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Review article

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Social expectations in depression

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Abstract

Individuals with depression often exhibit distortions in interpersonal perception and behaviour that are tied to negative expectations about social outcomes or interpersonal self-efficacy. These negative social expectations connect cognitive and interpersonal facets of depression and are linked to the development and maintenance of depressive symptoms. In this Review, we summarize how social expectations form and change in individuals with depression and how they shape the onset, course and severity of depressive symptoms by influencing interpersonal perception and behaviour. In particular, we address the question of why dysfunctional social expectations tend to persist despite contradictory evidence. Drawing from contemporary research on belief updating, extinction learning and prospection, we integrate several recommendations for preparing, implementing and following up on interventions that target the revision of dysfunctional social expectations in individuals with depression. We discuss whether differences in social expectations can explain the variability of interpersonal symptoms and symptom trajectories in individuals with depression, and suggest future research directions focused on exploring dynamic changes in response to the social environment.

Sections

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Introduction

Expectations are subjective estimates of the probability that future events or experiences will occur[1,2]. If these subjective estimates are related to social outcomes or interpersonal self-efficacy, they are called social expectations[3]. Social expectations pertain to how a person expects to be treated by others ('They will reject me'), their interpersonal experience ('It will hurt meeting them'), their own behaviour in social situations ('I won't get a word out'), and their likelihood of achieving social goals ('I won't be able to assert myself')[3–5]. Social expectations affect various aspects of a person's life and overall mental health[6], including the quality of their closest relationships[7], and whether a person sees meaning in their life[8].

Having negative expectations and lacking positive expectations are core features of depression[2,9]. These expectations are predictive of important clinical outcomes, such as suicidal behaviour, the patient–therapist alliance, and treatment outcome[10,11]. Similarly, individuals with depression often have pessimistic and sometimes unrealistic expectations about their social environment and their ability to shape relationships according to their own goals and needs[9]. For example, people with depressive symptoms often anticipate social rejection[6] and fear losing close relationships if they do not seek reassurance[12]. Expectations influence various cognitive functions ranging from basic stimulus processing to higher cognitive abilities[13,14], and therefore negative social expectations might contribute to biased cognitive processing of interpersonal experiences in depression[15] and impair the interpersonal behaviour of people with depression[16]. Such biases and impairments might promote interpersonal stress in the future[17]. It is therefore not surprising that negative social expectations are associated with relevant clinical outcomes in depression such as interpersonal stress[18] and suicidality[19–21].

There is a well-documented link between depressive symptoms and diverse types of expectation, including low self-efficacy expectations[22], generally negative expectations towards the future[23], low performance expectations and low self-efficacy expectations in dealing with negative emotions[4]. Research has also highlighted the relevance of interpersonal symptoms and social expectations in depression[6,16,24,25]. For example, negative social expectations have been longitudinally associated with the development and progression of depressive symptoms[26,27]. However, the mechanisms underlying these relationships and the part social expectations play in the treatment of depression are still underexplored. This lack of research is unfortunate, because expectations represent the subset of cognitions that fundamentally influence future behaviours[1].

In this Review, we cover a broad range of findings in expectation and depression research to provide a comprehensive analysis of social expectations in depression. We first elaborate on the formation of dysfunctional social expectations, examine how they develop and change in depression, and discuss why they sometimes persist despite contradictory evidence. Next, we review findings from cross-sectional, longitudinal and interventional studies to describe how dysfunctional social expectations affect the onset, course and severity of depressive symptoms. In reviewing this literature, we considered studies exploring the relationship between depressive symptoms and relevant social expectations, and therefore included diverse research fields, sample compositions, measures and research designs. We then integrate findings from research syntheses on belief updating, extinction learning and prospection to inform how dysfunctional social expectations can be effectively modified in clinical settings, and illustrate the potential benefits of incorporating dysfunctional social expectations when building therapeutic alliances and tailoring psychological interventions. We conclude by summarizing the current status of the field and making suggestions for future research.

Social expectations formation

Similar to the concepts of 'irrational' or 'dysfunctional' beliefs[28,29], social expectations can be considered dysfunctional if they obstruct an individual's adaptation to their social environment, inhibit the achievement of their interpersonal goals and – at least in the long run – negatively affect a person's mental health or cause substantial suffering. This definition applies to common social expectations held by people suffering from depression[29] (Box 1).

Evidence from diverse fields within psychology suggests that social expectations develop through a complex interplay of learning experiences (for example, based on interpersonal situations or stimuli), social influences (for example, based on peer behaviour or observing others' behaviours), and individual differences (for example, based on personality traits or neurocognitive factors) throughout the lifespan[30–32].

Regarding learning experiences, experimental studies with student samples have shown that dysfunctional social expectations arise if interpersonal situations or behaviours are repeatedly associated with aversive or unpredictable stimuli[33–35]. This result largely aligns with research on fear conditioning[36]. Negative interpersonal situations featuring these stimuli, such as interpersonal conflicts, are prevalent in depression and can also be actively generated through its symptoms[16,37]. For example, disclosing more negative feelings during conversations or excessively seeking reassurance from close others might lead to interpersonal conflicts or rejection over time[16,17,37]. Roughly half of people with depression report a history of childhood maltreatment[38], which can contribute to the development of biased social expectations[39]. For instance, self-reported exposure to past parental aggression was positively associated with negative expectations regarding an upcoming discussion task with the romantic partner in an adult sample[40]. There is complementary evidence that social expectations influence the learning of interpersonal contingencies in future situations; for example by modulating attention and feedback processing[41–43]. However, research so far has yielded inconsistent results in this regard[35].

Social influences might also modulate the formation of social expectations. Studies on social learning[44] or 'peer contagion'[45] suggested that observing others experiencing negative social outcomes or having close contact with individuals experiencing mental health problems can foster the development of dysfunctional social expectations. For instance, an experimental study showed that children's fear-related beliefs about performing in front of others increased after watching a negative animated film (portraying a schematic basketball player failing to score and negatively evaluating himself while being observed by three judges) compared to a neutral one[44]. Moreover, a study of adolescents showed that peers' depressive symptoms predicted increases in adolescents' depressive symptoms over time[45]. This relationship was partially mediated by increases in adolescents' failure anticipation – although failure anticipation as measured in this study did not necessarily pertain to social situations. Overall, there is a paucity of research investigating the effects of social factors (such as group norms) on social expectations within the context of depressive symptoms.

Finally, individual differences, for instance in personality and neurocognition, also have a role in forming and modulating social

Box 1 | Conceptualizing and measuring expectations in depression

The concept of 'expectation' is frequently used in clinical psychology and cognitive science. It is addressed across theories and psychological subdisciplines, and various psychological phenomena can be attributed to the presence and dynamics of expectations[1,13,212]. Many researchers agree that expectations are subjective estimates of the probability that certain stimuli will follow one another (classical conditioning), or that certain behaviours will lead to certain consequences (operant conditioning)[1]. The concept differs from related constructs such as attitudes or hopes, in that expectations apply to future situations and focus on probability rather than evaluation or desirability of events[213,214]. Expectations can vary in their degree of specificity from generalized ('I'll always fail') to specific ('I won't pass the exam next week')[31], and are subject to a certain degree of certainty ranging from high ('She'll leave me for sure') to low ('She will probably leave me soon if my relationship with her brother doesn't improve')[31].

Despite these agreements about the concept of expectations, there are inconsistent views on the extent to which these subjective predictions should be considered accessible to conscious experience, and how relevant they are for human learning[1,215]. The use of vague concepts such as 'representation', 'contingency awareness', 'prediction' or 'anticipation' further complicates the establishment of a clear definition. Expectation research also varies in how expectations (and expectation changes) are operationalized and assessed, including self-report measures and neurophysiological indicators[215,216]. Moreover, traditional conceptions of expectations are increasingly connected to formal concepts from computational neuroscience[65,217].

Identifying dysfunctional social expectations in depression can be challenging and context-dependent[28,29]. Not all negative or distressing social expectations are necessarily dysfunctional. For example, they might be beneficial if they result in someone leaving an abusive relationship ('He will become violent again'). Conversely, positive social expectations can also cause interpersonal problems, particularly if they are overly egocentric or deviate substantially from reality ('My friends will understand that I have to cancel our get-together again; after all, they know I've got urgent and important things to do').

Currently, there is no comprehensive measure with which to assess the wide range of dysfunctional social expectations usually observed in people with depression. Instead, there are numerous self-report measures that directly or indirectly target specific types of dysfunctional social expectation. These measures often originate from research on social anxiety, personality disorders, attachment and schema theory, suicidality, intimate relationships, or trans-diagnostically relevant constructs such as rejection sensitivity, trust, paranoid thinking, fear of negative evaluation or self-efficacy[86,170,218–225]. They often incorporate multiple constructs or contain beliefs that, while not always future-orientated, imply forward-thinking perspectives (for example, 'These days, the people in my life would be better off if I were gone'[224] or 'People would harm me if given an opportunity'[86]).

Clinical researchers have also utilized psychophysiological, neurophysiological, and behavioral indicators (for example, skin conductance reactions, event-related potentials, and reaction times) along with single-item expectancy ratings to study expectations and expectation change in response to social feedback[48,226–228]. However, these measures were not primarily designed to assess dysfunctional social expectations related to depression.

expectations. For example, a strong negative relationship was identified between dispositional optimism and situation-specific dysfunctional expectations (including social rejection and low social support expectations) in people with depression ($r = -0.52$) and a student sample with subclinical symptoms ($r = -0.71$)[46,47]. Dispositional optimism at baseline was also negatively related to dysfunctional expectations at a one-year follow-up in the student sample, although this longitudinal relationship was weaker ($r = -0.26$). Similarly, a functional magnetic resonance imaging study[48] identified less activation in medial prefrontal areas of the brain in individuals with subthreshold depression compared to healthy controls when anticipating positive feedback. This group also exhibited increased activity in the dorsal anterior cingulate cortex after experiencing unexpected social rejection, and diminished ventral striatum activity following unexpected social acceptance.

In sum, the literature on the formation of social expectations in depression suggests that these expectations emerge from a complex interplay of learning experiences, social influences and individual differences. However, research in this area is still nascent and findings are limited.

Expectation change and persistence

Expectation violations occur when events or situations contradict a person's expectations[32]. Psychological interventions that aim to change dysfunctional expectations generally rely on learning experiences that contradict ('violate') an individual's previously formed expectation to facilitate new learning[30] (Fig. 1). However, findings on inhibitory learning suggest that once an association is learned, it cannot simply be erased through contradictory experiences[49]. Instead, learned associations coexist with new inhibitory associations that arise from those experiences[49]. Applied to social expectations, dysfunctional social expectations might therefore sometimes persist or recover despite repeated expectation violations — for instance, if the interpersonal context changes[49].

Expectation violations are relevant to expectation change. An experimental study in a non-clinical sample showed that previously induced situation-specific expectations of social rejection can be altered through repeated expectation-violating experiences[33,34]. Similarly, two studies using an imagined social interaction task[50,51] showed that participants (a subclinical sample and a sample with minimal depression levels) changed their negative social expectations about a specific social situation (a party invitation from someone they knew from school) when they imagined expectation-violating social experiences. The depression sum scores had no effect on expectation change.

However, expectation violations are sometimes insufficient to correct dysfunctional expectations[52], and maximum expectation violation does not necessarily result in maximum expectation change[50,51,53–55]. These observations apply especially to depression and social expectations. Depressive symptoms often involve stubbornly persistent dysfunctional expectations[55–63]. For example, depressive symptoms were

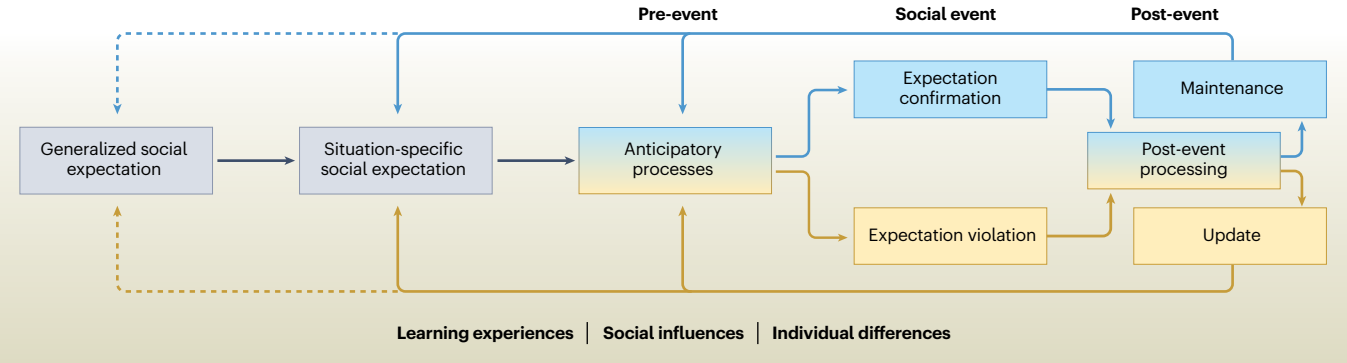

Fig. 1 | Conceptual model of social expectation formation, change and persistence. Generalized and situation-specific social expectations are formed through a complex interplay of learning experiences, social influences, and individual differences[30,31]. Social expectations shape anticipatory processes (for example, attentional focus) that emerge before a specific social event. During the social event, distortions in perception and behaviour can occur that might confirm or contradict ('violate') these expectations. Social expectations will either be maintained (blue) or updated (yellow) depending on the subjective experiences and post-event processing. Typically, multiple violations of situation-specific expectations are required to alter generalized social expectations (dashed arrows).

linked to reduced acceptance of unexpected positive social feedback in a subclinical online sample study[55]. Moreover, social experiences often enable a broader spectrum of interpretation (expectation-maintaining interpretations) than other situations owing to their high degree of ambiguity[64]. Finally, if expectation violations are extremely contradictory, people with depression will tend to maintain their initial expectations (for example, by considering such experiences an exception to the rule)[65,66].

The diminished responsiveness to positive expectation violations in depression has been discussed in terms of cognitive, behavioural, affective and motivational factors, and has also been linked to the concept of reward sensitivity[2,66]. For instance, in a series of experimental studies[56,58,67,68], individuals with depressive symptoms struggled to utilize unexpected positive performance feedback to correct already formed negative performance expectations. However, one of the studies observed only a descriptive trend in this direction[50] and another did not find a relationship between the severity of depressive symptoms and expectation updating in a sample of inpatients[67]. A related study found reduced expectation updating in response to desirable information of people with depression relative to healthy people (controls) when estimating the probability of experiencing adverse life events[69]. Another study using a non-clinical sample found that depressive symptoms were associated with little revision of beliefs about negative self-traits (for example, being spiteful) in response to positive social feedback, but were unrelated to change in beliefs about positive self-traits[70].

The literature offers several explanations of why dysfunctional expectations tend to persist in the context of depressive disorders. These explanations include attentional, perceptual, interpretational, attributional and memory biases[15,24], defensive cognitive strategies referred to as cognitive immunization (for example, reframing expectation violations as exceptions to the rule), deficient reward processing and state negative affect[2,66], emotion regulation deficits, cognitive deficits and lack of cognitive control[15,24], motivational obstacles and accuracy-independent outcomes[2,71], biases in metacognitive confidence[72,73], poor generation and evaluation of possible futures[74], and 'return of fear' (for example, return of extinguished responding after context changes)[49]. At the behavioural level, individuals with depressive symptoms often exhibit inhibited behaviours in social situations, such as social avoidance, withdrawal and shyness[16,24,25], which can lead to an excessive generation of negative social experiences (or simply a lack of new social experiences) and contribute to maintaining dysfunctional social expectations[2]. Conversely, individuals with depressive symptoms might also display disinhibited behaviours such as excessive seeking of reassurance and negative feedback, or expressing anger in an uncontrolled manner[16,24,25]. These behaviours can negatively affect future interpersonal experiences[17,25] and in turn undermine the revision of dysfunctional social expectations. Moreover, distorted interpersonal perception and behaviour might promote paranoid symptoms (including paranoid social beliefs and social expectations) over time[75,76]. For example, negative social experiences might lead to increasing feelings of abandonment and decreasing opportunities for corrective feedback from the social environment over time[75,76].

In sum, research shows that individuals with depressive symptoms have difficulty in changing dysfunctional social expectations, even after experiencing expectation-violating events. Although preliminary evidence suggests ways to optimize the adjustment of these expectations in individuals with depressive symptoms, potential influencing factors remain understudied or have yielded inconsistent results.

Links to depression progression

In this section, we review cross-sectional, longitudinal, and interventional studies to explore how dysfunctional social expectations influence the onset, course, and severity of depressive symptoms.

Onset

Examining whether dysfunctional social expectations are associated with the onset of depressive symptoms can inform aetiological models of depression and deepen understanding of the role of treating dysfunctional social expectations to prevent depression.

A cross-sectional study discovered an association between a measure that included assessment of expectations of bad treatment and low understanding by other people and an earlier self-reported onset of mental disorders, including depression[77]. Related cross-sectional studies that explored established risk factors for depression, such as low social support[78,79] or interpersonal difficulties[80], also supported the association

between dysfunctional social expectations and the onset of depressive symptoms. For example, associations were reported between measures that included assessment of dysfunctional social expectations and low relationship satisfaction[81], low perceived social support[82], low social self-efficacy[83], poor social functioning[84], submissive behaviours[85,86], and low prosociality[87]. Dysfunctional social expectations have also been linked to interpersonal difficulties[88], social anxiety[89], feelings of loneliness[90] and social withdrawal and hostility[91,92].

Consistent with these cross-sectional findings, longitudinal studies provided evidence that dysfunctional social expectations preceded and prospectively predicted depressive symptoms. This relationship has often been observed for measures that incorporated assessment of expectations of social rejection[26,27,93], which might contribute to the onset of depressive symptoms by increasing interpersonal stress[18], social withdrawal[94], loneliness[95], emotion-regulation deficits[93], rumination[96] or biased informational processing[97]. But other studies only partially supported these findings[98,99]. Most of these studies indicated a bidirectional bivariate relationship suggesting that depressive symptoms can also prospectively predict expectations of social rejection[26,27,94–96].

Expectations that other people cannot be trusted have been associated longitudinally with poorer mental health in general[100,101] and with the development of depressive symptoms specifically[102,103]. However, some studies suggested a curvilinear relationship[104] or reported contradictory results[105]. Similarly, some evidence suggested that paranoid social beliefs implying paranoid social expectations (for example, 'People would harm me if given an opportunity') preceded depressive symptoms[76,106]. However, there was also evidence for a bidirectional, reversed or no such longitudinal relationship[76,107–115]. These investigations often used broad measures of symptoms also encompassing other psychosis spectrum symptoms, and investigated broad clinical samples including people with psychosis.

Measures that included assessment of expectations of becoming a burden to others also predicted depressive symptoms (particularly hopelessness and suicidal tendencies)[60,116–118]. This relationship might be attributed to increased interpersonal shame[119] or the erosion of meaning in life[120]. However, some studies detected no prospective association with depressive symptoms[121].

Similarly, measures that incorporated assessment of low social self-efficacy expectations predicted depressive symptoms in some studies[122,123] (possibly through increasing loneliness[122]), but these associations were not significant ($P < 0.1$) in other cases[124]. There was also evidence of depressive symptoms predicting low self-efficacy expectations[125].

Researchers have also used interventional studies to explore the causal relationship between social expectations and the occurrence of depressive-like experiences and behaviours. For example, inducing low self-efficacy expectations for an anticipated social interaction resulted in a more pronounced depressed mood in female undergraduates than did inducing high self-efficacy expectations[126]. In another interventional study[127], individuals with low self-efficacy expectations about becoming acquainted with a stranger reported less comfort and social skills during the interaction than individuals with high self-efficacy expectations. They also exhibited more observer-rated pauses in the conversation, glanced away from their partners more often, had softer voice volume and were rated as less confident. Moreover, individuals with low self-efficacy expectations considered negative social feedback more accurate and rated external factors as more influential when receiving positive social feedback compared with those with high self-efficacy expectations. These deviations in self-perception, interaction behaviour and evaluating social feedback resemble depressive symptoms[16,24,25]. Furthermore, distortions in the cognitive processing of stress experiences and in the biological stress response have also been linked to developing depressive symptoms[128]. For example, in another study, the induction of low-efficacy and low-control expectations compared with high-efficacy and high-control expectations before facing a social stressor resulted in a more negative anticipatory stress appraisal, increased hypothalamic–pituitary–adrenal axis activation, and poorer stress regulation in a sample of young female students[129].

Having few positive expectations for future events, experiencing increased worrying and having low positive affect are associated with the onset of depressive symptoms[9,130,131]. A study using an imagination exercise involving positive imaginations and expectations for future social relationships reduced stressful response, decreased worrying and increased positive affect in non-depressed students compared with a control group[132]. Other studies showed that triggering anticipatory rumination about upcoming social stressors resulted in stronger endorsement of negative interpretations of social events, or elevated or maintained state anxiety compared to a distraction condition in samples of students and children varying in social anxiety[133–135]. Particularly when combined with high social anxiety or trait anxiety, anticipatory rumination about upcoming social stressors might also promote negative expectations about one's personal appearance, internal attentional focus, maladaptive self-beliefs and catastrophic thinking relating to the social stressor[133–135]. Such characteristics are associated with an increased risk of depression[9,16,24,25].

In sum, the causal relationship between dysfunctional social expectations and the risk of developing depressive symptoms is complex, with some studies indicating mediator variables and bidirectional or curvilinear relationships. An additional complication arises from inconsistent controlling for baseline depressive symptoms across studies, which raises questions about whether dysfunctional social expectations contribute to a worsening of existing symptoms or to their onset. Despite these complexities, the overall findings suggest that dysfunctional social expectations contribute to the onset of depressive symptoms.

Course

Approximately half of people who have an initial depressive episode experience recurring episodes[136], and a substantial proportion develop persistent symptoms, posing challenges for treatment[137]. Research suggests that interpersonal dysfunctions contribute to the persistence and recurrence of depressive symptoms after their initial onset[16,17,25]. Dysfunctional social expectations might contribute to these mechanisms.

Cross-sectional studies have shown an association between measures that included assessment of expectations of social rejection and depressive symptoms that might be mediated by interpretation biases and dysfunctional interpersonal behaviors related to social stimuli and situations[97,138,139]. Expectations of social rejection have been found in at least 40% of a sample of outpatients classified as having 'treatment-resistant' depression[140] and have been associated with biases in self-referential encoding in recalling negative socially relevant material[141], low social self-efficacy and social avoidance[139], involuntary submissive behaviours[85], high interpersonal difficulties[88], reactive aggression and withdrawal[91,142], and poor prosocial behaviour[87]. These distortions contribute to maintaining and exacerbating depressive symptoms[17] and have been associated with a more chronic course of

the disorder[143]. Similar observations can be made about other types of dysfunctional expectation, such as the expectation that other people cannot be trusted[81], paranoid social expectations[84,86], and expectations of being negatively evaluated by others[85]. Given the protective influence of perceived social support[79] and the interpersonal difficulties associated with interpersonal inhibition[16], such expectations probably play an important part in the progression of the disorder.

Moreover, measures that included assessment of expectations of becoming a burden to others were associated with more persistent depressive symptoms in a sample of adolescents[144]. Complementarily, depressive symptoms have been associated with reduced revision of negative social expectations after disconfirmatory positive information[61–63]. This finding aligns with research emphasizing the role of cognitive inflexibility[145], biased informational processing[15], and blunted reward response[146] in the course of depression. It is plausible that the reduced revision of dysfunctional social expectations in response to new positive social information negatively influences the course of depressive symptoms over time[66]. Some experimental studies investigating nonclinical samples support these findings[68], although others found no such relationship[51,147] or report a valence-independent association between depressive symptoms and reduced expectation revision[148].

The findings that dysfunctional social expectations can predict depressive symptoms[26,27,103,113] and vice versa[26,27,103,108,113,149] suggest self-reinforcing cycles between depression and dysfunctional social expectations. For example, measures of subclinical paranoid beliefs implying paranoid social expectations predicted depressive symptoms six months after baseline in a large population study, and these depressive symptoms then predicted paranoid beliefs and expectations after two years[76]. Such self-reinforcing cycles might be mediated by fluctuations in self-esteem, anxiety and feeling close to others[114,150–152]. The effect of depressive symptoms on dysfunctional social expectations might be partially mediated by a decline in interpersonal skills, increased interpersonal difficulties and the loss of social support[16,17,25].

The longitudinal associations might also influence treatment outcomes. For example, measures including assessment of expectations of social rejection at the beginning of treatment independently predicted depressive residual symptoms in men with depression at a six-month follow-up after treatment[153]. In another study, higher levels of dysfunctional social expectations (measured in combination with other constructs 20 weeks after baseline assessment) were associated with a poorer treatment outcome and less frequent remission 52 weeks after baseline assessment in people with depression[154].

As with research on depression onset, interventional studies also inform the causal relationship between social expectations and depression course. For example, expectations of social rejection have been related to increased attention to sad faces after an interpersonal rejection manipulation compared with baseline[155]. Increased attention to negative social stimuli could have a negative effect on the course of depressive symptoms; for example by distorting the perception and processing of subsequent social information and therefore promoting social avoidance[24]. In another study, inducing a sad rather than a happy mood through negative interpersonal memories led to reduced social self-efficacy expectations in a small sample of students[156]. Low social self-efficacy expectations might negatively influence the course of depressive symptoms, for example, by promoting interpersonal inhibition and submissiveness[16,143].

Moreover, reducing beliefs implying expectations of becoming a burden to others through a three-session intervention compared with a repeated contact control condition predicted a lower six-month incidence of suicidal ideation in a community sample group of people with elevated levels of depression, suggesting a more favourable symptom trajectory[157].

In sum, dysfunctional social expectations can contribute to maintaining and aggravating depressive symptoms over time and to the overall chronicity of depression. However, only a few studies have examined dysfunctional social expectations with regard to the recurrence, frequency, or duration of depressive episodes, which limits the generalizability of the results.

Severity

High severity of depressive symptoms is associated with low psychosocial functioning and severe psychosocial impairment[158]. Examining the extent to which dysfunctional social expectations influence the severity of depressive symptoms as well as psychosocial functioning and subjective well-being might clarify whether treating these expectations should be given higher priority in depression prevention and treatment.

Several cross-sectional studies conducted with diverse sample compositions suggested that higher expectations of social rejection are associated with higher levels of (and more severe) depressive symptoms and with higher levels of interpersonal dysfunction[83,159–162], but some studies yielded no such association[163]. Similarly, measures that included assessment of paranoid social expectations and expectations of becoming a burden to others were associated with increased severity of depressive symptoms, particularly if operationalized by suicidal tendencies[164–167] — some with exceptions[168]. Similar relationships were reported about dysfunctional social expectations related to interpersonal hopelessness[169,170]. Associations have also been suggested between dysfunctional social expectations and greater functional impairment and poorer well-being[84,171,172], and increased severity of specific symptoms relevant to depression, such as brooding[173], low self-esteem[174], social withdrawal[175], hopelessness[176], loneliness[177] and insomnia[178].

As with depression onset and course, longitudinal findings provide substantial evidence of a bidirectional relationship between measures that incorporated assessment of dysfunctional social expectations and the severity of depressive symptoms over time. We note that there was a prospective effect on suicidality[60,116–118]. This result highlights the relevance of dysfunctional social expectations in severe depression because a higher degree of suicidality has been linked to higher depressive symptom severity, a higher percentage of unemployed people with depression, a higher likelihood of recurrent episodes, the presence of psychotic features, weaker treatment response and higher treatment resistance[179].

For instance, a study of longitudinal smartphone-based assessments discovered a substantial prospective effect of measures implying expectations of becoming a burden to others on suicidal ideation in a high-risk adolescent sample[116]. Similarly, a measure that included assessment of expectations of becoming a burden to others raised the risk of prospective suicide attempts among soldiers reporting lifetime suicidal thoughts during and after deployment[118]. In another smartphone-based study among college students[20], expectations relevant to interpersonal hopelessness predicted suicidal tendencies. Consistent with these findings, these expectations predicted the severity (and partly the presence) of suicidal ideation at a one-week follow-up in another study[21]. Similarly, the interaction between depressive symptoms and a measure that included assessment of paranoid social expectations predicted suicidal thoughts at the 12-month follow-up in another study investigating a cohort of people who had experienced a

first episode of psychosis[180]. Finally, dysfunctional social expectations have been shown to predict subsequent functional impairments in the interpersonal domain[181] and decreased well-being[182]. Moreover, they have been prospectively associated with interpersonal shame[119], increased rumination[96], social withdrawal[94], hopelessness[117] and loneliness[95] – all highly prevalent symptoms in depression.

Interventional studies can also inform the causal relationship between dysfunctional social expectations and depressive symptom severity. For example, a measure that included the assessment of expectations of social rejection partially mediated the association of depressive symptoms with state guilt in an undergraduate student sample during a series of social exchanges within a socioeconomic game[183]. Relatedly, in an online sample, a measure that included the assessment of expectations of social rejection predicted guilt ratings after imagining hypothetical social scenarios with no potential risk of becoming rejected by a friend[184]. Meta-analytic findings indicated a substantial association between feelings of guilt and the severity of depressive symptoms[185]. Similarly, a measure including expectations of negative interpersonal evaluation was associated with greater arousal and more negative feelings, including anxiety, guilt, shame, rejection, anger and sadness, in response to video sequences containing negative social stimuli in a student sample[186].

In another interventional study, individuals with high expectations of social rejection were more likely to report self-directed hostile cognitions (including urges to harm themselves) when recalling a recent rejection experience, compared to individuals with low expectations of social rejection[187]. This finding was replicated at a trend level in two follow-up studies, as indicated by participants' implicit associations in response to a priming task aimed at eliciting feelings of rejection ($P = 0.08$) and participants' willingness to experience physical pain when anticipating a pain-tolerance task ($P = 0.06$)[187]. Self-harming behaviors and low self-compassion have been linked to higher severity of depressive symptoms and associated with greater biopsychosocial impairment[188,189].

In sum, there is substantial evidence suggesting that dysfunctional social expectations are linked to higher severity of depressive symptoms and more psychosocial impairments. Some research grounded in hopelessness theories of depression and interpersonal theories of suicide suggests that these expectations might have the strongest impact on the course and severity of depressive symptoms when combined with the expectation that things will not improve[190]. However, findings have been scarce in this regard[190].

Informing psychological treatment

Research exploring the challenges of changing expectations through expectation violation noted that expectations are not always altered in response to contradictory evidence[30,49,66,71]. Instead, expectations are more likely to change when their perceived utility shifts[71]. In this

Box 2 | Clinical recommendations for changing dysfunctional social expectations

Preparation

- Select an interpersonal situation or exercise that will probably challenge the individual's dysfunctional social expectation by enabling a positive surprise. The therapist should ask themselves 'What would be the most helpful feedback that the person will still find believable, and how can we promote this experience?'
- Help the person to identify the individual psychological costs associated with testing and potentially changing the dysfunctional social expectation. Contrast these costs with potential long-term benefits to reduce motivational obstacles and ensure commitment.
- Involve the person in designing the situation or exercise, and discuss the most effective way to test their expectation.
- Prompt the person to articulate specific negative predictions about the upcoming situation or exercise. Focus on observable outcomes rather than subjective experiences. Consider recording or writing down these predictions.
- Help the person to envision positive outcomes for the upcoming interpersonal situation. Encourage them to vividly imagine their role in achieving these outcomes, focusing on realistic scenarios that draw upon past positive experiences or align with the individual's abilities and strengths.
- Prepare the person to remain receptive to positive surprises during the upcoming exercise. If necessary, reduce negative affect and practice essential skills beforehand.

Intervention

- Direct the person's attention to stimuli that have previously been predictive of the expected aversive outcome. Encourage them to maintain their focus on these stimuli.
- Repeat the exercise in various interpersonal contexts, with diverse individuals, and under diverse conditions while experimenting with diverse behaviours. Encourage the individual to gradually reduce or eliminate safety signals (for example, the presence of the therapist) and safety strategies (for example, excessive preparation).
- When repeating the exercise in the same setting, ask the person whether it could be adjusted to more thoroughly test their expectations.

Follow-up

- Identify attributions, interpretations or 'immunizing' cognitions that undermine expectation-violating observations. Help the person to develop alternatives or counterarguments.
- Invite the person to share any positive impressions from the situation or exercise and guide them to vividly reimagine and savour these moments. If necessary, remind the individual of positive aspects.
- Reflect together on how it feels to have acted in a way that goes against the dysfunctional social expectation and what it would mean for the person's long-term goals and needs to act against it again in the future.
- Ask the person to create a new recording summarizing their learnings and experiences from the situation or exercise. Help the individual to contrast their previous concerns with actual experiences. Encourage them to use the recording to mentally rehearse what they have learned in the coming days.
- Emphasize the importance of approaching similar situations and exercises in the near future. Develop initial ideas on how to further test the respective social expectations in everyday life.

Box 3 | A case example of the clinical relevance of social expectations in depression

Judy was seeking a new therapist after ending an unsuccessful therapy for depression. At the beginning of the new therapy, Judy seemed unhappy, insecure and rather reserved. She mentioned that she had been struggling to find joy in social interactions since childhood, and that she had often avoided conflicts and had difficulty setting boundaries.

Exploring Judy's life story revealed that her difficult experiences with her aggressive father and social exclusion during adolescence might have shaped her expectations in social interactions. The therapist suspected that these expectations were fuelled by Judy's submissive and avoidant behaviour in social settings, making it difficult for her to attend to her needs and thus perpetuating her depressive symptoms. For example, Judy expected men to behave unpredictably and aggressively towards her, to have difficulty asserting herself against others, and to not enjoy interacting with other people.

The new therapist was male, and therefore initially prioritized addressing Judy's negative social expectations towards men to establish a reliable therapeutic relationship. With this aim, the therapist empathetically discussed Judy's concerns about him and encouraged her to openly communicate her needs and concerns during their interactions.

To improve Judy's social self-efficacy expectations, the therapist conducted tailored exercises to develop her social skills. They focused on expressing Judy's needs, setting boundaries against inappropriate demands, and tolerating distress during conflicts. The therapist also conducted various behavioural experiments with Judy in her social environment and tested how others reacted to her new behavioural patterns. For example, she started disagreeing with male colleagues if she had a different opinion, speaking more openly about her interests and preoccupations, and engaging in more activities that genuinely interested her.

Despite initial challenges, Judy gradually improved her low social self-efficacy expectations by changing her interpersonal behaviours. This progress allowed her to increasingly shape social contacts according to her needs, ultimately restoring her enjoyment of social interactions. By the end of therapy, Judy no longer met the criteria for depression.

context, the utility of an existing expectation is weighed against that of a new one, influenced by both internal and external outcomes — some of which do not depend on accuracy (for example, maintaining a consistent self-image or expending less effort)[71]. Thus, increasing the perceived utility of acting against dysfunctional social expectations (such as improved self-esteem and other outcomes with long-term utility) is important when considering clinical interventions to change dysfunctional social expectations in depression. For example, therapists could ask people with depression who have low social self-efficacy expectations in a job context, 'How do you feel now that you have actively done something to stand up to your boss this time?'.

Studies on extinction learning provide further clinical guidance. They suggest different strategies to optimize extinction learning, which might also promote expectation change. Beyond simply repeating expectation violation, these strategies suggest directing attention to stimuli that have previously been predictive of the expected aversive outcome, removing safety cues and strategies (associated with a reduced likelihood of the expected social outcome), mentally rehearsing corrective experiences, combining different conditioned stimuli, and varying the contexts in which expectation violations occur (for a full overview, see ref. 49). In the case of dysfunctional social expectations, these guidelines could translate into conducting behavioural experiments or exposures in diverse interpersonal contexts, reducing individual safety strategies (for example, excessive preparation), and mentally rehearsing lessons learned from expectation-violating experiences.

A related line of research assumes a nonlinear dynamic between the extent of expectation violation and the probability of expectation change, which is influenced by motivational, cognitive, and affective processes[30,66]. According to this research, exercises or interventions aiming to change expectations should be designed to achieve an optimum balance of credibility and surprise for people with depression. People often perceive interpersonal exercises as unrealistic in a therapeutic setting ('My boss would react much more aggressively than you'), so credibility is particularly important when trying to change dysfunctional social expectations. By contrast, social feedback in a natural environment is often ambiguous and can easily be interpreted negatively[64]. Involving people with depression actively in the design of interpersonal exercises or interventions ('How should we design the role play so that it is as realistic as possible and you can best test your expectations? What should you pay attention to when talking to your boss tomorrow?') can help make them more realistic and enable people with depression to better evaluate their expectations[2,191]. This approach enhances the expectation violation's credibility while reducing the risk of undermining cognitive processes, referred to as cognitive immunization ('I was just lucky this time; it will definitely be worse next time')[30,31,66]. Additional recommendations include discussing the costs and benefits of expectation change, minimizing negative affect, verbalizing expectations before expectation violation, directing attention to expectation violations, and reducing cognitive immunization[30,66].

A final line of research focusing on the poor generation and evaluation of possible futures in individuals with depression can also inform social expectation change[74]. This research proposes using imagination techniques to enhance the generation of positive future scenarios in individuals with depression, and providing concrete steps to realize such scenarios. In changing dysfunctional social expectations, vividly imagining (and savouring) the possible positive outcomes of social situations could potentially lead to fewer negative anticipatory processes (such as negative mood or dysfunctional attentional focus) and reduced engagement in behaviours that prevent expectation-violating experiences.

Based on these findings, practical recommendations can be derived for the preparation, implemention and follow up of psychological interventions to change dysfunctional social expectations (Box 2). From a practitioner's viewpoint, dysfunctional social expectations might provide crucial information on how to build the therapeutic alliance, promote functional interpersonal behaviour within relationships (including the therapeutic relationship), and determine what

people with depression need to learn to alleviate their interpersonal problems[192,193]. For example, establishing a sustainable therapeutic relationship with a shy person who expects rejection from others and believes they cannot effectively influence others' behaviour might require avoiding critical feedback on their interpersonal behaviour or confrontational behaviours at the beginning of therapy. Instead, the therapist should emphasize that most people find it hard to manage relationships at some point, and that it is possible to learn how to win people over and assert one's needs in those relationships. The therapist could also encourage the individual with depression to openly express any feelings of rejection or of feeling overwhelmed within the therapeutic relationship. Therapy can then focus on developing relevant social skills (for example, building relationships or setting boundaries with others)[16,25], while emphasizing even minor progress and viewing failures as valuable sources of information[192]. Specific social expectations (for example, 'My colleague won't go out for a drink with me after work') can be translated into individualized behavioural experiments in which the expectations of an individual with depression are put to the test (Box 3).

Conversely, establishing a sustainable therapeutic relationship with a person who expects that they cannot trust others and is at risk of being exploited or mistreated if they fail to assert themselves could initially require showing little reaction to provocations or hostilities and emphasizing the person's autonomy in shaping therapy[192,193]. Once the relationship is established, the therapist can incorporate confrontational elements such as disciplined personal involvement (mindful yet authentic feedback on how the individual's behaviour affects the therapist and possibly other people) or other techniques such as perspective-taking or interpersonal discrimination exercises (distinguishing between the negative reactions of previous caregivers and the more positive reactions from the therapist and the current social environment)[194]. In such cases, the therapist should explicitly note experiences that challenge expectations ('What surprised you about your boss's behaviour when you think back about how your previous bosses behaved?').

Summary and future directions

The findings discussed in this Review demonstrate that dysfunctional social expectations arise from the complex interplay of learning experiences, social influences, and individual differences. Dysfunctional social expectations tend to persist in people with depression despite

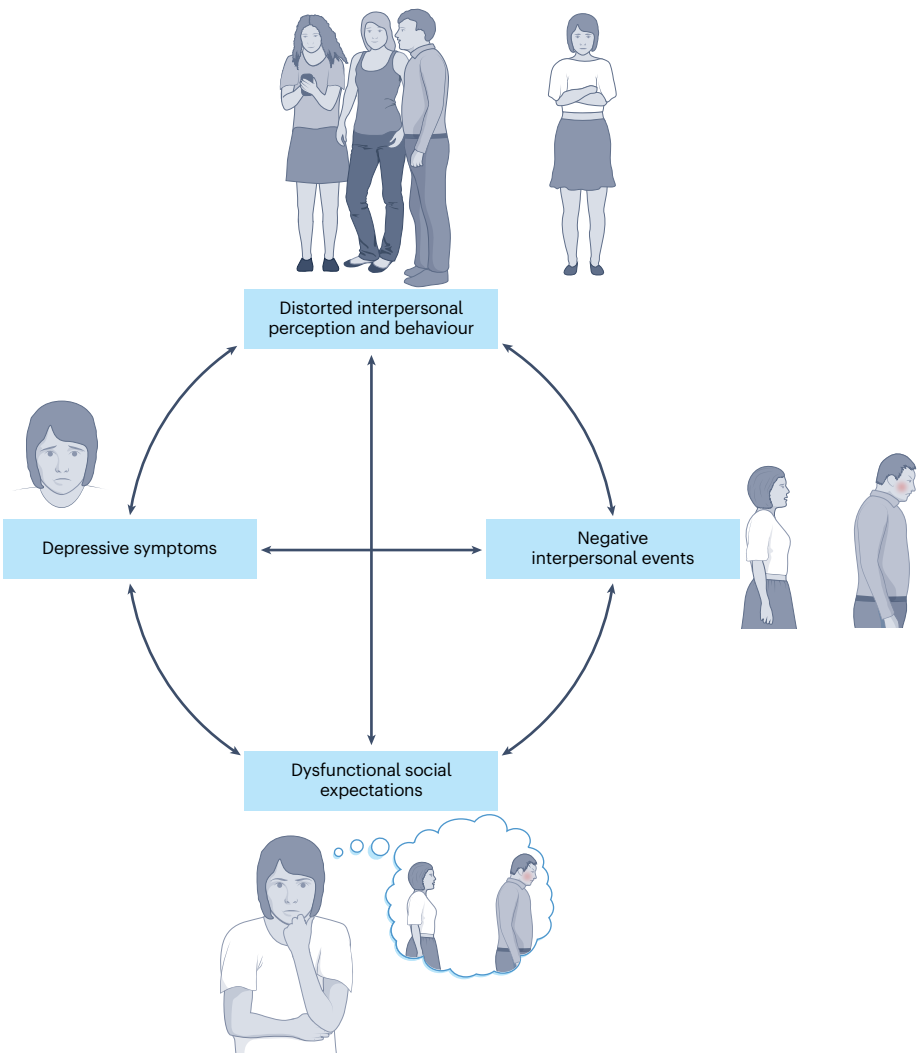

Fig. 2 | Potential vicious cycles between dysfunctional social expectations and depression. Dysfunctional social expectations can contribute to the development and progression of depressive symptoms by promoting distortions in interpersonal perception and behaviour and negative interpersonal events, which can, in turn, reinforce dysfunctional social expectations. Evidence supports various causalities and vicious cycle dynamics (for example, negative interpersonal events might directly cause dysfunctional social expectations and vice versa).

Box 4 | Challenges to change dysfunctional social expectations through intervention

Problems associated with depression can arise while preparing, implementing and following up on interventions aimed at modifying dysfunctional social expectations and preventing their perpetuation. Although an exhaustive list of potential difficulties is beyond the scope of this article, we outline some challenges often observed in people with depression. Processes or distortions — such as poor social skills — might influence multiple stages of intervention.

Preparation

- Motivational obstacles and accuracy-independent outcomes. Testing and changing dysfunctional social expectations carry substantial psychological costs (such as the possibility of failure) and losses in accuracy-independent outcomes (such as low satisfaction with past decisions)[30,71]. These costs might reduce a person's motivation to participate in interventions or to integrate expectation violations.
- Poor prospection. Difficulty in generating and evaluating possible future scenarios might also hinder motivation and preparation[74]. People with depression often struggle to envision positive future outcomes of social situations or identify concrete steps to achieve them ('I can't imagine how the date could end positively').
- Negative anticipatory processes. Expectations can trigger anticipatory responses that might skew the probability of social expectation change in response to expectation violations[31]. This process might include attentional priming for negative social stimuli ('I knew that he was going to look at me strangely').
- Negative affect. Negative emotional states might impede expectation updating[66] and the integration of positive social feedback[70].

Intervention

- Perceptual biases. Negatively biased perception could potentially reduce a person's experience of expectation violations during interventions. For example, people with depression exhibit a negative perceptual bias in recognizing emotions in facial expressions, which might result in a more negative overall impression during the intervention[24].
- Attentional biases. Difficulty in disengaging attention from negative stimuli[15] might reduce the chance of successful social expectation violation.
- Cognitive and metacognitive deficits. Examples include impaired inhibition and impaired updating of negative information in working memory ('I had the impression he kept looking impatiently at his watch the whole time') or inaccurate confidence judgements ('I'm not that sure anymore that he really said he liked me')[15,24,73].
- Abnormal processing of positive information. Low sensitivity to positive information (rather than oversensitivity to negative information)[66], dysfunctional reward processing[229], and the absence of an optimism bias[230] might impair the integration of positive expectation violations ('It didn't feel particularly good that he wanted to meet up with me').
- Poor social skills and difficulties in interpersonal behaviours. These characteristics might promote negative interactions and reduce the likelihood of experiencing social expectation violations during interventions[16,24,25]. For example, the individual might respond in an overly inhibited or disinhibited manner to interaction partners.
- Safety behaviours and signals. Engaging in safety behaviours or relying on safety signals in social situations can reduce the extent and generalization of expectation-violating experiences ('The conversation was fine, but this time I was able to prepare for it. It's completely different in everyday life')[49].

Follow-up

- Attributional biases. The tendency to make negative causal attributions about others' interpersonal behaviour puts people at risk of misattributing expectation-violating experiences[24], thereby reducing their contrast with the original expectation ('He was only nice because he wanted to look good in front of you').
- Interpretational biases. Given that social situations are frequently ambiguous[64], interpreting ambiguous information negatively[15] can lead to misinterpreting experiences that actually violate expectations — or at least do not confirm them ('The fact that he paused when I asked for feedback shows he really had to think about it').
- Memory biases and negative mental rehearsal. Mood-congruent memory biases[15] might retrospectively undermine successful social expectation violation ('I can only remember how terrible it felt to approach my colleagues'). Mentally rehearsing negative aspects of an interpersonal intervention might outweigh the effects of successful expectation violations ('I can't stop thinking about how nervous I felt at the beginning')[49].
- Cognitive immunization. People with depression tend to cognitively devalue positive expectation violations in retrospect — for instance, by questioning their credibility, reliability or relevance ('Yes, but he was a particularly nice person to talk to')[2,66].
- Return of fear. Dysfunctional social expectations might re-occur under certain circumstances, even after successful expectation violations[49]. This can happen, for example, if the social context in which the expectation violation occurred changes ('I managed to assert myself well in the role play, but when I stood in front of my boss, I couldn't get a word out').

disconfirming evidence. Crucially, they contribute to the development, progression, and severity of depressive symptoms; for example, by negatively influencing interpersonal perception and behaviour. Evidence suggests that these processes might create self-reinforcing cycles of perceptual and behavioural distortions, negative interpersonal events, and depressive symptomatology (Fig. 2).

Although effective social interventions exist to reduce depressive symptoms[195], and many treatment programmes implicitly address dysfunctional social expectations[194,196], people often struggle to revise their expectations when facing corrective experiences[2,30,66]. Various mechanisms – spanning behaviour, cognition, metacognition and emotion – could be involved in perpetuating dysfunctional social expectations (Box 4). For instance, self-validation theory suggests that these expectations are highly resistant to change if held with extreme metacognitive confidence, even if repeatedly contradicted[72].

However, the relative importance and causal interplay of these mechanisms remain largely underexplored. Additionally, psychology lacks integrative theories and models that enable a precise and integrated description and investigation of such mechanisms and their dynamic interaction[197,198]. Future research should continue investigating why and through what mechanisms dysfunctional social expectations persist in depression, and under what circumstances they successfully change in response to the social environment. Developing integrated formal models of social expectation change might provide a more accurate and insightful understanding of expectation persistence in depression[199–201].

Furthermore, few studies have examined the interplay between dysfunctional social expectations, perceptual and behavioural distortions, negative interpersonal experiences, expectation violations and depressive symptoms integratively and at various temporal resolutions. Network models that enable the estimation of conditional associations within multivariate longitudinal data could be used to elucidate the underlying aetiological relationships[202–204].

Determining the specific effects of different forms of dysfunctional social expectations on depressive symptoms, interpersonal perception and social behaviour remains challenging, because studies rarely examine them collectively or in relation to the same outcomes. For instance, beliefs relating to the expectation of burdening others have usually been investigated in the context of suicidality, and expectations of social rejection have often been investigated in the context of developmental psychological questions. Some types of dysfunctional social expectation, such as the expectation of not finding joy in social interactions, remain underrepresented. Additionally, identifying clear patterns across types of dysfunctional social expectation is complicated by varied study designs, mixed results and selective investigation within specific theories, and made more difficult by the fact that bidirectional relationships are the rule rather than an exception. Experimental studies in this area are also rare.

To bridge these gaps, researchers should develop suitable instruments that capture a wide range of relevant dysfunctional social expectations, ideally without conflating them with other constructs. Researchers could draw on existing instruments from the fields of pathological personality traits[205], attachment theory[206] or schema theory[207], which often implicitly incorporate dysfunctional social expectations. Moreover, developing flexible experimental procedures to systematically manipulate and investigate social expectations and their effects on perception, behaviour and depressive symptoms — while carefully considering ethical aspects — would be beneficial. Research should also explore how the subjective certainty of dysfunctional social expectations, and the perceived finality or alterability of their predictions, influence the onset, progression and severity of depressive symptoms.

The concept of depression as a uniform nosological category has faced valid criticism[208–211]. A substantial proportion of individuals with depression insufficiently benefit from established treatments and experience persistently low levels of psychosocial functioning[137]. Considering dysfunctional social expectations more prominently in the aetiology and treatment of depression might improve understanding of different origins, presentations and prognoses, potentially leading to more specific treatment approaches[2]. For instance, people with chronic depression are often characterized by higher levels of interpersonal submissiveness and hostility than other people with depression[143], which might reflect specific combinations of dysfunctional social expectations, such as expecting maltreatment and harbouring low social self-efficacy expectations. Owing to the heterogeneity of depression, not all individuals with this diagnosis are likely to be equally affected by dysfunctional social expectations.

Future research should examine the relationship between a broader spectrum and different combinations of dysfunctional social expectations and depressive symptoms or symptom trajectories, and whether targeting specific expectations in psychological treatment improves outcomes for some forms of depression.

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L.K. wrote the original draft. All authors researched literature for the article, contributed substantially to discussion of the content, wrote, reviewed and/or edited the manuscript before submission.

Competing interests
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