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“When I picture myself, I just see black and white and dull”: a photo-elicitation study exploring mental images of the self in young people with depression

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Abstract

Background Negative self-perception plays a crucial role in the development and maintenance of depression in young people. Mental images of the self may be a powerful target for treating depression. However, little qualitative research has explored young people's mental imagery. The present study aimed to understand experiences of mental images of the self in young people with lived experience of depression or low mood.

Methods Nineteen young people aged 14–21 years old with lived experience of depression or persistent low mood took part in a qualitative photo-elicitation study with semi-structured interviews.

Results Reflexive thematic analysis identified six overarching themes relating to the content of images, sources, triggers, distressing properties, relationship between imagery and mood, and preferences for treatment. Participants described mental images that depicted primarily negative autobiographical memories relating to experiences of low mood, anxiety, and social disconnection, and reflecting hopelessness for the future. When participants did experience positive images, these were often accompanied by dampening appraisals that reduced the positive impact on their mood. Treatment goals included reducing aversive properties of negative mental imagery, such as vividness and uncontrollability, and generating more positive images.

Conclusions This study identified ways in which mental images of the self may contribute towards low mood in young people and highlighted distressing properties of mental imagery and preferences for treatment. Given the novel nature of this research, these findings are a valuable contribution towards informing theoretical frameworks that underpin our understanding of mental images of the self in young people with depression, and could be used to support intervention development in this population.

Keywords Depression, Low mood, Adolescent, Young people, Mental imagery, Self-perception, Photo-elicitation, Qualitative

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Background

Depression is common and impairing in young people. Around 8% of 10–19 year olds meet diagnostic criteria for depression [1], and depression in young people is associated with severe social and emotional consequences [2]. Current psychological treatments have only modest efficacy, showing a clear need for innovative approaches to treatment [3]. One area consistently highlighted by young people as important in their experience of depression is negative self-perception [4]. This core characteristic is reportedly experienced by 86% of depressed young people, and is central to Beck's cognitive model of depression which suggests that depressed individuals hold negative views about the self, the world, and the future [5, 6]. This is supported by qualitative evidence identifying that young people with depression perceive themselves poorly, withdraw from others and the world, and lack hope for the future [7]. Current treatments, including cognitive behavioural therapy (CBT), often aim to improve negative self-perception by targeting verbal cognitive processes, such as negative automatic thoughts [5]. Whilst young people's self-perception has been found to be receptive to change in response to treatments for depression, effect sizes are small (e.g. $g = 0.33$), suggesting that greater emphasis on enhancing self-perception using novel methods to target the self could improve treatment outcomes [8].

One potential target for improving self-perception in depression is mental imagery, defined as the perception of sensory information in the absence of direct external stimuli [9]. Mental images are closely linked with the self, as how we perceive ourselves is represented through our imagery [10]. However, mental images of the self are poorly understood in the context of youth depression. Research on mental imagery more generally has found that young people with depression experience more frequent and vivid negative images (both of the past and future) than those without depression, and when they do experience positive images they are less vivid [11, 12]. Imagery-based interventions, such as imagery rescripting and enhancing positive imagery, have been shown to be powerful in adults and demonstrate promise for use with young people [13, 14]. Therefore, applying these techniques to mental images of the self could be a promising intervention approach for young people with depression. However, additional research is required to understand which aspects of imagery are important contributors to the experience of depression [15]. In this study, we use qualitative photo-elicitation and semi-structured interviews to explore:

1. What mental images of the self do young people with lived experience of depression experience?

2. What is the relationship between mental images of the self and mood?
3. What support do young people with lived experience of depression want for mental images of the self?

Method

Design

Photo-elicitation is a visual method in which photographs taken by participants are used to guide interviews [16]. It has previously been used in mental health research with adolescents [17]. Within this study it was used in conjunction with semi-structured interviews. Photo-elicitation is a collaborative process between the researchers and participants, where participants are recognised as the experts of their own experiences, and interviews are used to arrive at a shared understanding [18]. Within this study, participants took photographs that represented their experiences of mental images of the self, and these photographs were used as a basis for further exploration in qualitative semi-structured interviews (more details in Procedure section). This method supports expression and communication by creating distance between participants and the topic through a focus on photographs [18, 19]. It can be difficult for young people to articulate emotions and cognitive processes, and mental imagery is a concept that may be unfamiliar to young people. The photo elicitation method was therefore chosen to enable young people to become more aware of their mental imagery, especially given the parallels between the visual medium and mental images.

Participants

Nineteen young people aged 14–21 years old with self-reported lived experience of depression or persistent low mood (past or current) took part in this study, recruited through online and community-based groups, social media, and schools. Participants were required to have had their first episode of depression or low mood during secondary school, college or sixth form. A formal diagnosis was not required.

Materials

Revised Children's Anxiety and Depression Scale (RCADS) [20]

Participants completed age-appropriate versions of the RCADS to assess their current depression and anxiety, and T-scores were calculated following established guidelines (Table 1) [20, 21]. There was excellent internal consistency across both subscales (depression, $\alpha = 0.92$; anxiety, $\alpha = 0.96$).

Table 1 Participant characteristics

Characteristic	N
N	19
Age (years)	Mean: 18.84 (SD: 2.36) [range: 14–21]
Gender (% female)	16 (84.2%)
<i>Ethnicity</i>	
White or White British	11 (57.9%)
Mixed or multiple ethnic groups	3 (15.8%)
Black or Black British	2 (10.5%)
Asian or Asian British	1 (5.3%)
Other (self-described)	
Indian	1 (5.3%)
Slavic	1 (5.3%)
<i>Education status</i>	
University	6 (31.6%)
Sixth form/college	5 (26.3%)
Secondary school	3 (15.8%)
Not in education	5 (26.3%)
<i>Depression status (self-reported)^a</i>	
Current depression	11 (57.9%)
Previous depression	4 (21.1%)
Current persistent low mood	3 (15.8%)
Previous persistent low mood	1 (5.3%)
<i>RCADS Depression Subscale – Clinical Status^b</i>	
Clinical	10 (52.6%)
Subclinical	5 (26.3%)
Not clinically significant	4 (21.1%)
<i>RCADS Anxiety Subscale – Clinical Status^b</i>	
Clinical	10 (52.6%)
Subclinical	1 (5.3%)
Not clinically significant	8 (42.1%)
<i>Treatment history for depression</i>	
Talking therapy alone	8 (57.9%)
Anti-depressants alone	1 (21.1%)
Combination talking therapy and anti-depressants	3 (15.8%)
None	7 (36.8%)

^a All participants who self-reported current depression scored above cut-off for either clinical or subclinical depressive symptoms on the RCADS. One participant who reported previous depression had a clinically significant RCADS depression score

^b T-score thresholds: Clinical ≥ 70 , Subclinical: 65–69, Not clinically significant < 65 [22]

Interview topic guide

A semi-structured topic guide, co-developed with two lived experience advisors (see supplementary materials for details), explored three areas: (1) participant's photographs and the mental images they represented, (2) the relationship between imagery and mood, (3) what support they wanted for mental imagery (if any).

Procedure

Young people signed up to participate by completing an online form. There were three consent pathways, with differing age-dependent parent/carer consent and safeguarding requirements. Following consent, participants provided their demographic information, current depression status and treatment history (Table 1). They booked an online meeting with a researcher to be briefed about the photo-elicitation task and were asked to take around five photos representing the mental images they experienced of themselves. Participants emailed photos to the research team before participating in the online interviews, which lasted 30–60 min. Interviews were audio-recorded and transcribed for analysis.

During the interview, participants were asked about how they found taking the photos and were asked to give a brief overview of all the photos they had taken. They were then asked to select one or two photos to discuss in depth, allowing them to highlight those most representative of their experiences. Participants were asked broadly about the photos and what the mental images they represented, and were prompted about the properties of the mental images. Following exploration of the mental images represented in the photographs, researchers asked about mental images of the self more generally, and how they related to their mood. Next, the interview focused on support preferences and whether participants would be receptive to support for the mental images they had of themselves. Participants were asked about how they would want to receive support (if at all), and what they would want to change as a result. Lastly, participants were asked if there was anything else that had not been covered that they wanted to add relating to mental images of the self and mood. The recording was then ended, and the participant was thanked for their time and contribution to the study. All participants received a £20 Amazon voucher as compensation for their time. Additional information about the procedure is available in supplementary materials.

Data analysis

Reflexive thematic analysis was undertaken using a critical realist perspective within an experiential framework [23]. This approach aims to understand how participants experience a given phenomenon by identifying patterns of meaning whilst acknowledging the subjectivity of individual experience and their perceptions and interpretations of reality. This analytical approach was well-aligned with the study aims as it supported the identification of themes across participant's experiences to understand the content of mental images of the self, their relationship with mood, and young people's preferences for support.

A total of 93 photographs were taken by participants (between 4 and 6 per person), however it should be noted that the photographs were not analysed. Photographs were instead used as a prompt for participants to think about mental images of the self and generate in-depth discussion within interviews rather than as a data source in themselves. Transcripts were read by the lead author several times to create immersion before coding the dataset twice using NVivo. Data were coded semantically using an inductive data-driven approach that was grounded in the experiences of participants. Initial themes were generated from codes by clustering based on shared patterns of meaning. These themes were then developed iteratively after discussion with all authors. The research team reflected on how their own experiences, identities, and beliefs may influence their interpretations of the data, for example through their roles as researchers (RLD, FO, VP, KL), clinicians (VP), and their lived experiences of mental health (RLD). Regular supervisory meetings were held, and the lead researcher kept a reflexive diary to capture subjectivity and understand how biases may influence the results throughout the analysis process.

Results

Six overarching themes were generated, focusing on content of mental imagery, source, triggers, distressing properties, relationship between mood and mental images, and treatment preferences. Several themes were interconnected, illustrating the multi-faceted nature of mental imagery within young people's experiences of low mood and depression, as demonstrated by the thematic map in Fig. 1. For example, memory played an important role as a source of imagery, a trigger for images, and within the content of young people's mental imagery.

Theme 1: Content of mental imagery

The content of young people's images was explored in five subthemes: 'memories of low mood and anxiety', 'traumatic memories', 'social disconnection and connection with others', 'insecurities about what others think', and 'worries and hopelessness about the future'.

"I just see white walls and doctors' rooms and pill boxes": Memories of low mood and anxiety

Young people were often haunted by mental images of being unwell, experiencing images of being depressed or anxious. These images were often framed around locations tied to memories of challenges with mental health. One participant described classrooms where she had experienced panic attacks, and the doctor's office where she had disclosed self-harming.

"When I'm anxious, I think of those places that define my anxiety for me, and so I'll just see those hospital rooms again, or I'll see like the doctors' offices again, or I'll see school." (P17, 18 F, current persistent low mood)

This participant depicted these mental images through a photo of her medication drawer, which represented how recalling these memories made her feel defined by her mental health (Fig. 2).

"I remember it all too well": Traumatic memories

Young people described mental images depicting past events they had found traumatic. These autobiographical memories included abuse, life-threatening events, and difficult relationships. These events had had a strong emotional impact on participants and remembering them caused distress.

"When I close my eyes I'm trapped in that hospital. I'm seeing all the things around me just like it was back then." (P09, 15 F, current depression)

"Intoxicating loneliness": Social disconnection and connection with others

A strong subtheme endorsed by most participants was social disconnection. Young people described memories of being left out of social situations and feeling lonely, which were often drawn from childhood. For example, P08 described sitting on a playground bench alone whilst others played around them.

"If I do end up being left out or I am on my own, then I think back to what it was like in primary school... I remember me sitting on a bench alone." (P08, 14 F, current depression)

Several participants had images reflecting feelings of being different from others and not fitting in. P14 described a mental image of themselves in a group of people, seeing themselves as smaller and less significant than everyone else. They represented this image through a photo of a fruit bowl with a single tomato with a face drawn on, in which the tomato symbolised themselves not being the same as others and being the odd one out (Fig. 3).

"You could be in a massive crowd of people, and you still feel like you're the odd one out. And it's just suffocatingly lonely... I picture myself sometimes in a large group of people, and I feel like I'm smaller than them, less important than all of them." (P14, 21 F, previous depression)

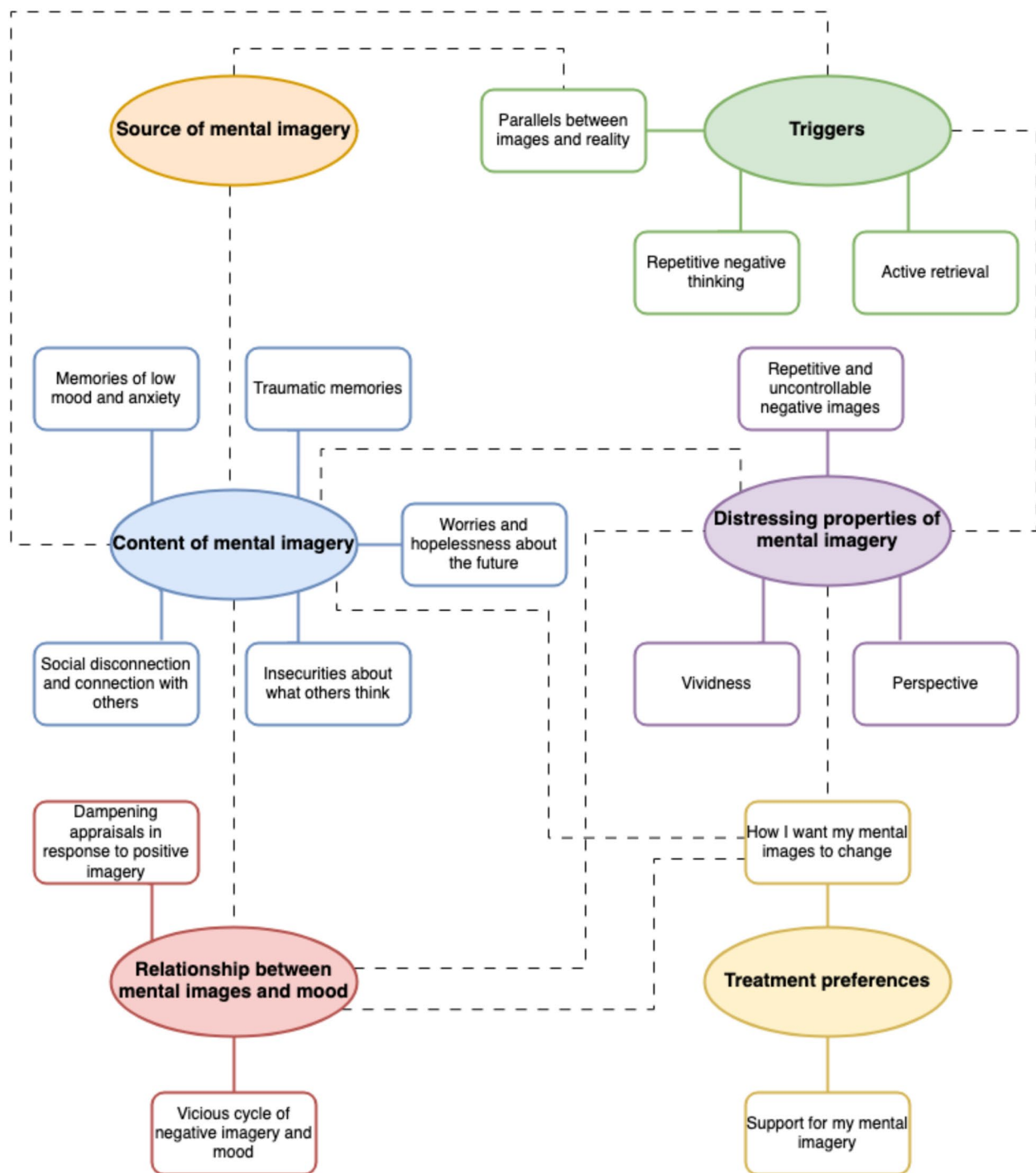


Fig. 1 Thematic map. Bold lines connect themes and subthemes. Dotted lines refer to connectivity between themes

Participants also experienced mental images of isolation, picturing themselves alone. Figure 4 represented an image a participant experienced of themselves sat alone at the back of a classroom. These images often

elicited feelings of sadness and loneliness, even when participants acknowledged they weren't alone in reality.

Whilst experiencing mental images of being alone or different from others was usually associated with



Fig. 2 Photograph of a drawer of medications (P17)



Fig. 4 Photograph of a person curled up in a ball on their own [face blurred for confidentiality] (P05)



Fig. 3 Photograph of a bowl of fruit and a tomato with a face drawn on (P14)

negative feelings, some participants described images of independence and pride in not needing to rely on others. They experienced images depicting themselves as different from others in positive ways.

"I know that I'm different to other people. I know that I have something special and I can see it in my head, I can see myself standing out from everyone else... I can see myself in a nice outfit, I can see everyone else boring and me dressed up in a nice outfit."

(P13, 21M, current depression)

Many participants recalled mental images depicting positive memories of feeling connected with loved ones, which made them feel secure in their relationships. These included images of happy memories of sitting around the dinner table with family or enjoying time with friends and significant others.

"The one with the tree and the grass represents a happy image that I see, I imagine myself sitting down with lots of my friends around me...It is a happy memory that I see myself in and sometimes almost choose to imagine it in my mind." (P04, 20 F, current depression)

One participant chose to represent their mental image of a happy memory spending time with her girlfriend with a photo of two people making a heart with their hands, reflecting the feelings of love and closeness she felt in response to this memory (Fig. 5).

**"Hyper-fixating on something that I want to change":
Insecurities about what others think**

Young people often reported concerns about their appearance and described experiencing images picturing



Fig. 5 Photograph of two people making a heart with their hands with daffodils in the background (P09)

parts of their body they didn't feel comfortable with. This included P19 who is transgender and had mental images hyper-fixating on body parts that he felt didn't align with his gender identity.

"I have had people say to me, 'Oh, you pass really well, I definitely think you pass [as being male]'. But in my mind, I don't. And I have thought about it so much that it has become exaggerated." (P19, 17M, current depression)

Insecurity-based images of the body were often exaggerated and were accompanied by worries about how they were perceived and feeling judged by other people.

"Imagining myself in a situation where things aren't going particularly well": Worries and hopelessness about the future
Young people described images relating to their anxieties about future events that caused them stress, such as exams. Aspects of these images were often exaggerated or unrealistic and reflected worst-case scenarios about what could happen.

"Sometimes I picture myself in the exam hall and looking around and there's nobody else there but me and then I just see myself panicking, not being able

to answer the questions in the exam and I hear the clock ticking really fast, not like normal clock, it's ticking really fast compared to a normal clock and obviously the hands of the clock are constantly going really fast like zooming around, like a wheel of a car. And then I see the examiner looking straight at me, not saying anything but just looking straight at me." (P07, 17 F, previous depression)

Many young people expressed feelings of hopelessness about the future and being overwhelmed by situational and emotional challenges, which was represented in their imagery. Several participants shared mental images of being trapped and unable to escape.

"[I'm] stuck in a room and I can leave that room but no matter how far I run I can always see it just ahead of me as if I'm in a loop." (P16, 16NB, current depression)

In contrast, some participants visualised hopeful prospective images. Young people imagined activities they were looking forward to or achieving goals such as graduating from university. Some imagined their future lives with homes, partners and children. This was more common in participants who had previously experienced depression, who reported that these hopeful images had replaced some of the negative images they previously experienced.

"I'm also having daydreams or mental imagery about my friends, of what I want to do with them in the future. It's more hopeful, more happy." (P18, 17 F, previous depression)

Theme 2: Source of mental imagery

Mental images were most frequently drawn from memories. Several participants indicated that their mental images closely reflected their memories, whilst others described them as being constructed from elements of past experiences. For example, one participant shared that their mental image of sitting alone at the back of a classroom was influenced by their experiences but did not represent a specific memory.

Interviewer: Would you say this is a memory?

Participant: Not exactly...but I remember that's something I would have done a lot, so I guess I'm recreating something from that time in my head. (P05, 21 F, previous depression)

Some participants described future-oriented imagery which was influenced by their own memories, their environment, and other people's experiences. A participant described a mental image of themselves graduating from

university, which seemed to be drawn from their local university and their friend's experience of graduating.

"I see myself at the steps of the university...graduating in a gown and my family and I see my friends. I don't know why, I'm not even close with this person but I've got this one particular friend...I see him there in my head, I think it's because he's just recently graduated." (P13, 21M, current depression)

Theme 3: Triggers

Young people reported several triggers for mental imagery, which are described in three subthemes: 'parallels between images and reality', 'repetitive negative thinking', and 'active retrieval'.

Parallels between images and reality

Images were often triggered by parallels between memories and real life. They could be prompted by similar situations, emotions or places that held significance in a person's memories. For example, P08 associated their bedroom with memories of feeling depressed (Fig. 6).

"If I am just lying in my bed, watching a film or something, and I'm not in a low mood or anything, my brain does go back to that and think there have been times

where I was lying in this exact position" (P08, 14 F, current depression).

Situational difficulties and the feelings they elicited could also trigger negative imagery. Arguments with family, tension with friends, and feeling lonely or left out were examples of situations that could trigger images relating to social disconnection.

"It [the mental image] reminds me sometimes of that time when I was out of place and not really talking to anyone, but now, this is similar but different situation." (P05, 21 F, previous depression)

Repetitive negative thinking

Rumination was another trigger for imagery, particularly prospective negative imagery. Participants described experiencing images when they were over-thinking at nighttime, or when their mind wasn't pre-occupied with other things.

"I tend to ruminate a lot. I'm the kind of person who wallows...So, in my head I just start to see all the bad things...and I just wallow in that." (P17, 18 F, current persistent low mood)

Feeling worried could also trigger mental imagery. Stressful circumstances such as exams were a particular source of worry that could trigger anxiety-based imagery, along with situations that made participants feel self-conscious, including getting ready in the morning or being in an environment they felt uncomfortable in.

Active retrieval

Whilst most images were triggered externally or entered awareness spontaneously, some were actively generated. This was particularly the case for positive images. Some participants reported actively thinking about specific positive future images regularly to encourage motivation or hope.

"When I feel sad, when I feel down, when I feel like I'm not making progress, I try to visualise the image to tell myself that there is always light at the end of the tunnel." (P02, 21 F, current depression)

Theme 4: Distressing properties of mental imagery

Aspects of imagery identified as being important to the experience of depression in young people were synthesised into three subthemes: 'repetitive and uncontrollable negative images', 'perspective', and 'vividness'.

Repetitive and uncontrollable negative images

Experiencing negative images frequently and repetitively contributed towards heightened distress and functional impairments. Participants reported negative



Fig. 6 Photograph of a dark bedroom (P08)

autobiographical memories or anxiety-based images playing repeatedly in their minds which contributed to difficulties sleeping or leaving the house, and feelings of frustration from being unable to stop or control them.

"I feel like I can't [control the image], I'm trapped in this viewing position and I can't do anything to change or help." (P14, 21 F, previous depression)

Perspective

For negative autobiographical memories, first-person perspective was associated with greater distress in response to the image whereas observer perspective gave participants emotional distance from the memory and their past self. Some participants reported changes in perspective as the distress associated with the image alleviated over time.

"I have almost a birds-eye view picture of it in my head ... it's like I'm watching it because I see it as something that happened to me a long time ago, but it wasn't, it was October last year. It wasn't that long ago but I see it as a completely different person to who I am now." (P13, 21M, current depression)

In contrast, anxiety-based images were most often seen through an observer perspective, however this did not seem to impact the distress felt in response to these images. Positive mental images were most often seen from an observer perspective, and participants described seeing their happy memories as an 'outsider' (P15, 19 F, current depression). It could be considered that this distance from positive images may contribute towards limited improvements in mood.

Vividness

Mental images were perceived to be vivid based on clarity, the strength of colours, and how life-like the image felt. In general, negative images were described as more vivid than positive images. Experiencing vivid negative images could be overwhelming as it consumed the senses, and some participants reported having physical reactions such as feeling unable to breathe and feeling fidgety in response to vivid imagery.

"My other senses when I'm like that are drowned out. I don't really hear or see anything 'cos I just zone out, and so I'm not hearing or seeing anything in the real world." (P17, 18 F, current persistent low mood)

Theme 5: Relationship between mental imagery and mood Vicious cycle of negative imagery and low mood

The relationship between mental images and mood varied across young people; some found that images were

triggered and influenced by mood primarily, whilst others believed that their imagery occurred first.

"My mood has an impact on the image. But the image would then have an impact on me. Definitely more so when I was in that low mood." (P10, 17 F, current depression)

Several participants reported that their mood had an impact on the characteristics of their mental images, experiencing them more frequently, vividly, intrusively or lacking control over them when their mood was worse. Emotional responses to images were stronger when participants were feeling low beforehand.

"The difficult ones are more intense when I'm feeling more depressed and I get the happier ones less often, whereas before I think perhaps I had more happier mental images and they were more under control rather than just popping up." (P04, 20 F, current depression)

Whilst there was disagreement on what came first, participants agreed that their images had an impact on their mood, and that experiencing a negative image could exacerbate low mood by influencing their thoughts and behaviours.

"I do think it's [mental imagery] an important part of depression, because I think it fuels it, it doesn't help the situation and I think seeing things through that cloud in your head, that filter, really affects the way you interact with other people as well." (P06, 21 F, current depression)

This suggests that mental images may both influence and be influenced by mood, creating a cycle that maintains depression. Data from participants who had recovered from depression indicated that as their mood improved, their images became more positive and negative images became less frequent, less vivid, and more controllable.

"Back in secondary school it [the mental image] was very strong, very apparent. Now it's a lot better. I don't see it as much at all now" (P14, 21 F, previous depression).

Dampening appraisals in response to positive imagery

Participants reported experiencing positive imagery less frequently than negative images, identifying that their images were only triggered by low mood or anxiety, rather than positive emotions.

"When I'm feeling good, I don't really get mental images... I'm more grounded in the moment." (P17, 18 F, current persistent low mood)

Several participants described dampening appraisals in response to positive imagery. Sometimes happy memories were romanticised in participant's minds as an "ideal image" (P04, 20 F, current depression). Whilst these memories tended to be associated with happiness, they were sometimes tinged with sadness that the events pictured were in the past as they fuelled comparison with the present. Some young people identified that their preceding mood could influence how they perceived these memories, with an anxious or low mood resulting in dampening appraisals.

"Sometimes I start to pick holes in what happened or not really believe it almost. I think it's not as good as I remembered it or I did something wrong then so I shouldn't remember it as a happy memory." (P04, 20 F, current depression)

Theme 6: Treatment preferences

Two subthemes were generated regarding treatment preferences: 'support for my mental imagery' and 'how I want my mental images to change'.

Support for my mental imagery

Most participants, although not all, wanted support to better understand and cope with their mental images, particularly given the sometimes pervasive impact of these images on their daily life.

"I definitely would [like help with mental images] because these images, there's so many of them and they run my life." (P06, 21 F, current depression)

In terms of the format of delivery, there was a strong preference for individual treatment, for face-to-face delivery, and for multiple sessions. Young people identified feeling vulnerable about disclosing their mental images, wanting ample opportunity to fully explore their images, and critically, to allow time to build a strong trusting relationship with practitioners.

"It's building up a level of trust, loyalty, and friendship before I start talking properly through." (P09, 15 F, current depression)

However, it was acknowledged that group treatment may be advantageous for creating a sense of community to reduce feelings of isolation and improve confidence. Young people also emphasised choice about which elements of an intervention they engaged with, and that imagery work could be part of a wider package of support addressing multiple aspects of low mood or depression.

In contrast, some participants were either not interested or identified challenges around receiving support for their mental imagery. These views were more often

shared by those who described prior unhelpful treatment experiences, and those with a strong sense of needing to be responsible for their own recovery without support from others.

Articulating the content of mental images verbally was identified as a possible barrier to receiving support, however several participants suggested that incorporating creative photo-elicitation or drawing methods into treatment could help to overcome this.

"It's hard to explain a mental image... I think it's much easier to be able to actually see the photo and explain it from that rather than just explaining what I would see in my head." (P04, 20 F, current depression)

How I want my mental images to change

Participants wanted treatment to focus on the properties of negative imagery that could make them feel aversive, such as frequency, vividness, and controllability.

"I'd like them to be less frequent and become less realistic... I feel like if it was addressed, and if I had had support with it, I might have been able to learn how to control them." (P15, 19 F, current depression)

Learning about their mental imagery and acquiring strategies to better cope with and respond to negative images were identified as important treatment goals. Exploring the meaning of negative images was suggested as a strategy that might reduce their emotional impact.

"Being able for me to really understand the images. I think sometimes you see these images, but you're not fully aware of what you even think they mean." (P09, 15 F, current depression)

In addition to targeting negative imagery, young people thought treatment could focus on increasing the frequency of positive imagery to improve hope for the future and rebalance the ratio of positive to negative imagery.

"It would have been nice to get a little glimmer of something good going, because when you see the same low, persistent thing over again, it does build up on you, you bottle it up quite a bit." (P11, 21 F, previous persistent low mood)

Some participants suggested that this may involve actively generating positive images that they could readily bring to mind to replace the negative images they currently experienced.

"Rather than building on current images that you have and addressing those, creating like an over-riding one, a very big, expansive, in-depth image for

you to close your eyes and see." (P17, 18 F, current persistent low mood)

Discussion

This is the first qualitative study to examine mental imagery of the self in young people with lived experience of depression, and the first to explore mental imagery using photo-elicitation. Themes reflected young people's experiences of mental images of the self, including the content, where they come from, how they occur, and how they may contribute towards distress. In terms of having support for their imagery, young people highlighted preferences for both the delivery and targets for intervention. The findings suggest that young people experience the valence of imagery as being largely negative, fuelling a vicious cycle of negative images and low mood which may maintain depression. When positive imagery was experienced, some participants reported dampening appraisals which reduced positive emotional responses that may further contribute towards low mood.

Our findings identify cognitive processes (i.e. preferential retrieval of negative over positive content, dampening appraisals, and rumination) that are common in people with depression. The role of memory was interwoven across many aspects of the experience of mental images of the self, as illustrated by its role as a trigger for images occurring, as a source of imagery, and through the content of mental images. The higher ratio of negative images experienced by participants may be due to systematic biases in the self-memory system that make accessing positive autobiographical memories difficult for people with depression, leading to an over-saturation of negative images of the self [24, 25]. This model may also explain why participants tended to experience negative mental images of themselves intrusively, whilst positive mental images of the self were more often actively imagined. Our results align with previous quantitative research which has found correlations between depression severity and reduced positive and increased negative imagery [11, 12]. Furthermore, even when positive imagery was generated, dampening appraisals were often present. Whilst this is the first study highlighting the link between dampening appraisals and mental imagery, this is consistent with previous research identifying dampening appraisals more generally as a contributor towards depression [26, 27]. Our findings suggest that imagery-based rumination about loneliness and other negative content may facilitate the relationship between mental images of the self and depression. For example, a recent network analysis demonstrated that in adult populations, loneliness did not have a direct relationship with depression but was mediated by rumination about loneliness [28].

This study highlighted several distressing imagery properties that participants associated with their depressive experience. For example, participants reported that vividness was linked to emotional intensity, with stronger vividness being linked to higher levels of associated emotions for both negative and positive images, consistent with previous quantitative research in young people [15, 29]. Participants felt that imagery perspective was also connected to emotional intensity, with first-person perspectives associated with stronger emotional responses. Notably, positive imagery was more commonly experienced through observer perspective, whereas negative imagery was predominantly associated with first-person perspective. Previous research suggests that this would enhance the emotional intensity of negative imagery whilst reducing positive affect in response to positive imagery [30, 31]. Furthermore, participants associated observer perspective with feelings of disconnection from the self and others, potentially contributing towards dampening appraisals of positive imagery. Interestingly, the heightened emotional intensity that participants experienced with first-person perspective did not apply for anxiety-based images, for which an observer perspective had a more powerful impact of emotion. This is consistent with previous research examining mental imagery perspective and social anxiety [32]. Understanding the differential characteristics of mental images associated with anxiety compared with depression could be an important avenue for future research. Our research could also be extended by comparing age-matched peers with no history of depression or anxiety to further understand differences in mental imagery of the self between these groups.

Our findings have several implications for practitioners working with young people with low mood and depression. Promising interventions involving generating positive imagery or rescripting negative images already exist, but are not currently used widely in clinical practice, especially with young people [13]. Our findings illustrated that young people would value targeting mental images of the self, particularly enhancing the frequency and vividness of positive images, reducing frequency and vividness of negative images, and improving the controllability of negative images. Interventions aiming to increase positive imagery could also target dampening appraisals to improve positive affect [33]. Furthermore, given the importance of memory identified across many domains of the experience of mental images of the self, treatments that target memory (such as imagery rescripting or memory specificity training) could have potential for improving the valence and experience of mental images of the self in young people with depression (e.g. [34]).

These findings and preferences for support should be integrated into the design of novel treatments targeting low mood and depression and be rigorously tested to understand the effectiveness of these interventions in young people. Aligning with previous research, participants stressed the importance of connection with others through face-to-face and long-term treatment delivery, and individual choice to allow young people to best engage with support [35]. This is important to acknowledge given the movement towards remote, online, and app-based interventions within the NHS [36]. Young people identified describing their images as a challenge but suggested using creative methods like photos or drawings to facilitate this. These methods should be considered in the development of interventions to support young people to communicate their inner experiences.

A strength of this research was the use of photo-elicitation and semi-structured interviews, which allowed us to gain a rich understanding of the mental images that participants experienced. Young people engaged well with this methodology, and the use of photos enriched the interview process by encouraging participants to gain deeper insight into a complex cognitive construct that may otherwise have been less accessible. These detailed qualitative findings may play a role in informing the development of theoretical frameworks that explain the relationship between mental images of the self and mood, particularly relating to the role of memory and mental images of the self in depression. In addition, this study may support the generation of hypotheses for quantitative research, for example examining causal relationships between mental images of the self and mood. A limitation of the study is the over-representation of female participants and those based in the south-east of England, which may have shaped our findings based on the specific cultural and gender-based contexts of the participants and influence the transferability of our results. Moreover, it is unclear whether the results of this study are specific to young people with lived experience of depression and low mood or whether these findings would also apply to other clinical groups. Our findings around the relationship between mental imagery and mood would imply that this could be specific to young people with depression, but given the novel nature of this research further research would be necessary to determine whether this relationship holds across non-depressed samples. Furthermore, our study identified anxiety-based imagery of bodily insecurities and worries about the future, which may reflect high rates of comorbid anxiety (52.6%) within our sample. This was expected given the high rates of comorbidity within

young people, however this makes it more challenging to disentangle the role of mental imagery in depression from anxiety [37, 38].

Conclusions

In summary, this study drew upon the rich experiences of young people with lived experience of depression and persistent low mood to understand their experiences of mental images of the self. We identified negative autobiographical memories, and images relating to anxiety and the future. Perspective, repetition, controllability, and vividness were properties of negative imagery that contributed towards distress, and treatment goals included reducing negative imagery and increasing positive imagery. Clinicians should be aware of the role of mental images of the self in the maintenance of depression and consider utilising interventions to improve imagery.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12888-025-07072-z>.

Supplementary Material 1

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Authors' contributions

RLD, KJL, VP, and FO designed the study and contributed to the protocol. RLD led the recruitment and data collection, supervised by KJL, VP and FO. RLD conducted the qualitative analysis, and all authors collaboratively reviewed the themes. RLD wrote the manuscript, and all authors edited and have approved the final manuscript.

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Data availability

The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the University of Sussex Research Ethics Committee (ER/RD416/2) and was conducted in compliance with the Declaration of Helsinki. All participants consented to participate in the study, in addition to consent from a parent/carer if aged under 16.

Consent for publication

Participants consented to their data being used in publications and gave optional additional consent for their photos to be published.

Competing interests

The authors declare no competing interests.

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