as loneliness, bullying, and social anxiety, seeking in their imagination a psychological comfort blanket that soothes painful emotions and provides a distraction to offset negative feelings or replace real-life interactions (Bigelsen & Schupak, 2011). Together, this suggests that MD may be promoted by a pursuit of belongingness.

The literature seems to suggest that MD serves a critical, albeit dysfunctional, role in the individual's quest for belongingness, hinting at the idea that MD may be a manifestation of the psyche's attempt to reconcile the gap between desired and actual social experiences. By understanding MD through this lens, it is possible to gain insight into the impact of belongingness on human behavior and the lengths to which individuals will go to attain a semblance of this fundamental human need.

Belongingness

Belongingness, or the sense of belonging, is a fundamental human need that influences both individual and social behavior (Baumeister & Leary, 1995). It refers to the extent to which an individual feels accepted, included, and valued within a social

group or environment (Hagerty et al., 1992). The theoretical conceptualization of belongingness can be traced back to Maslow's (1943) Hierarchy of Needs, where he postulates that after physiological and safety needs, humans seek love and belonging. Subsequent research has expanded on this theory. Anant (1966) went as far as to suggest that the psychology of belonging could serve as the critical missing conceptual piece for understanding and explaining mental illness. Later, Hagerty and colleagues (1992) developed a concept they called a "sense of belonging", defined as "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (p. 172).

Baumeister and Leary (1995) hypothesized that humans possess an intrinsic need to form and maintain strong, stable, and nonaversive interpersonal relationships they called "need to belong". They stressed that belonging appears to be a need and not simply a desire because mental and physical impairment is observed when it is hindered. The lack of a sense of attachment, they argued, is responsible for a variety of ill effects on well-being, health, and adjustment. These two constructs seem to be complementary. While the need to belong encapsulates an individual's desire for interpersonal acceptance and inclusion (Leary et al., 2013), the concept of sense of belonging refers to a psychological state that reflects the degree to which one's belonging needs are met (Hagerty & Patusky, 1995). Not only individuals vary in the degree of their need to belong, their sense of belonging may also be impacted by internal and external factors such as previous experiences and personality.

From an evolutionary perspective, belonging to a group can be seen as a survival strategy that has been hard-wired into our psyches over millennia of human evolution

(Baumeister & Leary, 1995). The rugged environments of prehistoric times favored those part of a group, as members could pool resources, share responsibilities such as hunting and gathering, offer protection against predators or hostile groups, and care for the young and sick (Caporael, 1997). Conversely, isolation from a group often meant a higher likelihood of death. Thus, natural selection likely favored individuals adept at forming and sustaining social bonds (Buss, 1995). These relationships were not only vital for survival but also for reproduction. Membership in a group increased an individual's opportunities of finding a mate, and those perceived as socially desirable were more likely to attract high-quality mates and produce offspring (Buss & Schmitt, 1993). Over evolutionary time, this would have led to a bias towards individuals who value social connections and a sense of belonging.

Importantly, this sense of belonging isn't simply about group membership, but rather about emotional connection, mutual respect, and shared values (Baumeister & Leary, 1995). The perceived availability and quality of support in times of need seem to be the metrics that gauge the fulfillment of belongingness needs. Access to this kind of social support or intimacy appears to have marked effects on physical and psychological well-being. Holt-Lunstad and colleagues (2010), for instance, found that perceived social support—or lack thereof—was a stronger predictor of mortality than the actual presence of others. Uchino and colleagues (2012) showed that high-quality social relationships can decrease stress, improve mental health, and even boost immunity.

However, because every social interaction carries risks, belonging is not guaranteed (Gilbert, 2001). Every relationship carries potential for both opportunities and costs and, thus, humans have evolved to seek affiliation with those who can provide

benefits, while excluding those who appear to pose a threat or risk to fitness (Cottrell & Leary, 2013). Several psychological adaptations likely evolved to monitor how one is perceived and evaluated by others (Leary & Baumeister, 2000) and are rooted in the need for social acceptance and avoidance of social rejection (Cottrell & Leary, 2013). Many mechanisms that are related to fear and anxiety, for instance, are connected to the monitoring of one's own standing in a group (Gilbert, 2001). Social rejection, which can include bullying, racism, ostracism, emotional abuse, deficient early attachment, and social exclusion, sends the message that the individual is not appreciated, and hence not part of the group (Cottrell & Leary, 2013). The experience of social rejection violates the need for belonging and can therefore trigger such responses as depression (Levi-Belz & Feigelman, 2022), social anxiety (Arditte et al., 2016), and anhedonia (Slavich & Irwin, 2014).

MD as a Maladaptive Coping Strategy Following Thwarted Belongingness

Daydreaming, even at normal levels, appears to be a common strategy for safely mitigating feelings of loneliness or social ineptitude, implying that it plays a role in facilitating navigation of the social world (Poerio & Smallwood, 2016) and enhancing moods (Somer, 2002). The volume and intensity of daydreaming seems to be motivated by the yearning for social connection, while at the same time maladaptive daydreamers avoid real relationships and social contact because either absorption requires solitude (Somer et al., 2016c) or they fear rejection (Somer et al., 2016b). Thus, individuals who experience social challenges may be driven to engage with an imagined social life more often and intensely than people who daydream for pleasure or employ other strategies to achieve emotion regulation.

The psychiatric conditions observed in MD sufferers, such as anxiety, depressive, and dissociative disorders, as well as substance abuse, are predominantly associated with social adversity, suggesting a significant link rather than a coincidence. Ferrante and colleagues' (2022) study about the role of shame and dissociation in MD, for instance, associated emotional trauma with a sense of lack of affiliation, self-defectiveness and feelings of inadequacy and unworthiness. Although the authors make no mention of constructs related to belongingness, their findings imply that maladaptive daydreamers crave intimate connections that they are not obtaining in real life, and that the severity of pathological daydreaming is increased by the extent of emotional trauma. Likewise, Schimmenti and colleagues (2020) have found strong correlations between high scores in the MD scale (MDS-16) and experiences of dissociation, shame and global psychopathology, likely driven by traumatic experiences and anxious attachment. The authors suggest that this pattern of associations indicate that MD involves significant mental and behavioral dysfunction, often diagnosed as maladaptive personality traits, impaired emotion regulation and linked with shame and detachment. In turn, some of the same conditions are also frequently observed in individuals who display a deficient sense of belonging (Cockshaw et al., 2013; Davidson et al., 2011; Neuner, 2013).

Qualitative MD studies are particularly rich with reports that reveal the concerns of maladaptive daydreamers with belongingness and social acceptance. Bigelsen and Schupak (2011) revealed that aspirational daydreams are common in this population. These fantasies involve accomplishing heroic goals and being appreciated by others. Daydreaming about being important or famous, although not uncommon in general (Belviso, 2020), seems to be very frequent among maladaptive daydreamers. Participants

often report imagining a life where they are rich, famous, successful in professional careers, or have many loyal and loving friends. In Bigelsen and Schupak's (2011) study, one participant says that fantasizing allows them to "take a break from the harsh reality". Another reports frequent fantasies about being diagnosed with cancer and then enjoying imagining the emotional reaction of friends and family members, eliciting a sense of satisfaction and a feeling of being loved and cared for. Many of these daydreams are not short-lived episodes, as is common in normative daydreaming; instead, they are long-term narratives that function as an alternative life. They supply the individual's psychological needs, likely because these needs are not being met in real life. In Bigelsen and colleagues' (2016) qualitative study one participant reported "living" with 35 made up characters since childhood, while a 40-year-old woman claimed that her daydreams are based on a TV show she watched when she was 10 years-old and the characters have "lived" with her ever since.

This strong and enduring connection with imaginary or fictional characters may be an attempt to fulfill unmet belongingness needs. Early experiences tend to have a stronger role in forming an individual's sense of identity and affiliation with a group (Baumeister & Robson, 2021). The fact that MD starts in childhood is an indication that sufferers may have experienced thwarted belongingness from an early age, and thus may have shaped a world view in which social interactions are risky, leading them to internalize the idea that life in a dream world is safer and more satisfying.

Research on rejection, social exclusion, and loneliness may shed light on the reasons why maladaptive daydreamers often choose to seek fulfillment of their belongingness needs through parasocial relationships rather than forming bonds with real

people. When individuals experience rejection or social exclusion, they may develop a heightened fear of further rejection, which can lead to a reluctance to engage in real relationships (Leary, 2012). This fear and hesitancy may drive maladaptive daydreamers to seek solace and connection in their imaginative worlds, where they have control over the interactions and outcomes (Somerville et al., 2013). The experience of rejection or social exclusion can have profound emotional and psychological effects on individuals (Twenge et al., 2003). These negative experiences can erode one's self-esteem and self-worth, making it challenging to trust others and form meaningful connections (Baumeister & Leary, 1995). Individuals who have experienced chronic loneliness, for instance, may turn to alternative sources of companionship and belonging (Cacioppo et al., 2010). Maladaptive daydreamers, who may have encountered such negative social experiences, may develop a self-protective mechanism that allows them to avoid the potential pain and vulnerability associated with real relationships. Thus, the imaginative worlds and parasocial relationships in MD may offer a perceived sense of belonging and emotional support, providing a temporary alleviation of their feelings of social inadequacy and loneliness (Schimmenti & Caretti, 2019).

Parasocial Relationships

Parasocial relationships refer to the one-sided relationships formed between media consumers and mediated figures, such as celebrities, characters, or social media influencers. Originally proposed by Horton and Wohl (1956) to explain the bonds people form with TV personalities, parasocial interactions are characterized by what the authors described as "intimacy at a distance" (p. 215), where the individual invests emotional energy, interest, and time, but the persona is completely unaware of their existence.

The novelty of media communications to human's evolutionary old brain creates a situation where individuals frequently see and hear others who they have never met. An artificial sense of intimacy is then generated, and the audience may develop signs of attachment and feelings for these mediated personas. Now, in the age of social media, some people develop even more intense bonds with celebrities and influencers, resulting occasionally in cases of stalking (Wilson et al., 2018), sexual harassment (Adams, 2021), and even murder (Wykes, 2007).

In 1958, Harlow published a landmark study on what he called "the nature of love" in which infant monkeys were taken from their mothers and given the choice between a wire figure that contained a bottle of milk and a cloth monkey with no food. The baby was then observed going to the "wire mother" to feed and then quickly running to the "cloth mother" for comfort, where he stayed most of the time. The cloth mother filled the role of what was later called a "social surrogate" (Gardner & Knowles, 2008). Harlow concluded that animals do not form attachments based on who feeds them but based on who comforts them.

Gabriel et al. (2016) argued that humans can be flexible in how they fulfil their social needs and thus, similarly to Harlow's cloth mother, symbolic and non-human targets are often used as social surrogates. For instance, books and movies can draw the reader into complex social worlds that feel real and may provoke the same emotions experienced in real-life situations. Looking at pictures or checking social media updates of friends and family has been shown to remind people of others and may strengthen the sense of connection and belonging (Nadkarnia & Hofmann, 2012). Gabriel and colleagues' (2016) research revealed that even when alone, humans tend to choose

activities that are manifestations of the social self, such as watching TV, reading, catching up on the lives of favorite celebrities, or being on the internet. Although these activities do not seem social at face value, and may even be preferred by antisocial personalities, they draw the individual into a social world, where people can develop parasocial relationships with real or fictitious characters and personas. This phenomenon is frequently observed in MD, as sufferers frequently claim to base their daydreams on TV shows, books, soap operas, movies, cartoons, and other scenarios that involve imagined characters or attachment figures (Bigelsen & Schupak, 2011). The domain of narratives and fictional worlds presents a potent platform for such surrogate social relationships, satisfying the daydreamer's need for companionship.

In MD, narratives are predominantly social and involve themes of social acceptance, recognition, love and romance, friendship, and loyalty, similar to fictional stories (Bigelsen & Schupak, 2011). From this perspective, daydreaming can be viewed as self-made, controllable fiction that fulfills needs for social narrative and connection. This desire for connection and acceptance is satisfied through parasocial relationships with both real and fictitious figures. These imaginary or idealized characters, much like Harlow's cloth monkey, provide a comforting and unthreatening presence, allowing maladaptive daydreamers to navigate complex social interactions without the risk of rejection or judgment. The fantasy world and the characters within it can be controlled and manipulated to meet the specific needs of the individual, providing an escape from the unpleasant aspects of their reality. This imaginative risk-free environment is a safe space where daydreamers can express their desires, fears, and hopes (Pietkiewicz et al.,

2018). In this way, maladaptive daydreamers may not only derive pleasure from this activity but also achieve a need for belongingness that is frustrated in real-life.

Aw and Labrecque (2020) observed that the higher the need to belong, the more likely an individual is to develop strong attachments with media figures and celebrities. The development of strong connections to these daydream characters may represent a compensatory mechanism for the lack of satisfying relationships in the real world. Derrick and colleagues (2009) have proposed the *Social Surrogacy Hypothesis*, arguing that parasocial relationships can provide the experience of belonging, buffering individuals against loneliness, low self-esteem, negative moods, and social rejection. Moreover, Pimienta (2023) argued that as an attachment process, parasocial relationships are regulated by the same mechanisms responsible for the formation of emotional bonds in real life. The brain may treat a mediated persona the same as a family member, friend, or lover (Gardner & Knowles, 2008). In other words, parasocial relationships can effectively serve as substitutes for genuine bonds with real people that may be absent or unsatisfactory.

Maladaptive daydreamers report a profound attachment to their daydream characters and a fear that psychological treatment may take them away (Bigelsen & Schupak, 2011), suggesting a developed sense of belonging and affection towards these imaginary figures. Therefore, whereas in non-pathological circumstances individuals may consume fiction and engage in parasocial relationships when alone, yet still exhibit healthy social habits (Derrick et al., 2008), maladaptive daydreamers report feeling disconnected from their social world (Somer, 2002). They have replaced human affection and a sense of affiliation with parasocial interactions.

Study Aims & Hypothesis

This study seeks to investigate the relationship between maladaptive daydreaming (MD) and the concept of belongingness, considering both the innate need to belong, the individual's desire and energy to invest in social relationships, and the subjective sense of belonging, the perception of fit, inclusion and acceptance in a social environment.

The first research question asks whether MD is associated with a sense of belonging. Given the literature summarized above suggesting that limited sense of belonging might contribute to a need for daydream excessively, I hypothesized that individuals with MD tendencies will demonstrate a lower sense of belonging relative to non-maladaptive daydreamers. This hypothesis presupposes that the immersive nature of MD might hinder or alter an individual's perception and experience of social connectedness, leading to a diminished sense of belonging, and aligns with prior studies suggesting a potential link between excessive daydreaming and feelings of disconnection from reality, potentially influencing one's sense of belongingness within social groups or communities.

The second question examines whether MD is related to the need to belong. I hypothesize that individuals with MD might demonstrate an intensified need to belong, reflecting an underlying psychological drive that seeks fulfillment through alternative means when real-world interactions are insufficient. Given the nature of the daydreams observed in this population, it seems that MD individuals have a higher desire to connect and form strong bonds with others, but the lack of fulfillment of this need leads them to seek inclusion and validation in an imaginary world. This elevated need to belong among

MD individuals might therefore be seen both as a driving force behind their daydreaming and as a consequence of their unmet desires for social connectedness and validation.

This study aims to contribute with insights into the complex relationship between MD and the fundamental human desire for belongingness, potentially informing interventions and support mechanisms for individuals grappling with MD and its associated social implications.

Chapter II.

Methods

The present study has employed previously validated methods and measures. No new instruments were developed for this research.

Participants

Participants were recruited online from forums that discuss maladaptive daydreaming (MD) and other psychiatric illnesses such as anxiety, dissociation, attention-deficit/hyperactivity disorder (ADHD), and depression, as well as general discussion groups. Groups that discuss MD and related conditions aimed to attract a self-diagnosed sample, while general discussion forums targeted participants who likely don't display MD. Although this study did not employ a control group, the goal was to attract a more diverse sample, including individuals who did not exhibit MD.

Eligible participants were over 18 years old and had never been diagnosed with schizophrenia. Maladaptive daydreaming (MD) is frequently observed in patients with other psychiatric conditions. However, schizophrenia can pose challenges in an MD study due to the cognitions and hallucinations it may produce, which, despite apparent similarity to MD, are unrelated to it (Schimmenti et al., 2019), potentially introducing confounding effects. Therefore, after careful evaluation, a clinical diagnosis of schizophrenia was added as an exclusion criterion.

A total of 236 participants submitted the survey. Nineteen participants were excluded because they did not fulfill the research requirements. Thirteen had a previous diagnosis of schizophrenia, five were under 18 and one did not agree to the terms of

participation. These participants were redirected to a thank you page and the survey was finalized. Two hundred and seventeen participants were included in the study.

Procedures

The study protocols were evaluated and deemed to be exempt from IRB review by the Harvard Committee on the Use of Human Subjects, serving as Harvard University's Internal Review Board.

Data Collection

Participants filled an online survey created using the software Qualtrics (<https://www.qualtrics.com>). Posts were published in multiple online forums dedicated to the discussion of MD and other psychiatric illness such as anxiety, ADHD, obsessive-compulsive disorder (OCD), dissociation, and depression, as well as general discussion communities, inviting members to participate in the study. Interested participants who clicked the survey link were shown a short description of the study, as well as details including estimated time for completion and informed consent (confidentiality measures, foreseeable risks, contact information). Consenting participants filled out two screening questions to confirm that they were at least 18 years of age and that they have never been diagnosed with schizophrenia. Participants were then asked to answer basic demographic questions (e.g., age, gender, country, occupation) and proceeded to the measurement scales used in this study (MDS-16 and SOBI; Appendices 1 and 2). After finishing participation, subjects saw a thank you message and exited the study. No payment was offered. No identifiable information (e.g., name, email, IP address) was collected during

the survey or therefore associated with the results. Completing the survey took an average of 11 minutes.

Measures

Two measurement scales were used in this study, the Maladaptive Daydreaming Scale (MDS-16; Somer et al., 2016a, open source) and the Sense of Belonging Instrument (SOBI; Hagerty & Patusky, 1995, used with permission from the authors), divided into SOBI-P, assessing sense of belonging and SOBI-A, assessing the antecedents of sense of belonging—or need to belong, totaling 48 items across the two measures.

The Maladaptive Daydreaming Scale (MDS-16). Created by Somer et al. (2016a) as a 14 item self-report questionnaire to diagnose MD, assess immersion in daydreaming, and resulting distress, the scale was later revised to include two additional items to evaluate the role of music in the daydreaming experience (Somer et al., 2016c). The MDS-16 (see appendix 1 for scale items) assesses the level of distress caused by MD, the yearning and urgency to start or return to daydreaming, and the impact of excessive daydreaming on chores and relationships. Answers are rated on an 11-point, percentage based, Likert-type scale, ranging from 0% (no distress or dysfunction due to daydreaming) to 100% (excessive distress and dysfunction due to daydreaming). Higher scores indicate higher levels of immersive daydreaming (Somer et al., 2017b). The MDS-16 has demonstrated excellent sensitivity and high specificity, along with robust internal consistency and temporal stability (test–retest reliability of .92 over approximately 21 weeks) (Somer et al., 2017b). The chosen cutoff score of 50 (on a scale ranging from 0 to 100) effectively discriminates between individuals displaying MD symptoms and those who do not (Somer et al., 2017b).

The Sense of Belonging Instrument (SOBI). The SOBI (see appendix 2 for scale items) is comprised of two parts: The SOBI-P and SOBI-A. Both parts of the SOBI have four possible responses, each with a corresponding score ranging from one to four (strongly agree to strongly disagree) and a few questions with inverted scoring to ensure validity. The scores of SOBI-A were reversed so that higher scores represented a greater need to belong.

SOBI-P consists of 18 questions and assesses the individual's experience of valued involvement and fit (e.g., "I often wonder if there is any place on earth where I really fit in"), or how much of a sense of belonging the participant feels in relation to his or her environment (e.g., "I generally feel that people accept me"). The authors define value involvement as "the experience of feeling valued, needed, or accepted" (Hagerty & Patusky, 1995, p. 9), and fit as "the perception that the individual's characteristics articulate with the system or environment" (Hagerty & Patusky, 1995, p. 9). Statements such as "I feel like a piece of a jigsaw puzzle that doesn't fit" and "In general, I don't feel connected to the mainstream of society" are intended to gauge the individual's sense of significance within interpersonal relationships and their perceived value as a member of society.

The SOBI-A, comprising 14 questions, is designed to assess the antecedents of sense of belonging. Antecedents are factors or events that precede and potentially cause an individual to feel a certain way about their sense of belonging. By measuring these antecedents, the SOBI-A provides insights into the foundational elements that influence an individual's capacity to feel a sense of belonging. The precursors to this sense of belonging, encapsulated in what can be referred to as need to belong (although the

creators of the SOBI instrument didn't use this term), elucidate an individual's inclination for participation (e.g., "fitting in with people around me matters a great deal"), aspiration for meaningful connections (e.g., "it is important to me that I am valued or accepted by others"), and potential for integration within social groups (e.g., "I have qualities that can be important to others"). The SOBI-A seeks to gauge an individual's drive to actively engage with groups and be appreciated by others, essentially quantifying the strength of their need for belonging.

The SOBI-A's scoring system is designed to assess how well the conditions for belonging are met from the individual's perspective. High scores highlight a strong presence of positive antecedents (energy, desire, potential for involvement), while low scores suggest these antecedents are lacking, potentially impacting the individual's sense of belonging. A high score on the SOBI-A indicates that an individual recognizes the importance of social connections and demonstrates a proactive desire for involvement and acceptance within social groups. It signifies an awareness of the potential for meaningful social interactions and a readiness to engage in such relationships. This proactive stance towards social engagement suggests that the person values social belonging and is motivated to seek out and maintain social connections, reflecting an underlying belief in their own worthiness of belonging. Accordingly, a high score on the SOBI-P reflects an individual's actual experience of feeling valued, accepted, and included within their social environments. It denotes that the person perceives their social interactions as fulfilling and supportive, indicating that their need for belongingness is being met.

Data Analysis

Data were first evaluated using the Kolmogorov-Smirnov and Shapiro-Wilks tests, as well as Q-Q plots. Mild deviations from normality were observed in the distributions of sense of belonging and need to belong. However, given the robustness of both Pearson correlation and one-way ANOVA against moderate deviations from normality (Field, 2018), transformations were deemed unnecessary, and bootstrapping was chosen as a preferred method to address these deviations.

To determine the strength and direction of the relationship between MDS-16 scores and scores on both the SOBI-P (sense of belonging) and SOBI-A (antecedents of belonging or need to belong) scales, Pearson correlation coefficients were computed. To facilitate interpretation of the correlation coefficient, an independent samples t-test was performed to evaluate the differences in sense of belonging and need to belong between participants below and above the MD clinical cutoff. Pearson correlation coefficients were also computed for the SOBI-P and SOBI-A to assess associations between the two scales.

Additional exploratory analyses investigated potential associations between MD and the constructs of belongingness (sense of belonging and need to belong) with various demographic variables such as gender, region, occupation, relationship status, among others. For this purpose, analysis of variance (ANOVA) was employed to compare each of these constructs against the demographic variables.

Chapter III.

Results

Statistical analyses were conducted using IBM SPSS v.29.

Descriptive Statistics

Table 3 presents the demographic characteristics of the study's participants, offering a comprehensive overview of the sample. Figure 1 displays the distribution of participants relative MD based on the cutoff score of 50% proposed by Somer and colleagues (2017b). Table 4 displays demographic characteristics as a function of MD presence.

A significance level of 95% ($p < .05$) was used for all statistical tests. Bonferroni correction was applied to all pairwise comparisons.

Figure 1. Distribution of Participants Relative to MD Cutoff: Above vs. Below

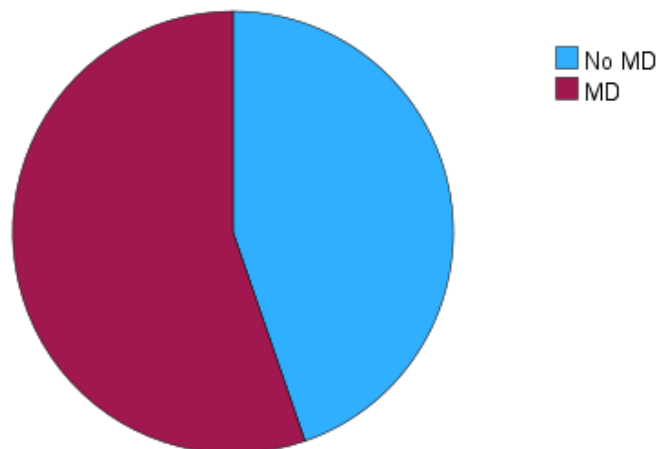


Table 3. Demographic Characteristics of the Full Sample.

		<i>Total</i>	<i>%</i>
	<i>Age</i>		
	Mean = 31.58, SD = 12.04		
	18-24	81	37.3%
	25-34	69	31.8%
	35-44	39	18%
	45-54	15	6.9%
	55-64	10	4.6%
	65-74	3	1.4%
	<i>Gender identity</i>		
	Male	43	19.8%
	Female	143	65.9%
	Non-binary / third gender	27	12.4%
	Prefer not to say	4	1.8%
	<i>Ethnicity</i>		
	White	146	67.3%
	Black or African American	9	4.1%
	American Indian or Alaska Native	1	0.5%
	Asian	20	9.2%
	Latino / Hispanic	9	4.1%
	Eastern European	7	3.2%
	Slavic	7	3.2%
	Other	18	8.3%
	<i>Relationship status</i>		
	In a stable relationship (married or unmarried)	72	33.2%
	Not in a stable relationship, but dating	13	6.0%
	Not in a stable relationship, not dating	127	58.5%
	Other	5	2.3%
	<i>Region</i>		
	Africa	1	0.46%
	Asia	13	5.99%
	Europe	74	34.10%
	Middle East	5	2.3%
	North America	106	48.85%
	Oceania	11	5.07%
	South America	7	3.23%
	<i>Education</i>		
	Less than high school	8	3.7%
	High school graduates	51	23.5%
	Some college	45	20.7%
	2-year degree	13	6.0%
	4-year degree	52	24.0%
	Professional degree	13	14.7%
	Master's degree	32	14.7%
	Doctorate degree	3	1.4%
	<i>Occupation</i>		
	Disabled	6	2.8%
	Employed / self-employed	136	62.7%
	Other / didn't answer	7	3.2%
	Retired	3	1.4%
	Student	42	19.4%
	Unemployed	23	10.6%

Table 4. Demographic Characteristics Split by MD Severity (cutoff: 50%).

		<i>No MD</i>	<i>MD</i>
<i>Age</i>	18-24	32	49
	25-34	36	33
	35-44	19	20
	45-54	5	10
	55-64	4	6
	65-74	1	2
<i>Gender</i>	Male	23	20
	Female	59	84
	Non-binary/third gender	13	14
	Prefer not to say	2	2
<i>Relationship status</i>	In a stable relationship (married or unmarried)	37	35
	Not in a stable relationship, but dating	8	5
	Not in a stable relationship, not dating	50	77
	Other	2	3
<i>Education</i>	Less than high school	4	4
	High school graduate	23	28
	Some college	16	29
	2-year college	5	8
	4-year college	26	26
	Professional degree	9	4
	Master's degree	13	19
	Doctorate	1	2
<i>Occupation</i>	Disabled	1	5
	Employed / self-employed	65	71
	Retired	1	2
	Student	18	24
	Unemployed	9	14
	Other / didn't answer	3	4
<i>Ethnicity</i>	White	74	72
	Black or African American	2	7
	American Indian or Alaska Native	0	1
	Asian	8	12
	Latino / Hispanic	3	6
	Eastern European	2	5
	Slavic	2	5
	Other	6	12
<i>Region</i>	Africa	1	0
	Asia	5	8
	Europe	35	39
	Middle East	2	3
	North America	44	62
	Oceania	6	5
	South America	4	3

Main Analyses

Relations Between MD and Sense of Belonging

Consistent with the first hypothesis, MD was negatively correlated with sense of belonging ($r(215) = -.330, p < .001$), suggesting that higher levels of MD are associated with a lower sense of belonging.

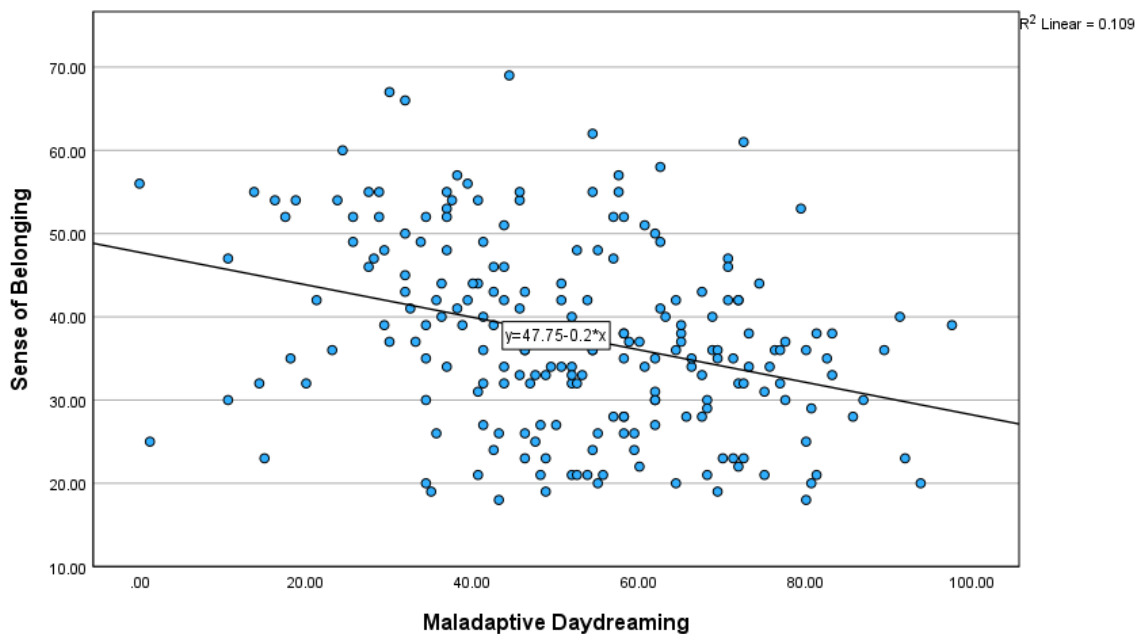


Figure 2. Scatterplot of the Relationship Between Sense of Belonging and Maladaptive Daydreaming.

To facilitate interpretation of the correlation coefficient, an independent samples t-test was performed to compare the mean sense of belonging scores ($M = 40.8247, SD = 11.8497$) between individuals above and below the MD cutoff of 50% ($M = 34.9083, SD = 9.7765$). The results indicated a statistically significant difference in the sense of

belonging between the groups, $t(215) = 4.030, p < .001$. The mean difference was 5.91641 (95% CI = 2.89913, 8.7705). The effect size, indicated by Cohen's d , was -0.550, suggesting a medium to large negative effect. These findings suggest that individuals below the cutoff for MD display a higher sense of belonging compared to those above the cutoff.

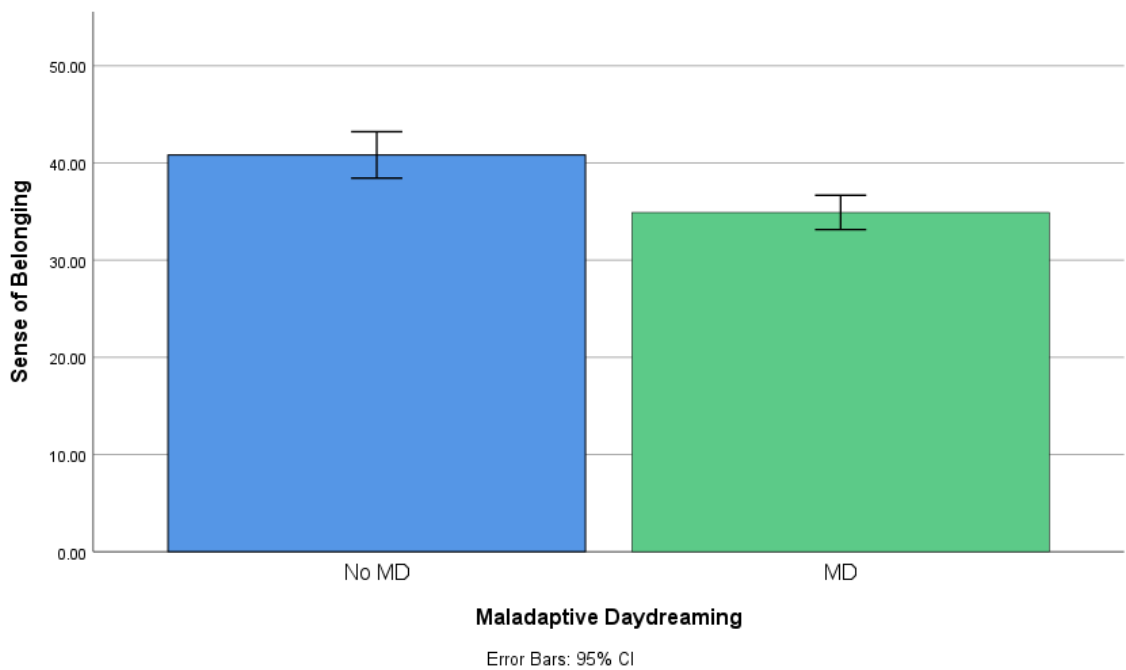


Figure 3. Bar Chart Showing the Difference in Average Sense of Belonging Between Participants Below and Above the MD Cutoff Score.

Relations Between MD and Need to Belong

Contrary to the second hypothesis, MD and the need to belong were unrelated ($r = .062, p = .362$), indicating no significant linear relationship between these variables. This

suggests that, contrary to the hypothesized expectation, the need to belong did not significantly vary with MD levels in this sample.

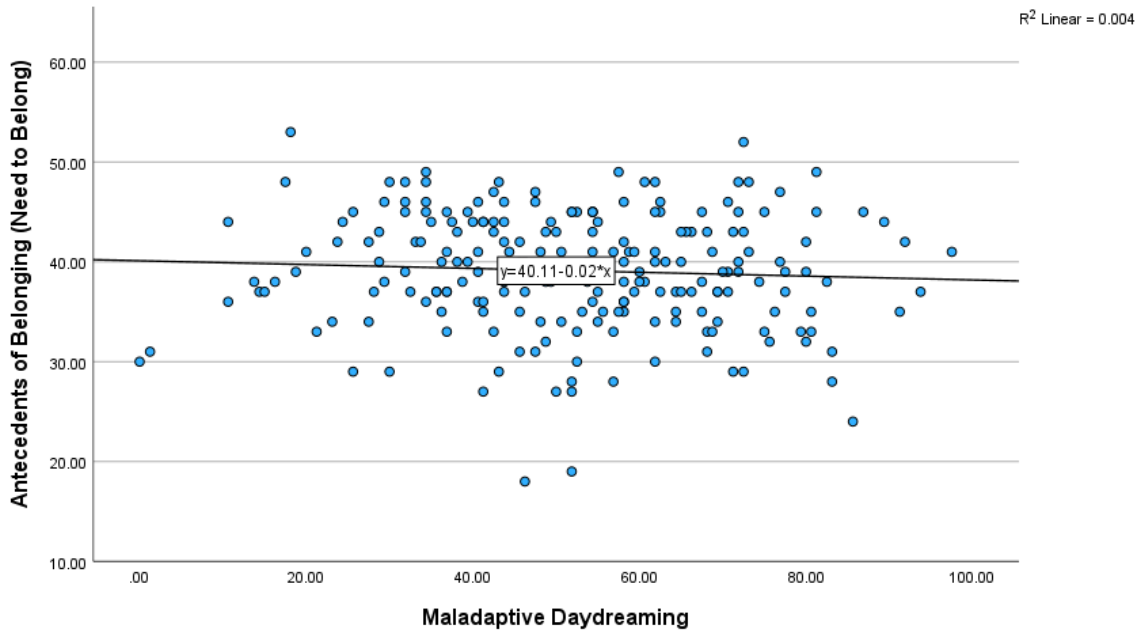


Figure 4. Scatterplot of the Relationship Between Antecedents of Belonging (Need to Belong) and Maladaptive Daydreaming.

Exploratory Analyses

Relations Between Sense of Belonging and Need to Belong

The Pearson correlation revealed a moderate positive correlation between the sense of belonging (SOBI-P) and the need to belong (SOBI-A) scores ($r = .288, p < .001$). This finding indicates that individuals with higher scores on the SOBI-A, denoting

a stronger need to belong, tend to have higher scores on the SOBI-P, reflecting a greater sense of belonging.

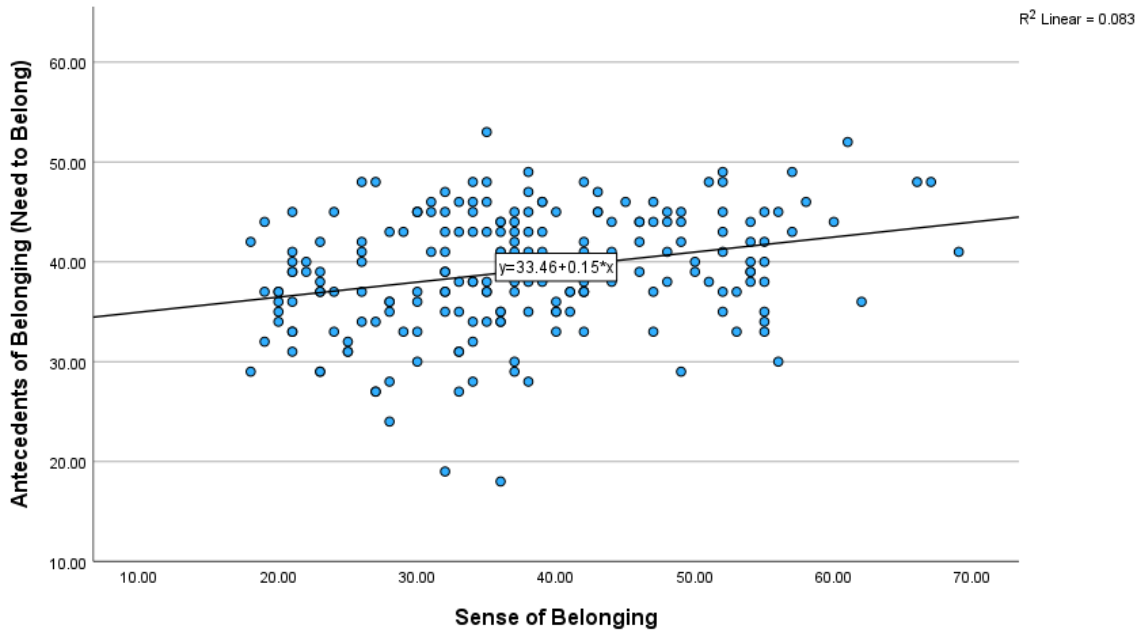


Figure 5. Scatterplot of the Relationship Between Antecedents of Belonging (Need to Belong) and Sense of Belonging.

Table 5. Results of the Correlation Analyses.

<i>Correlations</i>	<i>n</i>	<i>r</i>	<i>p</i>
<i>MD x Sense of Belonging</i>	217	-.330	<.001
<i>MD x Need to Belong</i>	217	.062	.362
<i>Sense of belonging x need to belong</i>	217	.288	<.001

Relations Between Study Variables and Demographics

MD scores did not differ as a function of gender, age, ethnicity, region, education level or occupation (Table 6). Although the ANOVA testing for differences in MD as a function of relationship status was marginally significant ($p = .057$), post hoc pairwise comparisons (Tukey HSD and Bonferroni) showed that participants “not in a stable relationship and not dating” reported higher MD ($M = 54.30, SD = 29.78$) than participants “in a stable relationship (married or unmarried)” ($M = 47.99, SD = 27.09$) ($p = .022$).

Sense of belonging scores were consistent across most demographic categories (Table 6). However, significant differences were observed based on relationship status ($F(3, 213) = 3.74, p = .012$) and educational levels ($F(7,209) = 2.069, p = .048$). Participants in a stable relationship reported a higher sense of belonging ($M = 41.02, SD = 10.93$) compared to other groups, and individuals with higher educational levels also reported higher perceived belonging.

Need to belong scores were also consistent across most demographic categories. However, significant differences were observed across levels of education ($F(7,209) = 2.193, p = .036$) and occupation ($F(5,211) = 2.282, p = .048$), although subsequent post hoc pairwise comparisons using Tukey HSD and Bonferroni methods revealed no significant differences between specific groups within each category (Table 6). Notably, individuals with a Doctorate degree reported a higher need to belong ($M = 46.67, SD = 1.53$) compared to those with other educational backgrounds. Similarly, disabled individuals showed a slightly higher mean need to belong ($M = 41.83, SD = 4.11$) compared to other occupational groups.

Table 6. ANOVA Results for Main Variables Across Demographic Categories.

<i>Model</i>	<i>F</i>	<i>df</i> (model)	<i>df</i> (residual)	<i>p</i>	η_p^2
<i>Maladaptive daydreaming</i>					
Age	1.088	5	211	.368	.025
Region	.317	7	209	.946	.010
Education	.441	7	209	.876	.015
Ethnicity	.995	7	209	.458	.031
Gender	.353	3	213	.787	.005
Occupation	.629	5	211	.677	.015
Relationship status	2.551	3	213	.057	.035
<i>Sense of belonging</i>					
Age	.794	5	211	.555	.018
Region	.282	7	209	.961	.009
Education	2.069	7	209	.048	.065
Ethnicity	.910	7	209	.500	.030
Gender	0.994	3	213	.397	.014
Occupation	.468	5	211	.800	.011
Relationship status	3.746	3	213	.012	.050
<i>Need to belong</i>					
Age	1.572	5	211	.169	.036
Region	.926	7	209	.487	.030
Education	2.193	7	209	.036	.068
Ethnicity	.840	7	209	.556	.027
Gender	1.313	3	213	.271	.018
Occupation	2.282	5	211	.048	.051
Relationship status	1.435	3	213	.234	.020

Chapter IV.

Discussion

This study investigated the relationship between maladaptive daydreaming (MD) and belongingness. This exploration was motivated by the premise that MD, marked by immersive and extensive daydreaming, might function as a compensatory mechanism addressing unmet social needs. The primary objective of this research was to examine the potential association between MD and two aspects of belongingness: the sense of belonging, which is defined as “the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment” (Hagerty et al., 1992, p. 173). This aspect reflects an individual’s personal perception of being valued, appreciated, and accepted by others, as well as their sense of integration within social circles. The study also considered the antecedents of this sense of belonging, which pertain to an individual’s desire and motivation to establish strong social connections and engage meaningfully with their environment, in other words, the strength of their need to belong.

Two hypotheses were formulated: The first postulated that individuals with MD would exhibit a lower sense of belonging, as daydreaming is believed to serve as a replacement for absent real-life connections (Somer, 2002). The second hypothesis posited that those with MD would display a higher need to belong, as intense daydreaming has been associated with a stronger need for acceptance and social recognition (Somer et al., 2016c) and desire to form deep social bonds (Bigelsen et al.,

2016). Additionally, this study explored potential interactions between these two dimensions of belongingness.

Maladaptive Daydreaming and Sense of Belonging

The findings of this study align well with the reviewed literature, which suggests that MD may emerge as a compensatory mechanism for individuals grappling with unmet emotional and social needs (Bigelsen et al., 2016; Greene et al., 2020; Soffer-Dudek & Somer, 2018).

The concept of belongingness, as articulated by Hagerty and colleagues (1992) and Baumeister and Leary (1995), underscores its fundamental importance to human psychology and provides a novel backdrop for understanding the dynamics observed in MD. The results of the current study are consistent with the thinking that MD may be a compensatory mechanism to address unmet social connections and reduced feelings of integration and acceptance rather than mere escapism. The negative correlation found between MD and sense of belonging, indicating that individuals with higher levels of MD experience lower sense of belonging and vice versa, is consistent with this proposal. Although these results do not imply a causal link, one possible interpretation is that a lower sense of belonging may be driving the intensity of daydreaming. Alternate interpretations include difficulties with emotion regulation (Thomson & Jaque, 2023b), dissociative disorders (Soffer-Dudek & Somer, 2021), pathological personality traits (Brenner et al., 2022) and impulse-control or obsessive-compulsion spectrum disorders (Somer, 2018), however, these factors may also, in some cases, reflect underlying issues with belongingness. Conversely, MD may follow a positive reinforcement pathway, becoming a behavioral addiction without prior significant emotional impairment or a

deficient sense of belonging, as suggested by Soffer-Dudek and Somer (2021). However, it seems that regardless of what initially drives excessive daydreaming, the isolation necessary for these complex mental narratives might lead to further withdrawal and social anxiety (Bigelsen & Schupak, 2011), potentially resulting in social impairment and a reduced sense of belonging. If this is accurate, it may be that the more individuals indulge in daydreaming, the less connection and involvement they perceive in their social surroundings, possibly leading to a vicious cycle where a lack of belongingness motivates seeking solace in imaginary scenarios. This relationship further highlights the psychological complexity of MD; it suggests that while other factors undoubtedly play a role in MD, the sense of belonging is a considerable contributor.

The extensive use of fantasy in MD, as described by Bigelsen and colleagues (2016), often involves themes of social connection and approval, with a frequent focus on accomplishments and recognition, underlining an aspirational longing for social validation and connectedness. This is consistent with the findings of Brenner and colleagues (2022), who observed that maladaptive daydreamers exhibit separation insecurity and crave intimacy and approval. Furthermore, the results of this study revealed differences in MD severity based on relationship status showing that individuals not in a stable relationship and not dating reported higher MD compared to those in stable relationships. This suggests that the presence or absence of a stable romantic relationship may impact the intensity of MD, further empathizing its role as a substitute for real-life social interactions. Research has consistently shown that stable romantic partnerships are essential in fulfilling social and emotional needs, contributing significantly to one's sense of identity and life satisfaction (Finkel et al., 2014). Conversely, the absence of such

relationships has been associated with increased feelings of loneliness, social isolation, and self-harm, severely diminishing one's sense of belonging (McClelland et al., 2023). Higher engagement with daydreaming among singles may serve as an attempt to compensate for the lack of real-life romantic or intimate connections, positioning MD as a psychological coping mechanism for individuals experiencing a deficit in fulfilling personal relationships. The current study's findings, therefore, suggest that MD can act as a substitute for real-life social interactions, consistent with the existing research. As that literature suggests, MD may reflect a deeper psychological dynamic where individuals turn to their inner world for the sense of connection and recognition they lack in the real world.

Maladaptive Daydreaming and Need to Belong

The study failed to find a significant correlation between MD and the antecedents of sense of belonging (need to belong), thus not confirming the second hypothesis. The nonsignificant correlation between SOBI-A and MD scores suggests that the antecedents to sense of belonging, which can be seen as an individual's need to belong, might not directly relate to the frequency or intensity of MD in a straightforward or linear manner. This could imply that while the current sense of belonging is negatively affected by MD, the foundational elements that typically contribute to one's sense of belonging might not be as closely linked to MD, or that the relationship is more complex and not captured by a simple linear correlation.

The concept of antecedents of sense of belonging, as developed by Patusky and Hagerty (1992) and operationalized in the SOBI-A instrument, focuses on identifying and measuring the precursors or antecedents that facilitate or hinder the development of a

sense of belonging. The SOBI-A assessment specifically aims to quantify these antecedents, reflecting how much individuals feel they possess the necessary conditions or factors leading to a sense of belonging. Antecedents include energy for involvement, the desire for meaningful involvement, and the potential for shared or complementary characteristics, which are seen as necessary preconditions for a sense of belonging. Thus, the SOBI-A assesses potential and readiness for belonging, reflecting a proactive stance toward achieving belonging. A high need to belong, as measured by the SOBI-A, reflects an individual's willingness to invest in building and strengthening social bonds and actively participating in their environment.

One possibility that could explain this study's result is that maladaptive daydreamers exhibit a different need to belong, manifested as an intense, albeit passive desire for connection and thus not accurately captured by the SOBI-A. Another hypothesis is that the specific questions on the SOBI-A questionnaire such as "I want to be a part of things going on around me", "Fitting in with people around me matters a great deal", and "Generally, other people recognize my strengths and good points" aimed to assess the respondent's desire and willingness to form social bonds, may elicit learned helplessness instead in maladaptive daydreamers, resulting in answers that do not reflect some of the respondent's true desires or motivation for belonging.

Learned helplessness, a phenomenon where individuals feel powerless to change their situation after repeated exposure to uncontrollable events (Seligman, 1972), may manifest in maladaptive daydreamers that have experienced social exclusion and adversity in the past and have, consequently, become fearful and unwilling to form new social bonds. This psychological state, often resulting from continuous failure to achieve

desired social connections or successful outcomes in life's endeavors, may lead individuals to defensively diminish their apparent need for social interaction (e.g., disagreeing with statements such as "I am working on fitting in better with those around me" and "fitting in with people around me matters a great deal" and agreeing with statements such as "relationships take too much energy for me" and "I just don't feel like getting involved with people"). Such a defense mechanism, while providing temporary relief from social anxiety or disappointment, may inadvertently hinder the development of meaningful relationships and perpetuate feelings of isolation (Holt-Lunstad et al., 2010). By engaging in MD, these individuals may find solace in a controlled environment where the outcomes of social efforts are always positive, effectively circumventing real-world social challenges. This mechanism may serve as emotional self-preservation, allowing them to avoid the pain and disappointment associated with unmet social needs. Learned helplessness in this context may be acting as a barrier to acknowledging the deep-seated desire for social inclusion and acceptance, potentially confounding the scores of the SOBI-A assessment. Wilczyńska and colleagues (2015) mentioned that individuals who have experienced social exclusion or rejection may exhibit emotional blunting as a psychological response to avoid further emotional suffering. Therefore, the lack of correlation between SOBI-A scores and MD might not have fully captured the complexities of individuals' social needs and their coping mechanisms in this sample. In other words, participants exhibiting MD in this study may have given up on belonging, proactively choosing to form emotional bonds with imaginary companions rather than seek real-life relationships. Their answers may reflect their lack of energy and willingness to seek and form new social relationships. More research is necessary to

determine the relationship between learned helplessness and MD in the context of belongingness.

Although not directly assessing the relationship between MD and need to belong, Zsila and colleagues (2019) investigated the association between celebrity worship and various psychological constructs, including the need to belong and MD, using the Need to Belong Scale (Leary et al., 1995). Although their study did not directly assess the relationship between MD and the need to belong, they explored how these factors relate to celebrity worship. They found no significant direct association between the need to belong and celebrity worship in their path analysis. This outcome suggests that while individuals with psychological vulnerabilities, such as those prone to MD, may have an intensified need for social connections, they might not fulfill this need through traditional relationships. Instead, these individuals may gravitate towards parasocial interactions with celebrities (parasocial relationships) as an alternative means of experiencing a sense of belonging. Their results suggest that standard measures of social needs, such as the Need to Belong Scale or the SOBI-A, might not fully capture the distinct ways individuals with MD seek connection, potentially explaining the observed results in this study.

Need to Belong and Sense of Belonging

This study identified a significant positive correlation between the Sense of Belonging Instrument's antecedents (SOBI-A) and perceived sense of belonging (SOBI-P) scores. The SOBI-A measures the precursors or antecedents necessary for a sense of belonging, such as the desire for and potential of meaningful involvement and shared characteristics with a group, effectively measuring how much an individual feels a "need

to belong”. Higher scores on the SOBI-A suggest a stronger presence of these antecedents, implying that individuals perceive themselves as having more qualities, desires, and opportunities that facilitate belonging. In this sense, a higher need to belong translates into a stronger motivation to seek social connection, form intimate bonds with others and participate in social activities. Respectively, the SOBI-P questionnaire assesses the respondent’s actual experienced sense of belonging, with higher scores indicating a greater perceived integration and acceptance within their social environment. A strong sense of belonging reflects satisfaction with one’s position in social groups, acceptance by others, and a feeling of fitting in with one’s environment.

The observed positive correlation suggests that as the antecedents for belonging (need to belong) become more pronounced—indicating a greater motivation and desire to connect with others and “fit in”—the perceived sense of belonging increases. This relationship aligns with theoretical expectations, indicating that individuals who possess or recognize more factors conducive to belonging tend to report a stronger sense of belonging. Thus, when individuals perceive themselves as having the energy for involvement, the desire for meaningful connections, and the potential for shared experiences, they are likely to feel more integrated and accepted within their groups. This positive association is consistent with the literature evaluating the validity of the SOBI Instrument, as well as with other studies that have used it as an assessment tool.

This result may offer insights to explain the observed lack of correlation between MD and the need to belong. Given that maladaptive daydreamers often exhibit a low sense of belonging, it would be contradictory for them to demonstrate a high need to belong as assessed by the SOBI-A. These individuals appear to lack both the energy for

involvement and the willingness to engage in shared experiences, attributes that are assessed by the SOBI-A. Nonetheless, they may still harbor a desire for meaningful connections, suggesting the possibility of a non-linear relationship between these constructs that the study failed to capture.

Implications and Future Directions

These findings have important implications for the understanding and development of therapeutic approaches that address the unique needs and experiences of individuals with MD. Recognizing MD as a response to unmet social and emotional needs can better inform clinical practice. Interventions might focus not only on reducing the frequency and intensity of daydreaming but also on enhancing social skills and addressing underlying issues such as social anxiety, depression, and trauma that may be hindering the individual's ability to proactively seek and develop social bonds in real life.

This study has several limitations that should be acknowledged. The cross-sectional design of the study and correlational analyses limit the ability to establish causality between MD and aspects of belongingness. The use of self-report measures might have introduced biases, potentially impacting data accuracy. Furthermore, the recruitment strategy, focusing on forums and groups related to MD and mental health issues, could have attracted a sample more conscious of their psychological conditions, affecting the generalizability. Although this study included a diverse sample from multiple countries, most participants were from English-speaking countries. Also, the study was overrepresented by participants identifying as female.

Future research should more directly examine potential causal relations between MD and belongingness. Longitudinal studies could provide a more definitive

understanding of the dynamic interplay between these constructs. Exploring gender differences in MD more thoroughly could also yield insightful results, given the predominance of female participants in the current study. Moreover, the role of parasocial relationships in MD warrants further exploration to understand how these imaginary interactions fulfill the sense of belonging in individuals with MD. Additionally, examining maladaptive daydreamers' preference for solitude and fantasy, and the potential impact of learned helplessness on the lack of correlation between MD and the need to belong, could provide novel insights into the long-term impact of MD on social functioning.

Building upon the existing foundation of knowledge regarding the neural correlates of mind-wandering and daydreaming such as the default mode network (Andrews-Hanna et al., 2014), future research could greatly benefit from a more targeted exploration of MD through neuroimaging studies. Understanding whether and how the activity of the default mode network differs in MD could shed light on the neural mechanisms driving this condition and guide the development of effective interventions and support mechanisms for individuals experiencing MD. Additionally, by correlating activity in the default mode network with measures of belongingness, researchers could explore how variations in the sense of belonging and the need to belong might relate to MD from a neurological perspective. This approach could potentially reveal how this brain region contributes not only to daydreaming but also to the individual's experience of social connectedness and emotional fulfillment.

Appendix 1.

The Maladaptive Daydreaming Scale (MDS-16)

1. Some people notice that certain music can trigger their daydreaming. To what extent does music activate your daydreaming?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

2. Some people feel a need to continue a daydream that was interrupted by a real world event at a later point. When a real world event has interrupted one of your daydreams, how strong was your need or urge to return to that daydream as soon as possible?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

3. How often are your current daydreams accompanied by vocal noises or facial expressions (e.g. laughing, talking or mouthing the words)?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

4. If you go through a period of time when you are not able to daydream as much as usual due to real world obligations, how distressed are you by your inability to find time to daydream?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

5. Some people have the experience of their daydreaming interfering with their daily chores or tasks. How much does your daydreaming interfere with your ability to get basic chores accomplished?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

6. Some people feel distressed or concerned about the amount of time they spend daydreaming. How distressed do you currently feel about the amount of time you spend daydreaming?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

7. When you know you have had something important or challenging to pay attention to or finish, how difficult was it for you to stay on task and complete the goal without daydreaming?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

8. Some people have the experience of their daydreaming hindering the things that are most important to them. How much do you feel that your daydreaming activities interfere with achieving your overall life goals?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

9. Some people experience difficulties in controlling or limiting their daydreaming. How difficult has it been for you to keep your daydreaming under control?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

10. Some people feel annoyed when a real world event interrupts one of their daydreams. When the real world interrupts one of your daydreams, on average how annoyed do you feel?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Never Extremely frequent

11. Some people have the experience of their daydreaming interfering with their academic/occupational success or personal achievements. How much does your daydreaming interfere with your academic/occupational success?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
%

Never

Extremely frequent

12. Some people would rather daydream than do most other things. To what extent would you rather daydream than engage with other people or participate in social activities or hobbies?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Never

Extremely frequent

13. When you first wake up in the morning, how strong has your urge been to immediately start daydreaming?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Never

Extremely frequent

14. How often are your current daydreams accompanied by physical activity such as pacing, swinging or shaking your hands?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Never

Extremely frequent

15. Some people love to daydream. While you are daydreaming, to what extent do you find it comforting and/or enjoyable?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Never

Extremely frequent

16. Some people find it hard to maintain their daydreaming when they are not listening to music. To what extent is your daydreaming dependent on continued listening to music?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Never

Extremely frequent

Appendix 2.

The Sense of Belonging Instrument (SOBI)

The Sense of Belonging Instrument – Psychological Experience (SOBI-P)

	Strongly		Strongly	
	Agree	Agree	Disagree	Disagree
1. I often wonder if there is anyplace on earth where I really fit in.	1	2	3	4
2. I am just not sure if I fit in with my friends.	1	2	3	4
3. I would describe myself as a misfit in most social situations.	1	2	3	4
4. I generally feel that people accept me.	1	2	3	4
5. I feel like a piece of a jig-saw puzzle that doesn't fit into the puzzle.	1	2	3	4
6. I would like to make a difference to people or things around me, but I do not feel that what I have to offer is valued.	1	2	3	4
7. I feel like an outsider in most situations.	1	2	3	4
8. I am troubled by feeling like I have no place in this world.	1	2	3	4
9. I could disappear for days and it wouldn't matter to my family.	1	2	3	4
10. In general, I do not feel a part of the mainstream of society.	1	2	3	4

11. I feel like I observe life rather than participate in it.	1	2	3	4
12. If I died tomorrow, very few people would come to my funeral.	1	2	3	4
13. I feel like a square peg trying to fit into a round hole.	1	2	3	4
14. I do not feel that there is anyplace where I really fit in this world.	1	2	3	4
15. I am uncomfortable that my background and experiences are so different from those who are usually around me.	1	2	3	4
16. I could not see or call my friends for days and it wouldn't matter to them.	1	2	3	4
17. I feel left out of things.	1	2	3	4
18. I am not valued by or important to my friends.	1	2	3	4

The Sense of Belonging Instrument – Antecedents (SOBI-A)

	Strongly		Strongly	
	Disagree	Disagree	Agree	Agree
1. It is important to me that I am valued or accepted by others.	1	2	3	4
2. In the past, I have felt valued and important to others.	1	2	3	4
3. It is important to me that I fit somewhere in this world.	1	2	3	4
4. I have qualities that can be important to others.	1	2	3	4
5. I am working on fitting in better with those around me.	1	2	3	4
6. I want to be a part of things going on around me.	1	2	3	4
7. It is important to me that my thoughts and opinions are valued.	1	2	3	4
8. Generally, other people recognize my strengths and good points.	1	2	3	4
9. I can make myself fit in anywhere.	1	2	3	4
10. All of my life, I have wanted to feel like I really belonged somewhere.	1	2	3	4
11. Fitting in with people around me matters a great deal.	1	2	3	4
12. I feel badly if others do not value or accept me.	1	2	3	4
13. Relationships take too much energy for me.	1	2	3	4
14. I just do not feel like getting involved with people.	1	2	3	4

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