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EMPIRICALLY GROUNDED CLINICAL GUIDANCE PAPER

Introducing a psychological formulation model of maladaptive daydreaming

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Abstract

Maladaptive daydreaming (MD) is an increasingly recognised mental health difficulty, which refers to a compulsive cycle of dissociative absorption in vivid mental fantasy that results in clinical distress and functional impairment. Fantasies are usually complex in plot and characters, and are highly pleasurable and absorbing. MD provides temporary escape, soothing, or attempted processing of difficult internal and external experiences, but results in longer-term negative consequences that both create and exacerbate real-life suffering. The literature thus far has expanded beyond defining and understanding MD and has turned its attention towards assessment and pilot interventions. This paper presents the first formulation framework and associated diagrammatic model of MD, drawing upon the existing evidence base and cognitive behavioural theory to capture its development, maintenance, and processes. The model was reviewed by two leading experts in the field and trialled by three contributors with lived experience of MD. Feedback was positive, suggesting it accurately captured and organised the complexity and depth of the MD experience, facilitated the development of personal insight, and fostered a sense of hope with regard to creating change. The model is intended for use within clinical practice to aid mental health professionals and people with MD to guide assessment, collaborative discovery and formulation, and intervention. It is imperative that the model be tested further within research and clinical practice to further ensure its efficacy, validity, and applicability for people with MD.

Key learning aims

(1) To consider the development and maintenance factors, and processes involved in MD from a cognitive behavioural perspective.
(2) To introduce a new formulation model for MD and understand how the model can be used in clinical practice.
(3) To highlight how psychological formulation has the power to better understand and organise the complex and often overwhelming MD phenomenon and provide hope for meaningful change.

Keywords: cognitive behavioural therapy; dissociation; formulation; maladaptive daydreaming

Introduction

Maladaptive daydreaming (MD) refers to a compulsive cycle of dissociative absorption in mental fantasy that results in distress and impaired functioning. Such fantasies are usually rich in quality and complex in nature, with plots and characters that may develop over many years. They are

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often triggered through exposure to vivid imagery, evocative music or stereotypical movement which also serve to deepen immersion (Somer *et al*., 2016a; Somer *et al*., 2016b). People with MD (PwMD) typically spend many hours daydreaming daily, to the detriment of real-life responsibilities, goals, and relationships (Chefetz *et al*., 2023; Soffer-Dudek and Somer, 2018). For example, Bigelsen *et al.* (2016) found that PwMD spent 57% of their waking hours in daydreams on average, compared with 16% for individuals without MD.

Daydreaming appears to offer a highly pleasurable experience for PwMD, whilst functioning as a coping mechanism that provides escape, soothing, and/or processing of emotional discomfort and challenging life circumstances (Ross *et al*., 2020; Somer, 2018). This method of relief may be rewarding in the short-term but leads to negative long-term consequences, including impaired daily, occupational, academic, and social or interpersonal functioning (Somer, 2002). This is due to both the excessive time spent daydreaming and the attachment to vivid fantasy lives, increasing feelings of shame, guilt, or distress (Bigelsen and Schupak, 2011; Soffer-Dudek and Somer, 2018) and enhanced dissatisfaction with reality in contrast (Somer *et al*., 2019). Thus while PwMD often report using immersive fantasy to improve their emotional states, studies highlight an ultimately perpetuating and worsening effect on emotional wellbeing (Somer, 2002, Bigelsen and Schupak, 2011).

It is predominantly these features, qualities, and outcomes that differentiate MD (i.e. daydreaming as a pathological activity) from that at the normative end of a potential spectrum. As a universal activity, daydreaming refers to occasional shifts in attention away from the immediate environment to internal thoughts, fantasies, or memories (Shimoni and Axelrod, 2024). This phenomenon closely relates to that of 'mind-wandering', passive mental activity in the form of off-task or undirected thought (Singer, 1975; Smallwood *et al*., 2003). In healthy individuals, such cognitive processes are largely adaptive, brief, and non-directive in nature. Without the dire consequences seen in the addictive and distressing cycle of MD, normative daydreaming and mind-wandering can facilitate relaxation, emotion-regulation, creativity, and problem-solving (Baird *et al*., 2011; Mooneyham and Schooler, 2013), as well as self-reflection (Smallwood and Schooler, 2013) future planning, attentional cycling between information streams, and improved learning (McMillan *et al*., 2013; Schooler *et al*., 2011).

Although MD is yet to be included in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*) (American Psychiatric Association, 2022) or International Classification of Diseases (ICD) (World Health Organization, 2019), there is now a substantial body of evidence to support core characteristics of MD that suggest its conceptualisation as a distinct mental health issue and the need for targeted intervention (Schimmenti *et al*., 2019; Theodor-Katz *et al*., 2022). Furthermore, research indicates high co-morbidity rates with existing diagnoses, such as obsessive-compulsive disorder (OCD) and attention-deficit hyperactivity disorder (Somer *et al*., 2017b). It is also highly associated with emotion regulation difficulties (Chirico *et al*., 2022; Greene *et al*., 2020), increased depression, dissociation, and anxiety (Soffer-Dudek and Somer, 2018). In line with links to these elements and avoidance-based strategies, studies have also discovered a potential association between MD and narcissistic and emotionally unstable personality disorders (Ghinassi *et al*., 2023; Pyszkowska *et al*., 2023). This was particularly the case for vulnerable narcissism, mediated by shame, and in which low self-esteem is explicit. Horváth-Labancz *et al.* (2023) found that MD may even develop in some cases in conjunction with pathological personality facets (e.g. hostility, grandiosity, and unusual beliefs). A study by Somer *et al.* (2017b) found that 74% of participants experiencing MD met criteria for more than three additional disorders and 28% of participants had attempted suicide.

The literature to date has largely focused on defining the nature of MD and its classification within diagnostic frameworks (e.g. Soffer-Dudek and Somer's (2022) model of MD as a dissociative disorder); exploring lived experience, and examining its aetiology (e.g. Somer *et al*.'s (2016c) grounded theory model of childhood antecedents and maintaining factors), characteristics, correlating factors, and co-morbidities. This has expanded to the development

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of assessment tools and piloting interventions which draw primarily from modalities like cognitive behavioural therapy (CBT), motivational interviewing (Schimmenti *et al.*, 2019; Somer, 2018), and mindfulness (Herscu *et al.*, 2023). One aspect these trials have in common is targeting dissociative absorption and avoidance, and facilitating healthier emotion regulation. However, no research thus far has proposed a psychological formulation framework for guidance in clinical practice.

Formulation refers to a structured – often visual – conceptualisation of an individual's mental health difficulties. It is a working hypothesis about the internal and external factors and processes that contribute to the development and maintenance of a person's problems (Eells, 2007). Psychological formulation is arguably central to the implementation of any therapeutic intervention, providing the crucial step between assessment and treatment. Johnstone *et al.* (2013) posit that the formulation process can additionally be a therapeutic intervention in and of itself.

This paper therefore presents the first evidence-based formulation framework and diagrammatic model of MD; additionally unique in its integration of cognitive behavioural theory. The framework employs a longitudinal and cyclical approach, highlighting the additional roles of core beliefs, appraisals, and internal processing within fantasy content. Thus it endeavours to advance understanding of the development and maintenance of MD from a clinical perspective. The model does not suggest that MD must be treated using only CBT, nor does it imply its likely classification, but rather is intended for therapeutic use to enhance collaborative discovery with clients and guide personalised intervention. Filling this gap in the field may also encourage further research concerning formulation and treatment approaches for MD.

Developing the model

An extensive literature review of MD was undertaken along with related theory, including: dissociation, obsessive compulsion, emotion regulation, attention deficit, and addiction. Cognitive behavioural principles were applied, resulting in a model of MD capturing a current and comprehensive understanding of its components and processes (Fig. 1).

Consultation was sought from two leading experts in the field via ongoing email exchange at early and final stages of design, presenting different versions of the model. Professor Eli Somer originally coined the phenomenon (Somer, 2002) and has published over 50 research papers in addition to contributing academic consultation and supervision. He also developed and tested the Maladaptive Daydreaming Scale (MDS-16) (Somer *et al.*, 2016b), which is the leading self-report measure for MD and its proposed diagnostic components have undergone rigorous reliability and validity testing internationally (e.g. Jopp *et al.*, 2019; Pietkiewicz *et al.,* 2023; Schimmenti *et al.*, 2019). As such, he was able to hold in mind the criteria from the MDS-16 when evaluating the model to ensure it encapsulated important facets. Professor Nirit Soffer-Dudek is also an acclaimed MD researcher, whose publications span a variety of areas, including the relationship between MD and other mental health disorders and transdiagnostic phenomena (e.g. dissociation). She was also the first President of the International Society for MD (ISMD).

Expert reviews of the model enhanced accuracy of elements and processes, along with highlighting areas that could be simplified or expanded. For example: calling attention to nuances in defining precipitating factors and secondary outcomes that provoked further thought about short-term positive and long-term negative reinforcement cycles, as well as providing additional references to consider. One expert described the diagram as 'an impressive parsimonious model of MD'.

Following this, respondent validation was carried out with people with lived experience of MD (see section 'The model in practice'). These measures aimed to mitigate researcher bias and increase validity of the model.

The model depicts a longitudinal process of development that leads into a vicious cycle occurring at two levels. Qualities of absorption (which also serve as maintaining factors of fantasy

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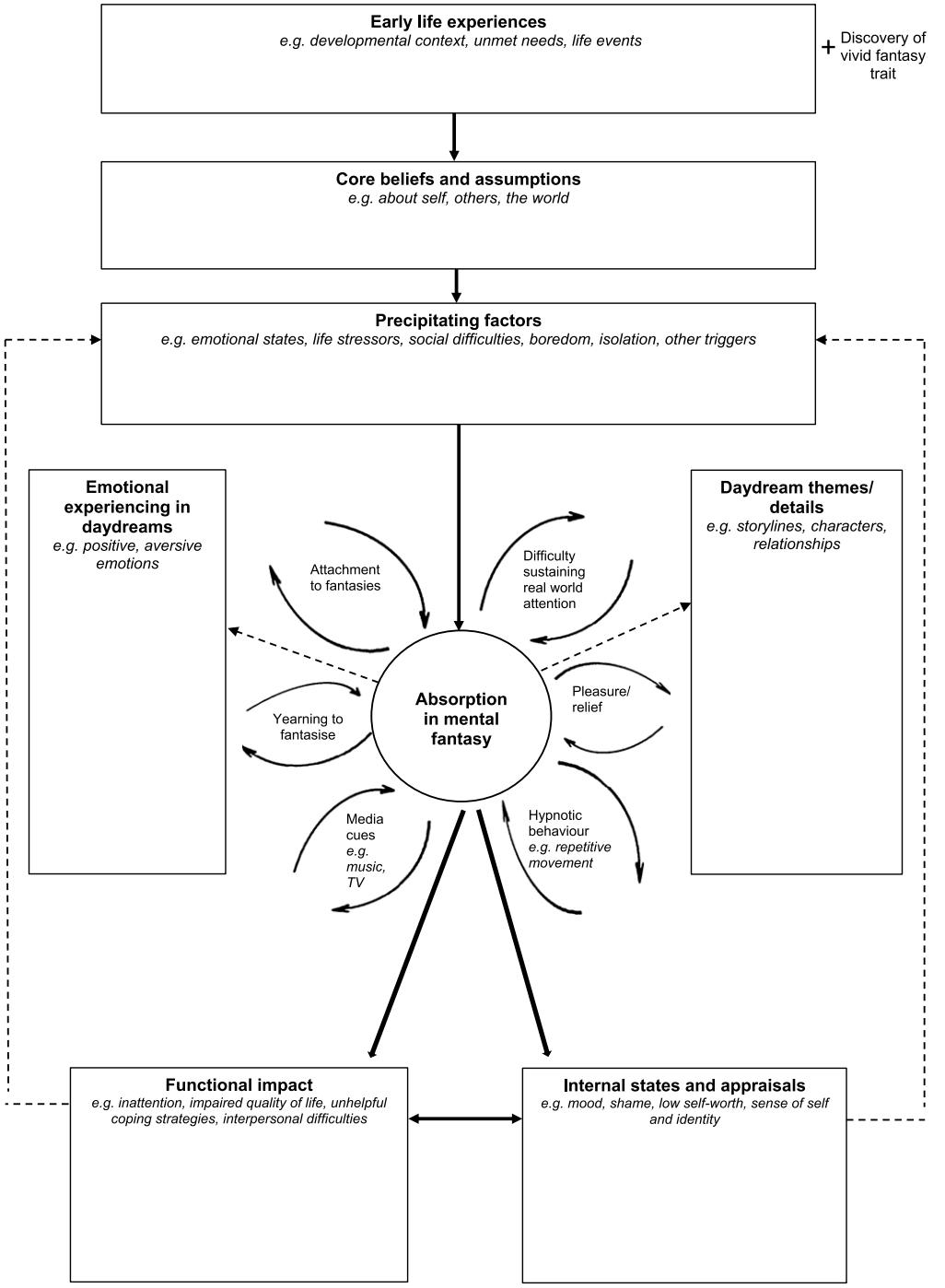

Figure 1. Psychological formulation model of maladaptive daydreaming (MD).

activity) are represented within the central box and 'vicious flower' (Moorey, 2010; Salkovskis, 1998) positively reinforcing the pleasurable activity of daydreaming. There is then a negatively reinforcing pattern of habitual escape that occurs due to real-world impact represented by the

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outer boxes. The model also illustrates the mechanisms between cognitive (e.g. core beliefs) and behavioural (e.g. absorption) processes, and the role of internal and emotional processing within fantasy.

Theoretical background

Predisposing and precipitating factors

The discovery of innate talent for vivid fantasising in early childhood is widely reported by those who go on to develop MD in later life (Somer *et al.*, 2016a; Somer *et al.*, 2016b). PwMD report a full spectrum of sensory and emotional lucidity in their daydreams, manifesting a 'hyper-real' experience and high sense of presence within them that can be as vivid as everyday reality. This contributes to the illusion of a parallel reality that diminishes attentional awareness and sense-of-presence in the real world and self.

Somer *et al.* (2016a, 2016b) suggest that this ability is a necessary foundation for MD, which may develop when combined with early life circumstances from which one seeks respite within pleasurable fantasy worlds. One commonly reported early driver of discovering immersive daydreaming in childhood is boredom. In order to escape feelings of monotony, sometimes associated with unmet psychological needs, children may use their imagination to simulate social experiences and create abstract narratives, which can become habitual over time (Mar and Oatley, 2008). This is supported by Bigelsen and Schupak (2011) who found that individuals with MD report higher levels of boredom-proneness compared with controls.

Studies also highlight that distressing states and circumstances are typical precursors to the development of MD, which may become maintaining factors over time. These include: trauma, unmet emotional needs, isolation, loneliness, anxiety, and emotion dysregulation (Chirico *et al.*, 2022; Greene *et al.*, 2020; Somer *et al.*, 2017b). This inclination towards daydreaming as a coping mechanism from an early age can thus create a cycle whereby children increasingly rely on fantasy to alleviate feelings of boredom or distress, further increasing their sense of a dull and imperfect reality in comparison, and reinforcing the lure into fantasy (Bigelsen *et al.*, 2016).

Cognitive theory suggests that early experiences may contribute to the development of core beliefs and assumptions about oneself, others, and the world, that can be activated throughout one's life or when specific (e.g. precipitating) events occur (Beck, 1967; Beck, 1976). This model of MD therefore adopts a longitudinal stem (Beck *et al.*, 1979). This proposes that early experiences and resulting core beliefs may propel one into absorption in mental fantasies, or mediate them; where a compensatory self, others, or world, can be enacted, along with preferred emotional experiencing (Bigelsen *et al.*, 2016; Schimmenti, 2016).

'Precipitating factors', similar to 'triggers' (Beck, 1976), concern life stressors or situations (Somer *et al.*, 2017b) or emotional states (Bigelsen and Schupak, 2011) that may be present just prior to an episode of prolonged daydreaming. These events and states may also be exacerbated by the episode or within the cycle of MD, which result in PwMD experiencing an increased urge to escape into pleasurable fantasy. These may therefore be ongoing difficulties, such as social anxiety, or loneliness, but could also include singular 'critical incidents', which may themselves be reflective of ongoing difficulties; for example, a breakdown of a relationship or being bullied at work.

Perpetuating factors

The inner cycle of the model depicts the primary qualities of absorption in mental fantasy for PwMD and how these elements can deepen and maintain fantasy immersion (Bigelsen *et al.*, 2016; Somer *et al.*, 2017a).

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Media cues

Media is a commonly reported cue for fantasy absorption, including television shows, news reports, and music (Soffer-Dudek and Theodor-Katz, 2022). These are reported to inspire themes or aesthetics that are idiosyncratic, and evoke emotional responses that can serve to enhance and maintain emotional states within daydreams. Somer (2024) discovered that music in particular can set the 'emotional soundtrack' for fantasies: evoking, intensifying, and prolonging emotional responses during daydreams. It can also help to shield from external distractions (thereby increasing dissociative absorption), 'fast-track' PwMD into complex storylines and characters, and enhance creativity. The effects of music can be so powerful that some PwMD avoid playing it altogether unless they have time and space to daydream.

Hypnotic behaviour

Repetitive music and stereotypic movement (such as pacing, rocking, or gesturing) are the most prevalent factors found in PwMD, enhancing inward focus, presence in fantasy, and self-hypnotic immersion (Soffer-Dudek *et al.*, 2020). Many PwMD also embody their characters' actions or facial expressions (Bigelsen and Schupak, 2011), intensifying the experience and dissociative state. Such components do not only aid in accessing daydream states therefore, but also in maintaining them by continuing the flow and intensity of daydreams, enhancing their dissociative state, and reducing their sensitivity to external stimuli. In this respect, daydreaming in MD is different to that of 'mind-wandering' or normative daydreaming, in that it is consciously activated and designed, yet paradoxically feels impossible to control (Bigelsen and Schupak, 2011).

Difficulty sustaining real-world attention

One area that has attracted scrutiny within MD literature is that of narrowing and selective attentional focus and difficulty sustaining attention. For example, Somer *et al.* (2017b) found that 77% of a sample of adults with MD met the criteria for ADHD (mostly inattentive type). Inattention to the material world and self have been demonstrated in a variety of ways in MD; for example, one might not recognise the feeling of hunger or attend to the road in front of them when driving (Bigelsen *et al.*, 2016). This aligns with the concept of dissociative absorption: the involuntary narrowing of attention at the expense of other internal and external surroundings (Somer and Herscu, 2017). Research suggests however, that unlike ADHD, attentional impairment may not explain the core of MD but rather feature as a secondary consequence of its addictive properties that in turn exacerbates MD (Theodor-Katz *et al.*, 2022). Along with deliberate and attentive focus on rich internal states, this may help to explain why stimulant drugs such as Ritalin have been shown to increase MD symptoms rather than decrease them (Ross *et al.*, 2019).

Attachment to fantasies

The worlds in MD fantasy are often complex and can evolve over many years, leading to an emotional and psychological investment in storylines, recurring themes, emotions, or characters (Brenner *et al.*, 2022). Some PwMD describe their daydreams as 'episodes' which need to be finished, much like an engrossing TV series (Bigelsen *et al.*, 2016). People may also replay particular fantasies over many hours or years, intensifying strong attachments to fantasy lives (Soffer-Dudek and Somer, 2018). One study suggests that PwMD may even fall in love with characters or split themselves between real life and parallel fantasy lives, increasing fear of loss and guilt of abandonment, similar to that described in real life attachments (Bigelsen *et al.*, 2016; Lucas, 2021).

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Pleasure

Many PwMD describe euphoric feelings associated with entering a daydream, such as a 'rush' or 'wave of pleasure' (Bigelsen and Schupak, 2011). Butler (2006) defines fantasy as 'imagination directed at self amusement, pleasure, distraction and escape'. This combined with the overall experience of relief from uncomfortable states and circumstances, attachment to fantasy worlds, and vivid immersion, elicits pleasurable gratification for PwMD (Bigelsen and Schupak, 2011; Somer *et al.*, 2016a). This appears to remain the case irrespective of the complexity of emotional experiencing within fantasy itself, for example content that evokes emotional pain (Lucas, 2021).

Yearning to fantasise

The lure of pleasure and relief in MD is often experienced as a persistent craving, whereby PwMD report a need to get their 'fix' and suffer distressing consequences when they attempt to suppress or avoid fantasy absorption. This may include irritation, physical sickness, and daydream 'binges' (Bigelsen and Schupak, 2011). This alludes to the addictive and compulsive nature of daydreaming for this group (Soffer-Dudek *et al.*, 2020), and is similar to the maintaining factor of 'cravings' in Beck's cognitive model of addiction (Beck *et al.*, 1993). This yearning can feel so powerful that many PwMD report unsuccessful attempts to control, curb, or stop the desire and behaviour (Pietkiewicz *et al.*, 2018; Soffer-Dudek *et al.*, 2020).

Internal and emotional processing within fantasy

There is a wealth of evidence to demonstrate that emotional experiencing and regulation are a key purpose of fantasy absorption in MD. This is widely supported by correlations between MD and difficulty managing challenging emotions (Sándor *et al.*, 2021; Thomson and Jaque, 2023). Gratz and Roemer (2004) suggest that people can learn to use intense emotions as a way to distract from or avoid other distressing feelings, as may be observed in the provocation of emotions within MD fantasy. In addition to escaping real-world discomfort and dysregulation, fantasy (including emotive) content plays a vital role in attempting to manage and process existing internal states. Mariani *et al.* (2021; p. 10) theorises that fantasies may symbolise 'dissociated emotional experiences' that one struggles to 'integrate into everyday life'. As such, positive feelings within MD fantasies (e.g. pride, joy) may be generated to enable access to states one struggles to encounter in real life (Bigelsen *et al.*, 2016; Somer, 2002). Whilst aversive feelings (e.g. anger, helplessness) may enable one to safely embrace and control – and therefore even find pleasure in – painful emotions that are otherwise difficult to tolerate or express in real life (Greene *et al.*, 2020; Lucas, 2021). Furthermore, research suggests that repeated experiences of intense emotions, especially if they are perceived as rewarding or comforting, can lead to habitual seeking of those emotions (Aldao *et al.*, 2010).

In addition, evidence suggests that fantasy for PwMD may offer a way to seek psychological mastery or sense-making of real-life experiences, and serve as a means of regulation of the self-concept (Brenner *et al.*, 2022; Somer *et al.*, 2021). This can typically be seen in compensatory fantasy themes that illustrate wish-fulfilment, e.g. for people with low self-esteem, or exploring and even re-enacting unresolved real-life trauma or adversities. For example, someone who experienced severe bullying during childhood may repeatedly imagine scenarios in which they confront bullies and emerge victorious, gaining validation and admiration from others (Bigelsen *et al.*, 2016; Somer *et al.*, 2016a; Somer and Herscu, 2017). Salomon-Small *et al.* (2021) discovered possible mechanisms of enhanced intrusiveness of mental imagery and increased fixation on evocative obsessive thoughts within MD. For example, individuals reporting sexual or violent imagery in their MD fantasies may have difficulty inhibiting such content that they otherwise feel is forbidden (e.g. Somer *et al.*, 2016c; Somer *et al.*, 2021). Additionally, Brenner *et al.* (2022) found that certain personality facets may be associated with particular fantasy themes and functions. For

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example, individuals reporting grandiosity tended to use their fantasies as a means for wish-fulfilment for power and dominance, while those reporting separation insecurity fantasised more about idealised relationships with others, and individuals reporting anhedonia tended to feature themes of escape and physical violence.

Fantasy content is naturally idiosyncratic in nature, with repetitive themes seemingly providing clues to aspects of internal processing (Brenner *et al.*, 2022; Lucas, 2021). Such attempts at emotional and psychological mastery thus signal a unique form of experiential avoidance (Hayes *et al.*, 1996) and unconscious attempts at repair (Margherita *et al.*, 2022). This is further supported by studies exploring a potential link between dissociative defence mechanisms and MD. For example, Musetti *et al.* (2023) found that neurotic (e.g. idealisation) and immature (e.g. projection) defences increased the severity of MD for people with traumatic experiences, while mature defences (e.g. sublimation; such as channelling experiences into artwork) lessened the severity. They in turn suggest that such mechanisms decrease the ability to face negative affect for people with cumulative trauma, increasing the risk of excessive involvement in fantasy.

Thus, it is likely pertinent to formulate not just fantasy behaviour but the imagery and emotional content as well, to identify meanings and connections associated with real-world issues that may need to be addressed. The model addresses this by incorporating two boxes titled 'Emotional experiencing in daydreams' and 'Daydream themes/details', which aim to capture the emotional and narrative themes experienced within fantasy itself and understand how these feed back in to the absorption cycle.

Cycle of secondary impact

Whilst the 'inner cycle' of fantasy absorption appears to provide temporary benefits, PwMD report numerous negative consequences that both create and exacerbate real-life suffering. Secondary impact may occur at various levels. Firstly, PwMD can experience shame, guilt, and anxiety in relation to their appraisals of their daydreaming behaviour. Social withdrawal and isolation is a common response, not only to avoid confronting anxiety-provoking situations in real life and preserve fantasy absorption but also to avoid feared reactions from others that often reflect one's own feelings about oneself, such as believing the individual is 'crazy' (Pyszkowska *et al.*, 2023; Somer *et al.*, 2016a). Shame is a prominent experience for PwMD which can prevent disclosure and help-seeking and increase isolation (Ferrante *et al.*, 2020). This may be due to negative appraisals of the behaviour itself (e.g. influenced by societal narratives that one must 'grow out' of daydreaming) or of fantasy content (e.g. worrying one must be disturbed or desire strange things due to the storylines they immerse in; Lucas, 2021).

Secondly, the time spent daydreaming can cause PwMD to feel that they are behind their peers or own potential, due to 'wasted time' or missed opportunities to attend to real-world goals and development (e.g. social skills, relationship-building, and personal achievements) (Bigelsen *et al.*, 2016; Somer *et al.*, 2021). They may struggle to concentrate, disrupting academic or occupational functioning, neglect daily responsibilities and tasks, or decrease self-care (e.g. sleeping or eating) (Soffer-Dudek and Somer, 2018; Somer *et al.*, 2017a).

Thirdly, due to the nature of dissociative fantasy, PwMD can experience disruption to perceptions of self and identity (e.g. uncertainty about one's authentic being and confusion regarding what one desires), disconnection from and disorientation of real-life, and an overall fragmented sense-of-being (Chefetz *et al.*, 2023). Somer (2002) suggests that over time, the gap between idealised daydream worlds and real life and sense-of-self can grow wider, deepening feelings of dissatisfaction and frustration.

The resulting emotional impact of these outcomes, and associated appraisals, is often one of increased distress and, for some, suicidal ideation (Somer *et al.*, 2017b). This then leads individuals to retreat further into fantasy (Bigelsen *et al.*, 2016) and may reinforce negative learned beliefs one already held. It may also inadvertently cause or exacerbate co-morbidities, such as social anxiety,

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depression, or emotion dysregulation (Chirico *et al.*, 2022). Similar negative feedback loops have been observed in other mental health conditions with diagnostic overlap with MD, such as OCD, and addictive behaviours (Black *et al.*, 2010; Fontelle *et al.*, 2011).

The model in practice

Method

Three contributors with self-identified MD were recruited using an opportunity sampling method to review a penultimate version of the model. Demographic information was collected and the MDS-16 (Somer *et al.*, 2016b) was administered (Table 1). All contributors scored above a threshold of 40+, indicating clinically significant levels of MD.

Table 1. Contributor demographics and MDS-16 scores

Contributor	Age	Gender	Ethnicity	Residency	MDS-16 score
Kalleel (K)	28	Male	Black/African-American	USA	90
Faisal (F)	27	Male	Asian	USA	51
Sarah (S)	22	Female	Caucasian	Canada	86

Contributors were invited to take part individually in a 60-minute, semi-structured interview online with one of the researchers, who are both qualified Clinical Psychologists. During the interview, the researcher began by briefly explaining the model's components and processes. Contributors were then asked a series of questions with prompts to elicit feedback on the model based on their lived experience and collaborative discussion and exploration of the model.

Contributors were given the option to populate the model, either with guidance from the researcher or alone. Contributors understood during the consent process that this did not constitute clinical assessment or therapy, but rather facilitated guidance. Kalleel and Sarah chose to populate the model with guidance from the researcher, while Faisal opted to complete the model himself and review the model without sharing details of his lived experience.

Example questions asked during the interview included:

- What are your initial impressions of the model?
- How well or not does this model capture your experience of MD? (would you add/remove/change anything?)
- How easy or difficult was it to use the model? By yourself vs with a clinician? (was anything confusing?)

Figure 2 depicts Sarah's trial using the formulation model and illustrates how the components may work in practice.

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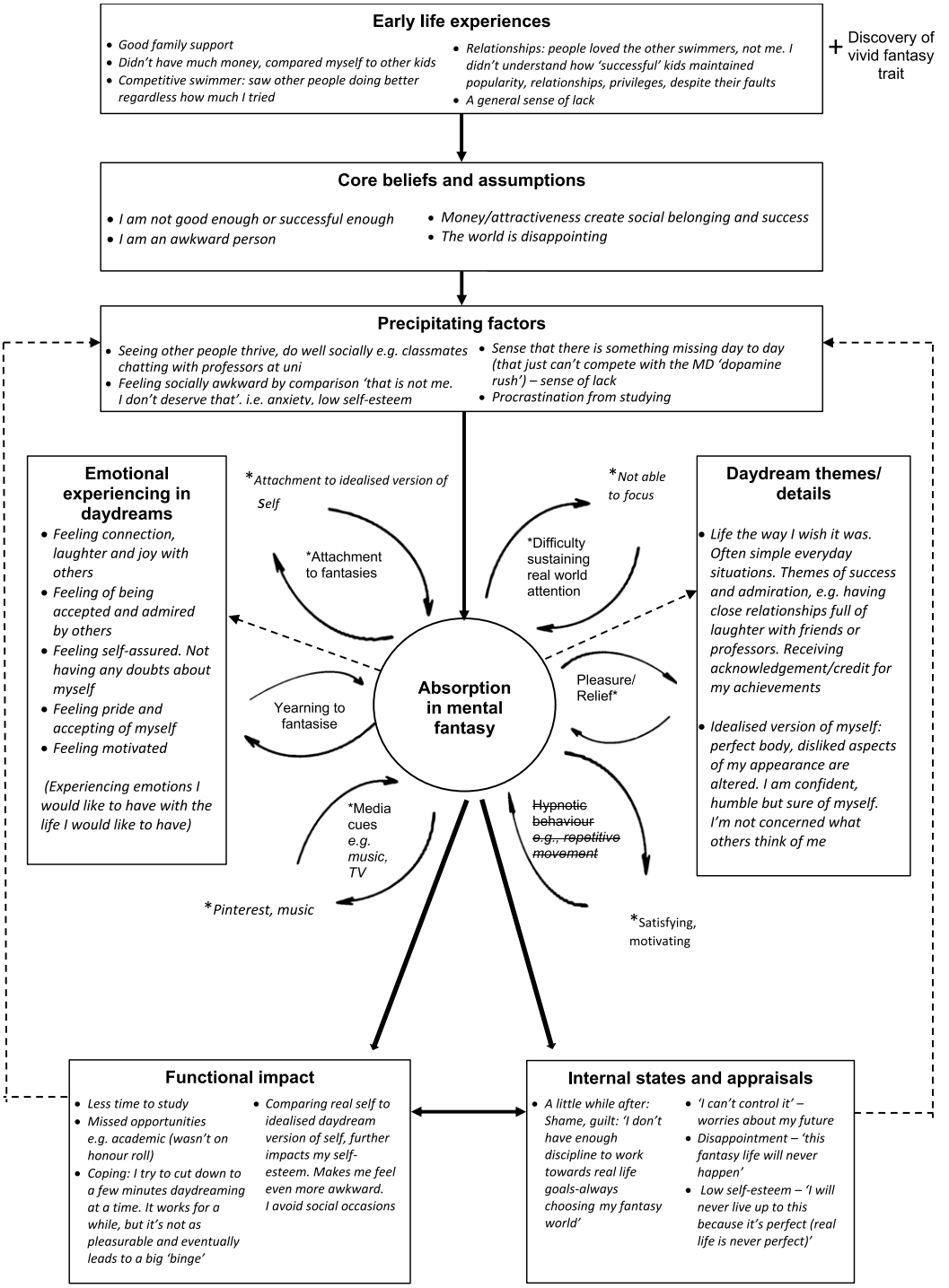

Figure 2. Sarah's trial diagram.

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Thematic analysis

Both researchers listened to all interview audio recordings together to reduce bias and made detailed notes (including verbatim quotes) on a shared document. A simple form of inductive thematic analysis was conducted by the first researcher, following Braun and Clarke's (2006) methodology (see themes in Table 2). To improve quality assurance, codes and themes were discussed and reviewed with the second researcher so that differences in interpretation and potential bias could be scrutinised.

Table 2. Contributor feedback themes and supporting quotes

Theme	Description	Quotes
Capturing MD	The model accurately and comprehensively captured the experience and nature of MD	'I think it's incredibly accurate … the way you guys managed to piece all of them in a relationship way is very accurate from my experience' (S) 'This diagram is amazing' (F) 'I can see all of this … I think the boxes are perfect. There's nothing I could think to add to it' (K)
Clarity and containment	The model provided clarity, containment, and organisation for the first time to an otherwise complex and overwhelming experience	'It was almost reassuring because you say it out loud and see it organised … It organised my experience and thoughts, which kind of just seems like a jumble sometimes' (S) '[The model can] help structure one's own inner chaos' (F) 'Seeing it all there … it really helps organise the worlds in a way where I can actually see it and I can process it and I can see [the underlying themes]' (K)
Inspiring revelations	The model provoked revelations: within oneself and life, identification of core unresolved issues, and connections between the components of MD	'I can see … the primary theme [for me] is "lack of self-esteem". So then it's like, OK, well, maybe there's hope that if that can get addressed, somehow that this can change' (S) 'It made me think a lot about things I don't think about in relation to MD … I like that these boxes made me think about my own personal experiences that MD might have been rooted in' (F) 'I feel like as I look at it, I can see where we are and I'm able to think back to the themes … I see now how my stories relate to my experiences, I see the connection now' (K)
Positive engagement	Desire for a copy of the model for self-directed exploration	'I totally wish I had a copy of this … to brainstorm and play with it on my own' (K)
Hope for meaningful change	Sparked hope and excitement that the model could help PwMD and practitioners better understand their MD and create meaningful change	'I think this is fantastic, revolutionary for MD' (F) 'A therapist could see where to change the mindset through the stories … I think it's gonna be amazing and it'll be super helpful for others and for me …' (K)

Overall, the thematic analysis of the feedback on the model was positive. Kalleel and Faisal additionally articulated explicit appreciation for the inclusion of potentially unconscious fantasy processes in the model (i.e. recurring themes and emotions within fantasy) as this allows 'more of that introspection and self-excavation – this is not just a habit we need to stop, there is a whole lot more going on' (F). Kalleel also highlighted how the model could be used not only to formulate

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MD, but specific fantasies. All contributors expressed gratitude for the model and the impact it could have in the field of MD.

Some adaptations to the model were suggested to enhance clarity. See Appendix 1 (Supplementary material) for an overview of approved and declined adaptations to the model and the rationales. For example: renaming the first box from 'early experiences' to 'early life experiences' and including 'coping strategies' as a prompt in the 'functional impact' box.

In order to assess the utility of the model, contributors were asked how they would rate the likely 'helpfulness' of the diagram upon first appearance. They were then asked this same question at the end of the interview, after they had explored and completed the model (Table 3). Ratings were on a Likert scale of 0–10, ranging from 'not helpful at all' to 'completely helpful'.

Table 3. Contributor ratings of the 'Helpfulness' (utility) of the MD model

Contributor	Initial rating*	Rationale	Final rating**	Rationale
Kalleel (K)	5	Unsure it could capture the complexity and depths of the MD experience	10	Helped to process, see the impact, and inspire personal revelations
Faisal (F)	6	Not entirely clear yet on what the boxes and processes specifically represent	9–10	Foundation for great in-depth reflection and helped to structure inner chaos
Sarah (S)	7–8	Easy to navigate and understand but would need guidance to draw out core issues	9–10	Very organised, really helped to understand how MD operates at an individual level and how things interlink

*Rating given prior to exploration and completion of the model;
**rating given after exploration and completion of the model at the end of the interview.

All contributors rated the model with very high utility scores upon trial completion. Lower scores in the initial ratings suggest the model may be most helpful with guidance from a trained professional who can facilitate psychological thinking. They also perhaps reflect uncertainty in the MD population regarding the quality of help they can expect, given commonly reported experiences of invalidation, misdiagnosis, and misunderstanding in the mental health field (Bigelsen and Schupak, 2011).

Ethics

Ethical approval was obtained from the Middlesex University Research Ethics Committee. In line with Patient and Public Involvement (PPI) standards (National Institute for Health Research, 2019), respondents were provided with an information sheet and consent form prior to the interview, which outlined the different ways through which respondents could give feedback (with or without sharing details of their lived experience). This also included consent to publish contributions either anonymously or using their real identity. Following the interview, respondents were provided with a debrief sheet and given the option to receive a follow-up call with the researcher if the process had caused any psychological distress. Audio recordings and detailed interview notes were stored securely on the Middlesex University online system.

All contributors were invited to review their contributions before submission for publication to ensure the paper accurately reflected their perspectives and experiences and all confirmed permission to publish. One contributor opted to publish under a pseudonym and two chose to use their real identities.

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Clinical implications

This paper proposes the first psychological formulation framework for MD for use in clinical practice. Integrating existing theory, evidence, and academic models (e.g. Soffer-Dudek and Somer, 2022; Somer *et al.*, 2016c), the diagram depicts a comprehensive illustration of how MD presents and the mechanisms that can be assessed and treated within clinical or therapeutic settings. In combination with cognitive behavioural theory, the model also suggests an innovative perspective: that core beliefs – subsequent to early life experiences – and negative appraisals may influence MD behaviour and imagery. The model thus proposes that core beliefs may become a template and driver for not only how one operates in the real world, but within fantasy life also.

The model provides a structured and evidence-based framework intended to aid in collaborative discovery and decision-making during assessment and treatment of MD. It aims to build insights and clarity regarding individual development and maintenance of – and processes within – MD; thus informing a roadmap for personalised intervention. As with many mental health issues it is possible that MD interplays with interpersonal patterns, identity disruption, or emotion regulation difficulties, for example, that may also be contextual to comorbidities (e.g. personality disorders; Pyszkowska *et al.*, 2023). Clinicians should be mindful of the benefit of holistically assessing and formulating individuals' mental health as a whole and as necessary in relation to therapeutic goals.

Psychological formulation is typically considered most effective when engaged in with a trained professional (Johnstone and Dallos, 2013). Feedback on the model supports this notion, where collaborative exploration yielded higher utility scores and greater insights. One collaborator suggested that an accompanying guidance document could aid clarity for self-directed use. This might include, for example, easy-read explanations about each element of the diagram, along with related exercises and questions to prompt exploration, interpretation and reflexive thinking. It could also include accompanying psychoeducational information and common examples to illustrate the tasks. It is hoped that this model can offer further contribution to raising awareness and accessible understanding of the phenomenon within both professional and public arenas.

The framework does not intend to dictate therapeutic modality, but rather enhance tailored treatment goals and approaches. However, the model lends itself to a cognitive behavioural approach. The presence of several components and their influence on MD suggest a multitude of potential avenues for effective intervention. It may be useful for some to target patterns of behaviour, while others may better address a shift in negative core beliefs and appraisals. Exploration of fantasy themes - where appropriate - may assist this process and help clinicians and sufferers tend to needs within real life in order to more effectively reduce this coping mechanism. This may explain in part why recent pilot studies, though promising, have had mixed results. For example, Herscu *et al.*'s (2023) RCT utilising mindfulness and self-monitoring techniques may only target certain elements of MD (e.g. difficulty sustaining attention, compulsive cycles) and neglect others of potential importance (e.g. attachment to fantasies). Exploration into potential treatment approaches is beyond the scope of this paper, but may include cognitive restructuring, increasing emotional literacy and regulation, intrapsychic resolution of unresolved experiences or internal and interpersonal conflicts (Chefetz *et al.*, 2023), reclaiming life, and in some cases, additionally attending to comorbidities.

It is crucial that the model be tested further within research and clinical practice to ensure its efficacy, validity, and applicability for PwMD. This may invite refinement based on real-world feedback, in accordance with evolving needs of clinicians and individuals (Castonguay and Beutler, 2006).

Limitations

There is a wealth of growing evidence to support the existence of MD as a unique clinical construct, separating it from healthy daydreaming behaviour and other mental health diagnoses (Somer *et al.*, 2017a; Vyas *et al.*, 2024). However, since its first academic recognition (Somer,

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2002), there is still some debate regarding how to best conceptualise the phenomenon and its relationship to other recognised patterns of distress and divergence. It is possible that this framework will need to evolve as theoretical understanding of MD develops. Furthermore, the content validity of the model could have been strengthened by conducting inter-rater reliability measures on feedback about the model; both between the expert reviewers and between the experts and contributors with lived experience. Nonetheless, feedback was overwhelmingly positive suggesting a promising foundation for further trials.

One challenge with psychological formulation models is the risk of oversimplifying complex mental health issues (Johnstone and Dallos, 2013). Such risk was acknowledged when one contributor expressed uncertainty regarding whether the model could capture the complexity of their fantasy world upon first glance of the diagram. Similar fears are noted by Lucas (2021), whose participants reported feeling overwhelmed at the prospect of representing their imaginary worlds in artwork. This suggests that the box encompassing 'daydream themes/details' may be particularly prone to risk of oversimplification. The nature of MD is such that individuals must bring two worlds into the therapy room; the complexities of both real and imaginary life. This can pose a unique challenge for assessment and formulation. In order to distil fantasy content into recurring themes that illustrate an accurate and meaningful representation of the processes taking place, clinicians may consider providing extended sessions to ensure adequate space for exploration and time for the individual to express and understand the patterns. It is not unusual for practitioners to utilise flexibility in the length of assessment sessions for complex mental health issues, such as psychosis (Kelly *et al.*, 2020). Individuals may also benefit from a clear explanation of the expectations and benefits of this and the emotional experiencing elements of the diagram. It is important to note that positive feedback from contributors following use of the diagram suggests that this model fulfils its function in capturing complex nuance and depth in accordance with individual differences. Nonetheless, these limitations underscore the importance of ongoing research and training to enhance the efficacy and sensitivity of its use in clinical practice.

Conclusion

There is substantial evidence to support classification of MD as a distinct dissociative mental health issue that causes clinical levels of distress and functional impairment. This has led to increased use of robust assessment measures and pilot interventions. However, this paper presents the first psychological formulation framework for MD based upon existing evidence, related theory, and cognitive behavioural principles. It is intended for use in clinical practice with the aim of enhancing collaborative insight-building and guiding treatment. The framework and its associated model depicts the proposed development and maintenance factors, and qualities of MD, in the form of short-term positive and long-term negative reinforcement cycles. These seemingly attempt psychological mastery and emotion-regulation but result in secondary negative impacts. The model was reviewed by two leading experts in the field and trialled by three contributors with lived experience. Outcomes were positive, with feedback suggesting that it accurately captures and organises the complexity and depth of the MD nature and experience, facilitates the development of personal insight, and fosters a sense of hope for creating meaningful change.

Key practice points

(1) Consider using the proposed formulation model with clients with MD, to help conceptualise how the problem developed, is maintained, the underlying function it serves, and what goals to target in therapy.
(2) Recognise the invaluable role of guided facilitation from a mental health practitioner when using the framework for collaborative discovery and sense-making.
(3) Consider the potential importance of formulating fantasy-based themes and emotions to deepen understanding of underlying issues and maintenance processes.

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Further reading

Bigelsen, J., Lehrfeld, J. M., Jopp, D. S., & Somer, E. (2016). Maladaptive daydreaming: evidence for an under-researched mental health disorder. *Consciousness and Cognition*, *42*, 254–266. http://doi.org/10.1016/j.concog.2016.03.017

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Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S1754470X24000424

Data availability statement. The data that support the findings of this paper are available upon reasonable request from the corresponding author, A.L. The data are not publicly available due to containing sensitive information that could compromise the privacy of contributors and is not necessary for the reproducibility of the findings.

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Author contributions. **Amy Lucas:** Conceptualization (lead), Data curation (lead), Methodology (equal), Writing - original draft (equal), Writing - review & editing (lead); **Alexandra Bone:** Conceptualization (supporting), Data curation (supporting), Methodology (equal), Writing - original draft (equal), Writing - review & editing (equal).

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Ethical standards. The authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. Ethical approval was obtained from the Middlesex University Research Ethics Committee (reference number: 27808). The authors respect contributors' right to privacy and obtained informed consent to publish all contributions. All contributors have seen the submission in full and have confirmed their permission to publish the information provided.

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