Trends in Cognitive Sciences

CellPress

Review

Undersociality: miscalibrated social cognition can inhibit social connection

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A person's well-being depends heavily on forming and maintaining positive relationships, but people can be reluctant to connect in ways that would create or strengthen relationships. Emerging research suggests that miscalibrated social cognition may create psychological barriers to connecting with others more often. Specifically, people may underestimate how positively others will respond to their own sociality across a variety of social actions, including engaging in conversation, expressing appreciation, and performing acts of kindness. We suggest that these miscalibrated expectations are created and maintained by at least three mechanisms: differential construal, uncertain responsiveness, and asymmetric learning. Underestimating the positive consequences of social engagement could make people less social than would be optimal for both their own and others' well-being.

Highlights

Connecting with others increases well-being, but people may be reluctant to reach out due to concerns about how a recipient might respond. Recent research suggests that these concerns may be misplaced: people tend to underestimate how positively others respond to social outreach.

Miscalibrated expectations can stem from three mechanisms: people evaluate their own actions in terms of competence but are evaluated by others in terms of warmth (differential construal), anticipate a broader range of outcomes than is actually probable (uncertain responsiveness), and receive less feedback when expectations encourage avoidance (asymmetric learning).

These mechanisms can lead people to undervalue several forms of sociality including conversations, expressions of appreciation, and acts of kindness, especially with less familiar others. People may therefore be less social than would be optimal for their well-being.

Social approach versus social avoidance

Being social by reaching out and connecting with others tends to increase well-being, but people are sometimes reluctant to reach out because of concerns about how another person might respond. On an airplane, you might want to talk with a friendly-looking stranger next to you, but hesitate because they have donned headphones and seem disinterested. Once talking, you would like to have a meaningful conversation but worry that it could be awkward, and decide that sticking with idle chit-chat might be better. At work, good news about a promotion fills you with gratitude for a helpful friend, but then you struggle over how to articulate your feelings and decide not to say anything after all.

Social life requires managing approach/avoidance conflicts between the desire to be social – to be friendly by reaching out and connecting – and concerns that another person might not respond positively to your sociality. Having accurate expectations about the outcomes of social interactions can increase well-being by recognizing when to be social and approach another person, and when to hold back and avoid them. Emerging research suggests that our expectations may be systematically miscalibrated such that we underestimate how positively others will respond to attempts to connect. We suggest that miscalibrated expectations are created and maintained by at least three features of social cognition – differential construal of the same social act, uncertainty about another's responsiveness, and asymmetric learning from approach versus avoidance – which can leave people being less social in their everyday lives than would be optimal for both their own and others' well-being.

Social expectations versus social experiences

Identifying why people experience social approach/avoidance conflicts is relatively easy. On the one hand, human beings are the most social primate species on the planet [1,2], possess a brain that is uniquely equipped for connecting with others [3], and have a neural reward system that leaves people feeling happier and healthier after connecting with others [4–11]. On the

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other hand, trying to connect is potentially risky. A well-intended attempt to talk with a stranger could be rejected, an expression of support may fall flat, and intimate information shared in conversation could be abused. Simply being in the presence of another person creates some risk of physical or psychological harm. Other people may be the biggest source of a person's happiness, but they can also be the biggest source of a person's misery [12]. Deciding how to approach or avoid others will therefore depend on the expected outcomes of social interactions.

Identifying the accuracy of these social expectations, however, is considerably more difficult. Psychologists have generally investigated social expectations and social experiences separately, either trying to understand individual differences in expectations that guide approach/avoidance tendencies [13,14] or trying to understand the consequences of approaching or avoiding social interactions [15,16], but without directly comparing the former against the latter. For instance, one body of research confirms that people differ in social anxiety – those higher in social anxiety expect more negative evaluations from others, give more attention to potential threats in an interaction, and are more socially avoidant [17]. Another body of research examining the consequences of social interaction documents that simply saying 'hello' to a coffee shop barista or bus driver can increase positive mood [18,19], that being ignored by a passerby can feel ostracizing [20], and that acting extraverted can increase well-being among both extraverts and introverts [21–24].

Here we review research connecting the expectations that guide sociality with actual experiences in social interactions. We consider that social expectations are guided by the fundamental processes of social cognition [25,26] based on inferences about how another person is likely to respond to one's social outreach. Across a variety of social interactions, including conversation, expressions of appreciation, and acts of kindness, people systematically underestimate how positively others will respond when they reach out to connect. The social behaviors we review in the next section do not represent a systematic exploration of all social interactions but instead represent common social behaviors intended to increase social connection that nevertheless can create approach/avoidance conflicts.

Miscalibrated expectations of sociality

Conversation

People can readily communicate their thoughts and feelings through speech, making conversation a common way of connecting. However, conversations can unfold in a nearly infinite number of ways, yielding uncertainty from beginning to end, thereby creating a complex coordination problem [27]. Nobody wants to be rejected when reaching out, to feel stumped by what to discuss, or to leave their conversation partner with a negative impression. These concerns are especially likely to arise when considering conversations with unfamiliar others where the outcomes are especially uncertain, presumably explaining at least part of the reason why people are more reluctant to talk with strangers than with friends. In one online survey that quantifies this gap, respondents indicated whether or not they would start a conversation with a friend or a stranger in one of four contexts (waiting room, train, airplane, taxi [28]). Almost everyone indicated they would talk to a friend in each context (93%, 100%, 100%, and 100%, respectively), but significantly fewer indicated that they would talk with a stranger (7%, 24%, 32%, and 49%, respectively).

These reservations about connecting with strangers may be somewhat misplaced. In one meta-analysis of seven experiments conducted in the UK [29], participants about to have a conversation with a stranger consistently underestimated how much both they and their partner would report enjoying it afterwards. Not only were these conversations better than expected and therefore surprisingly positive [effect sizes (*d* values) ranged from 0.79 to 1.57], but the scale ratings also indicated that these conversations were objectively positive.

Similar results emerged in a series of field experiments with commuters on buses and trains in Chicago (experiments 1a–2b in [28]). In these experiments, commuters reported how positive they expected to feel after their commute in each of three conditions: (i) if they tried to connect with a new person in conversation, (ii) if they kept to themselves in solitude, and (iii) if they did whatever they normally did. These commuters expected to have a less positive commute if they tried to connect with another rider in conversation than if they kept to themselves. The actual experience of commuters, however, was precisely the opposite: those randomly assigned to actually do one of these three activities reported having a more positive experience when they tried to connect in conversation.

Once talking, there may still be reluctance to connect more deeply [30]. Even though people in one survey reported wanting to have deeper (i.e., more intimate) conversations with others in their everyday lives, and even reported preferring to hear another person's answers to relatively deeper conversation questions compared to shallower questions, these respondents nevertheless indicated that they would choose to discuss relatively shallow questions when they imagined having a conversation with another person. Even so, a series of experiments found that deeper conversations – encouraged either by providing deeper conversation topics or by requiring people to generate deeper topics themselves – yielded consistently more positive experiences than expected, and also more positive experiences than shallower conversations (Figure 1). Specifically, participants having relatively deep conversations in a laboratory, in public parks, and online underestimated how connected they would feel with their conversation partner, how much they would like their partner, and how much they would enjoy the conversation, while overestimating how awkward the conversation would be. Although similar gaps emerged for relatively shallower conversations, they were consistently larger for deeper conversations (also [31]). Additional research indicates that people may similarly underestimate the positive outcomes of connecting over more intimate media, such as talking on the phone versus typing over text chat [32] (Box 1), thereby creating a misplaced preference for connecting over less intimate media that yield less satisfying interactions. Finally, people may also underestimate how much they would enjoy longer conversations, expecting conversation quality to decline more quickly over time than it actually does [33]. Undervaluing the positive impact of sociality might keep people in shallower, and shorter, interactions than would be ideal.

Misunderstanding the outcomes of conversation seems to extend even beyond the end of the conversation because both children and adults may underestimate how much their conversation partners like them after the conversation is over [27,34,35]. Conversations are not only better than expected beforehand, but they also leave an unexpectedly favorable impression afterwards.

Appreciation

Among the many well-documented ways to increase one's own well-being, from making more money to eating healthier food to exercising more, perhaps the quickest and easiest way is to express your appreciation to another person [36,37]. Nevertheless, as with other forms of sociality, people may be somewhat reluctant to reach out and express appreciation when they feel it. Indeed, when asked in surveys, respondents reported expressing gratitude and giving compliments less often than they felt they 'should' [38,39].

When asked to actually express their gratitude [39], or to pass along a compliment to either a stranger [40] or a friend or family member [38] (Figure 2), those expressing appreciation consistently underestimated how positively their recipients would react. These miscalibrated expectations are not limited to a single exchange because observers who predicted how a recipient would feel receiving one new compliment each day over the course of a week also underestimated how positive recipients would report feeling each day, expecting that recipients would feel successively less

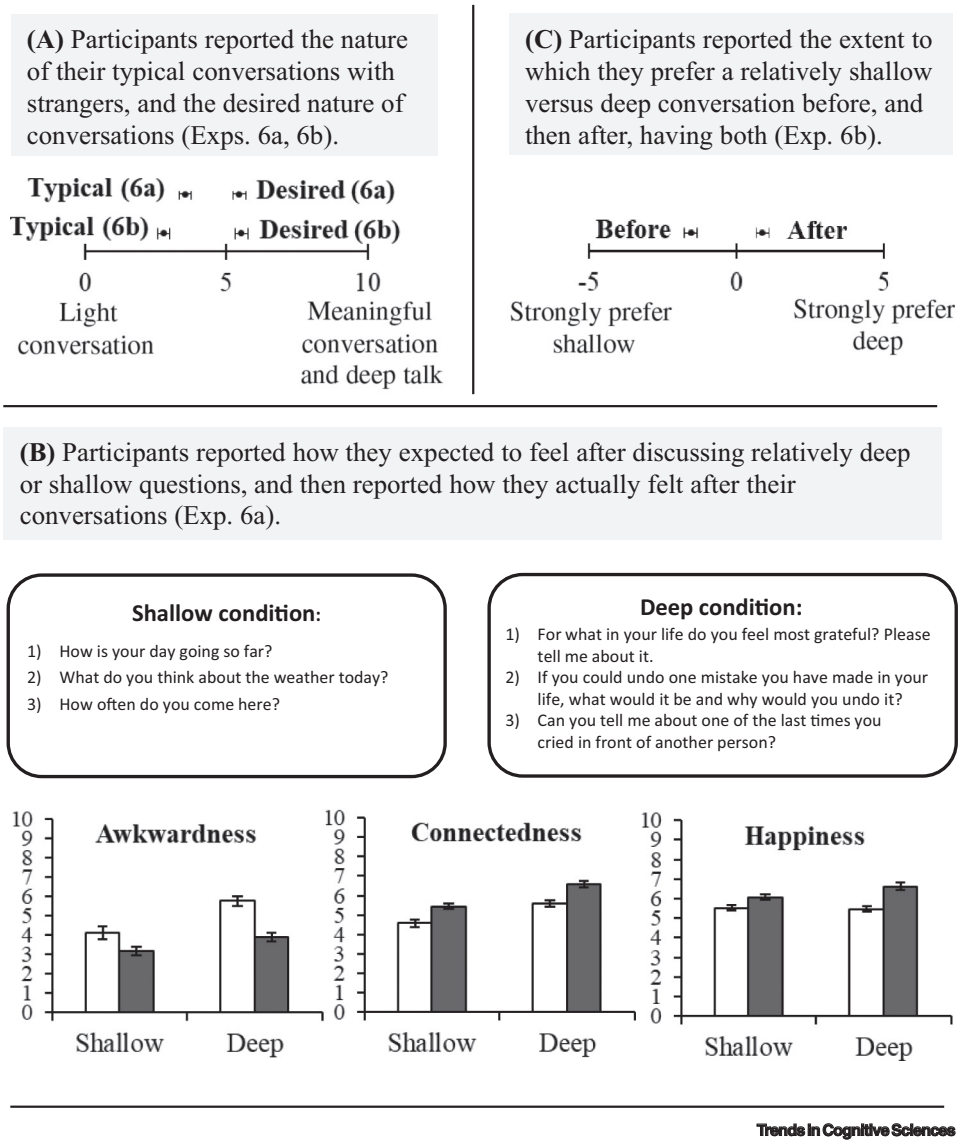

Figure 1. Deep conversations are surprisingly positive. (A) Participants indicated that their typical conversations with strangers were less deep and meaningful than they wished they would be (experiments 6a and 6b in [30]). (B) Participants received shallow questions to discuss with one stranger and deep questions to discuss with another. Participants underestimated how much they would enjoy their conversation in both the shallow and deep conditions, but miscalibration was significantly larger in the deep condition (experiment 6a in [30]). (C) Before discussing shallow questions with one stranger and deep questions with another, participants expected to prefer the shallow conversation. After discussing both sets of questions, participants reported actually preferring the deep conversation (experiment 6b in [30]). Abbreviation: Exp., experiment.

positive after each daily compliment when recipients actually reported feeling similarly positive after each one [41]. Expresser expectations of recipient responses correlated with their interest in expressing gratitude or giving compliments [38,42], indicating that people are more interested in sharing their appreciation when they expect that their recipient will react favorably. Accordingly, altering expectations such that people anticipate a more positive response increased interest in expressing appreciation [38] (Figure 2), indicating that overly pessimistic expectations could create a misplaced barrier to expressing appreciation more often.

Box 1. How does technology affect social expectations and social experiences?

Technology that affects social interaction, including physical devices (e.g., smartphones) and virtual platforms (e.g., videoconferencing), has the potential to both shape, and be shaped by, social expectations.

Technology can shape social expectations by affecting what people learn from their social experiences. For instance, the mere presence of a smartphone can distract attention to reduce the frequency and enjoyment of face-to-face conversations [74,75], or make it difficult to ascertain signals of social interest, such as by reducing the likelihood of two people making eye contact or smiling at one another [76]. In one experiment on commuter trains, nearly all participants who did not follow instructions to talk with another passenger reported believing others did not want to talk because they were using their phones [64]. Although attending to social technology may indeed reflect disinterest, it can also reflect habits or norms that misrepresent personal preferences.

Technology can also shape social experience by creating the media used for social interaction. Information-rich media (e.g., video conferencing) can maintain a sense of social connection across physical distance [77]. By contrast, impoverished text-based media (e.g., email, Twitter) can increase misunderstanding in communication [78–81], diminish perceptions of an interaction partner's mental competence [82,83], and reduce the likelihood of receiving help following a request [84] compared to using information-rich media.

Conversely, social expectations can alter how people use technology for social interactions, such as choosing less intimate text-based media if people (mistakenly) anticipate that in-person interactions will be more awkward. In one experiment [32], participants expected that reconnecting with an old friend over email would create a weaker sense of social connection than reconnecting over a phone, but also expected that email would be less awkward. Two-thirds of these participants then reported preferring email to reconnect. However, when randomly assigned to reconnect by email or phone, these participants reported a more positive experience over the phone that was not significantly more awkward than communicating over e-mail.

Finally, social expectations could shape technology through market forces. If people are interested in connecting with others but think that it will be somewhat awkward to reach out, this could create demand for social media that allows passive social connection (e.g., Facebook), even if the medium is suboptimal for well-being [85]. Similarly, if people are overly pessimistic about how likely others are to help when asked [59,93], then this could create a market for products such as the oft-maligned 'selfie stick' that can keep people from having a surprisingly pleasant interaction by asking a stranger to take their picture.

In one illustrative experiment, MBA students thought of a person they felt grateful to, wrote a letter expressing their gratitude, anticipated how their recipient would feel after receiving the letter, and then enabled researchers to ask each recipient to complete a confidential survey reporting how they actually felt (experiment 1 in [39]). Expressers recognized that recipients would feel positive, but they still underestimated how positive recipients would feel, while overestimating how awkward recipients would feel. Those expressing gratitude also felt more positive than they did beforehand, leaving both parties in the exchange feeling better than they would have if the expresser had kept their appreciation to themselves.

Acts of kindness

People in close communal relationships share resources, ranging from material goods to time to emotional support, through giving and receiving relatively freely between each other [43]. Sharing resources is therefore a clear way to strengthen relationships and enhance well-being, but the positive impact of sharing resources is still underestimated by the people who are actually sharing their resources. In one experiment, roughly two-thirds of people expected they would be happier by spending either $5 or $20 on themselves rather than on others. By contrast, people actually instructed to spend this money on either themselves or others returned feeling significantly happier after spending on others than after spending on themselves [44,45].

As with expressing appreciation, failing to fully recognize the positive impact of sociality could keep people from performing these acts more often, to the detriment of both their own and others' well-being. In one field experiment in downtown Chicago [46], visitors at a skating rink in the dead of winter were given a coupon for a cup of hot chocolate and asked to give it away

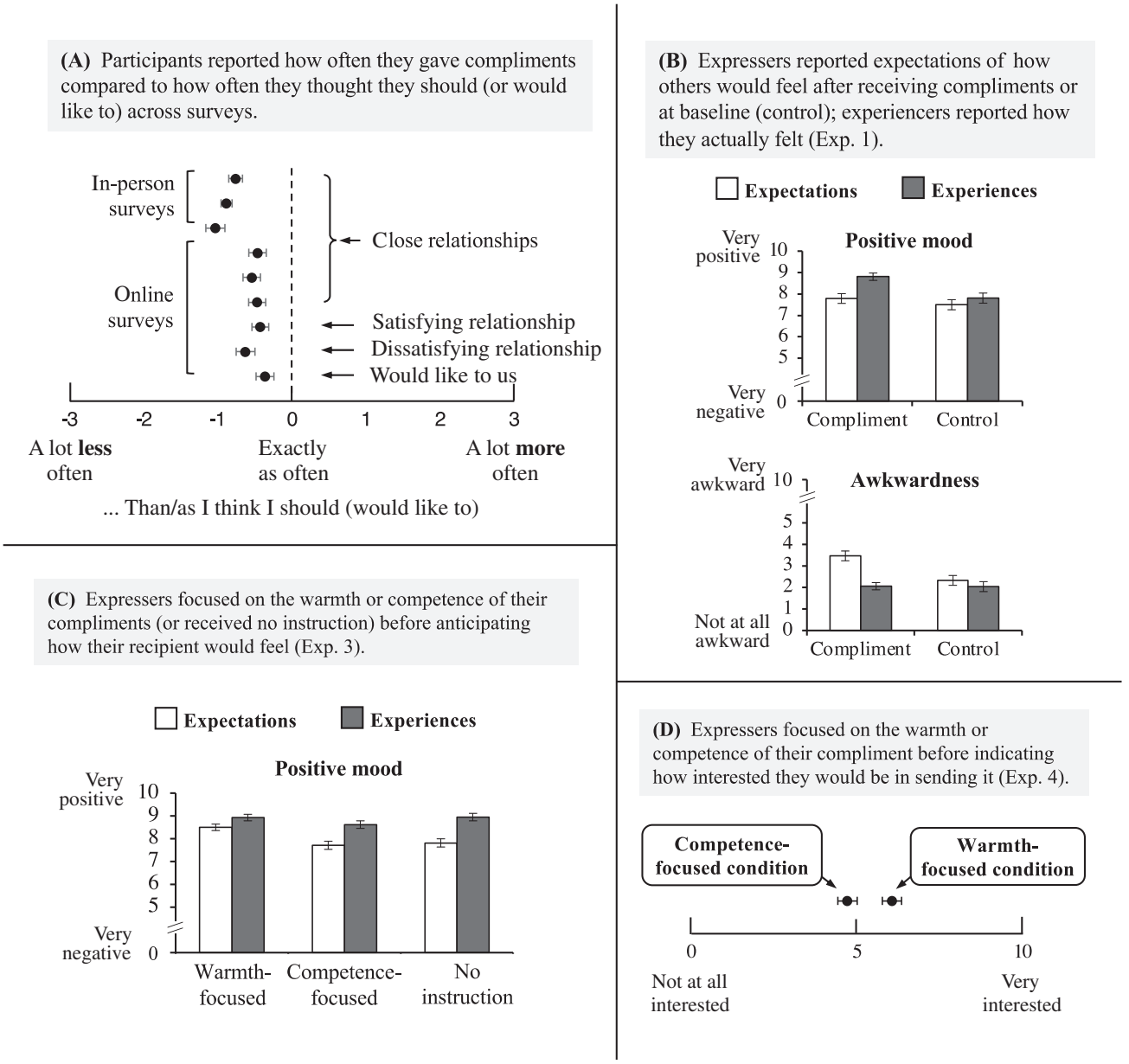

Figure 2. Underestimating the positive impact of compliments creates a barrier to expressing them more often. (A) Across multiple surveys [38], participants consistently indicated giving compliments to others less often than they 'should' or 'would like to'. (B) Participants asked to write compliments underestimated how positive their recipient would feel, and overestimated how awkward their recipient would feel, whereas participants in the control condition who predicted their recipient's experience without expressing any compliments did not (experiment 1 in [38]). (C) Shifting compliment-expressers' focus to the warmth of their compliments led to more calibrated expectations of their recipient's experience compared to those instructed to focus on competence or those in a no-instruction condition (experiment 3 in [38]). (D) Shifting compliment-expressers' focus to the warmth of their compliments increased interest in expressing a compliment (experiment 4 in [38]). Abbreviation: Exp., experiment.

to another visitor they then selected anonymously at the rink. As with gratitude letters and compliments, givers recognized that recipients would report being in a positive mood after this act of kindness, but they still significantly underestimated exactly how positive. Givers also underestimated

how 'big' recipients would perceive their act of kindness to be, thinking that it was a relatively minor act whereas recipients perceived it to be more substantial. Undervaluing acts of kindness is not limited to purely material exchanges because similar miscalibrated expectations emerged when participants considered whether or not to give social support to another person, which often took the form of providing emotional or psychological support rather than material support [47].

Mechanisms of miscalibration

Most adults have developed a sophisticated understanding of social interactions by learning from both their own and others' experiences [26,48]. Nevertheless, accurately anticipating the outcome of social interaction remains challenging due to at least three mechanisms that we suggest can lead to systematically biased expectations: differential construal of sociality, uncertain responsiveness, and asymmetric learning. These mechanisms apply to the evaluation of a social act, to the anticipation of another's responsiveness in social interaction, and to the feedback that maintains miscalibrated expectations over time, respectively.

Differential construal

Two people with perfectly functioning sensory systems can construe the same interaction differently because of their unique perspectives on it. Because people tend to make inferences about others' minds by using their own minds as a guide, social judgments tend to be egocentrically biased, such that people overestimate how much others' mental states match their own [49,50].

One important perspective difference involves how people construe their own behavior compared to how the same behavior is construed by others. Specifically, people are more likely to construe their own actions in terms of its competency – how well or effectively they are performing some action – but are more likely to construe others' actions in terms of warmth – how friendly, kind, and trustworthy another person seems [51,52]. This makes psychological sense given that thinking tends to be goal-directed, and hence people care relatively more about how effectively they are achieving their goals when thinking about themselves. By contrast, a more central goal when thinking about others is to ascertain whether to approach or avoid the person, and hence people attend to and value signs of warmth in others [53]. A teacher presenting a lesson, for instance, might focus most on how effectively they are communicating important points, and therefore expect that students' impressions are primarily based on this competency, whereas students' actual impressions may instead be based on how nice the teacher seems.

In social behavior that is primarily valued because of the warmth it conveys to recipients, this difference in construal of the social behavior itself could lead people to consistently underestimate how positively others will respond because those performing the act are attending to a different aspect of the behavior than those impacted by it. A person who has a compliment to share might expect the recipient's reaction to be largely based on how well they can articulate and deliver their compliment, whereas the person receiving the compliment is primarily affected by the kindness conveyed by sharing it [38]. Similarly, a person starting a conversation with a stranger might worry that the success of the conversation depends on how effectively they can start and maintain the conversation, whereas the stranger's experience is determined more by the friendliness conveyed by starting the conversation. To the extent that a social behavior is perceived as relatively warm, those initiating it could be pleasantly surprised by how positively others respond to them. Creating more calibrated expectations would then require increasing the alignment in construal [54], such as by encouraging someone who is anticipating a social interaction to focus their attention on how warm, kind, and friendly their behavior is likely to seem to another person [38,46].

Consistent with this difference in the construal of sociality, people seem to be overly concerned about their competency in carrying on a conversation before having one, and expect to have more difficulty in managing a conversation than they actually report experiencing [29]. Receiving tips about how to start and carry on a conversation in one experiment increased people's expectations about how much their partner would enjoy the conversation, even though it did not have a statistically significant impact on the actual enjoyment of the conversation. Similarly, underestimating liking in a conversation partner seems to stem from attending too much to the requirements of carrying on a conversation competently while overlooking the visible signs of warmth and liking conveyed in the conversation [34]. If the positive experience of conversation comes primarily from the sense of warmth and friendliness exchanged, but expectations are focused on how competently a conversation is started and maintained, then conversations with strangers could be surprisingly positive.

Differential construal also contributes to underestimating the positive outcomes of expressing gratitude and performing acts of kindness. In one experiment, thoughts about how to convey gratitude came to mind more readily for expressers than for recipients, and expressers were also especially likely to underestimate recipients' ratings of competency compared to warmth [39]. Similar results emerged among people expressing support to someone in need; those expressing support generally reported that their first thoughts involve how competently they will be able to provide their support, whereas recipients generally reported that their first thoughts were about the warmth conveyed through the support [47]. In experiments studying compliments [38] (Figure 2), concerns about both warmth and competence predicted expressers' expectations of their recipient's response, but expressers again underestimated how competent their compliments would seem to recipients more than how warm their compliments would seem, thereby leading expressers to underestimate how positive recipients would feel overall. Finally, shifting expressers' attention to the warmth their compliment conveys, consistent with how a recipient is likely to construe the compliment, led to more positive – and hence more calibrated – expectations of the recipient's response, and also increased interest in expressing a compliment [38]. A similar result emerged among people performing a random act of kindness for another person, in this case giving away a gift card to another person, such that shifting attention to the warmth conveyed by the act increased their reported interest in giving the gift card away.

Uncertain responsiveness

Reaching out and connecting with another person can cause anxiety to the extent that another person's interest in connecting, and hence their reaction to social outreach, is uncertain. In principle, the possible range of outcomes from trying to connect with another person may seem large, with people not only considering positive outcomes that may be likely but also negative outcomes that may be relatively unlikely [55]. In practice, the actual range of outcomes may be considerably smaller and more positive because interactions are interdependent, guided by reciprocity [56]. In principle, smiling at another person on the sidewalk could yield a wide variety of reactions; in practice, most people smile back. In principle, trying to start a friendly conversation could lead to many reactions; in practice, most people talk back. In principle, revealing intimate information in conversation could lead to a variety of responses; in practice, trusting another person tends to yield trust in return, creating a deeper conversation that is more meaningful, more enjoyable, and more likely to create lasting relationships [29,57,58].

Social interactions are therefore less like two marbles unaffected by each others' presence and instead more like two magnets whose poles attract to create interdependent actions. The pull of these social forces creates reciprocal exchange; however, this can be easy to underestimate when anticipating the outcomes of social interaction such that people expect less reciprocity

from others than they actually receive [59–61,93]. After all, people tend to explain and predict the behavior of another person by focusing relatively more on the individual traits and features of the other person than on the social context surrounding the person, a tendency that can lead people to underestimate the power of their own influence as a social agent on another's behavior [59,62,63,93]. People may underestimate the positive outcomes of social interaction to the extent that they fail to appreciate that social behavior typically elicits reciprocity.

Consistent with this account, the commuters on trains and buses in Chicago described earlier, as well as in a conceptual replication in London [64], seemed to underestimate how willing others would be to talk back if they tried to start a conversation. Specifically, participants estimated that an average of 46% and 45% would be willing to talk on trains and buses in Chicago, respectively, and an average of 25% on trains in London, when the actual percentage of participants who talked with the first person they engaged with was far higher (also [65]). Shifting attention away from trying to start a conversation by asking people to imagine successfully having a conversation compared to trying to have a conversation also led people to expect a more enjoyable experience, suggesting that uncertainty about another's interest in having a conversation in the first place creates some reluctance to try to initiate one. Similarly, participants' reluctance to discuss relatively deeper topics in conversation (Figure 1) also stemmed from underestimating others' interest in discussing these topics [30]. After having their conversations, people reported finding that the other person was more interested in the conversation than they expected. People also reported being more willing to have a deeper conversation with another person who they expected would be interested in what they had to say, suggesting that calibrating expectations about responsiveness could increase sociality.

If excessive uncertainty about another person's responsiveness creates miscalibrated expectations, then people should be especially miscalibrated when uncertainty about another's responsiveness is especially large, such as when interacting with strangers compared to more familiar others. Consistent with this mechanism, participants in one experiment expected a relatively deep conversation with a stranger would be a less positive experience than with a friend, but their actual experiences differed significantly less. Expectations about a deep conversation with a stranger were therefore significantly more miscalibrated than with a friend ([30], also [29,42,66]). Results consistent with this mechanism also emerged when people reached out to express their support to someone they knew who was in need, where relationship closeness was measured rather than manipulated [47]. Those who expressed support to more distant acquaintances had less positive expectations of their recipients' responses than those who expressed support to closer friends, even though the positive experience of receiving support did not vary significantly for recipients across relationship distance.

Asymmetric learning

Given how often people interact with each other, and presumably learn from their experience, it might seem surprising that miscalibrated social expectations can persist. The challenge is that people learn from their experience only when they have experience to learn from. Some beliefs keep people from having the very experiences that might otherwise calibrate those beliefs. Someone who expects that talking to strangers is generally pleasant will be more likely to actually talk to strangers and hence calibrate their expectations, whereas someone who expects that talking to strangers is unpleasant will be more likely to avoid conversations and might never find out that their expectation could be somewhat mistaken. Beliefs that encourage approach-oriented behavior are therefore more likely to be calibrated through direct experience than are beliefs that encourage avoidance. Misunderstanding could then persist in people's expectations because learning from approach- versus avoidance-oriented beliefs is asymmetric in a way that

would lead avoidance-oriented beliefs to be especially miscalibrated [67,68]. In this way, social interaction is a 'wicked' learning environment in which the feedback received from daily experience is not always sufficient to calibrate people's expectations with reality [69].

In one series of four experiments consistent with this possibility ([70], also [71]), extraverts and introverts anticipated how they would feel after acting either in an extroverted (e.g., bold, talkative, and assertive) or introverted (e.g., reserved, quiet, and passive) manner in an upcoming social experience with one or two other people. Introverts expected to have a less positive experience than extraverts when asked to act extraverted, but did not differ in how positive they expected to feel when asked to act introverted. In reality, both introverts and extraverts had similarly more positive experiences when asked to act extraverted compared to introverted. Those with more avoidance-oriented preferences, and presumably less opportunity to learn the consequences of approach-oriented behavior, therefore had the most miscalibrated expectations about the outcomes of social interactions.

In another illustration (experiment 4 in [28]), taxi riders who reported normally talking to their driver expected to have a more positive experience on their ride if they had a conversation than if they did not talk, whereas those who reported rarely talking to their driver expected to have the opposite experience. In reality, participants in both groups had a significantly more positive experience when they talked than when they did not, and only those who rarely talked significantly underestimated how positive their experience talking to the driver would be. People may be most likely to underestimate the positive consequences of sociality when their expectations keep them from reaching out to connect with others in the first place.

Finally, several experiments demonstrate that people's expectations about future conversations become more positive after actually having a conversation [29,64]. In one ambitious field experiment [65], participants completed a week-long intervention that involved completing scavenger hunt 'missions' that required either talking to a stranger or only observing a stranger. At the end of the week, those in the talking condition had more positive expectations about future conversations than they did at the beginning (e.g., they expected to be rejected less often, expected better conversational ability), consistent with their actual experiences over the week. By contrast, those in the observation condition had the same overly pessimistic expectations as those in the talking condition had before their intervention began. Simply observing people over a week kept people from learning the lessons that those in the talking condition experienced by actually talking to people. This may explain why exposure therapy, in which people engage in social interaction with others, is among the most effective treatments for social anxiety disorder [72,73]. To the extent that overly pessimistic expectations about social interaction keep people from interacting with others, they create a psychological barrier that keeps people from having social experiences to learn from.

Concluding remarks

Decision-making often involves weighing competing goals and interests to determine the optimal course of action. Underestimating the positive outcomes of social interaction does not imply that people should reach out and connect with others whenever possible, any more than a doctor's recommendation to exercise more would imply quitting one's job to start jogging nonstop. Instead, the research reviewed here suggests that several features of social cognition can tip the balance of approach and avoidance conflicts in a direction that might not be optimal for one's own or others' well-being.

Three directions for future research are clear (see Outstanding questions). First, considerably more research has focused on comparing expectations of sociality against experiences within

Outstanding questions

To what extent would interventions that help to overcome psychological barriers to social connection create sustainable increases in happiness, well-being, or physical health? What interventions would be most effective?

Are expectations about group versus dyadic interactions miscalibrated in similar ways?

To what extent are miscalibrated expectations about social interactions updated by social experiences? When a person's expectations are violated, such as by having a surprisingly positive conversation, do people tend to attribute this experience to a specific interaction partner or to more general features of social interaction?

To what extent is the miscalibration of social expectations moderated by individual differences (e.g., personality, age) versus societal norms (e.g., culture), either by affecting social expectations or social experiences?

To what extent are people's expectations about the consequences of antisocial interactions calibrated (e.g., insults, negative gossip, blame, sabotage, deceit)? Do people underestimate the relational harm done by antisocial actions?

Box 2. Does variance in sociality stem from differing expectations or experiences?

Social approach and avoidance tendencies vary across people (e.g., extroverts vs. introverts), contexts (e.g., parties vs. planes), and cultures (e.g., individualism vs. collectivism). Variance in social behavior could stem from differences in social experiences, such that some people have more positive experiences in social interaction than others [86–88], or from differences in social expectations [89,90], such that some people expect more positive outcomes from social interactions than others [91,92]. Several experiments that directly compared expectations against experience raise the intriguing – and understudied – possibility that variance in decisions to approach or avoid others reflects differences in social expectations across people, contexts, and cultures more than differences in social experiences.

In one experiment [42], participants reported how they expected to feel after either having a conversation with their own romantic partner or with another person's partner, and then actually had one of the two conversations. Although participants expected to feel more positive talking with their own partner, their actual experiences did not differ significantly between targets. In another experiment [94], American and Chinese participants predicted how many people they would need to ask to have five people help them by completing a survey, and then went outside the laboratory to see how many people they would actually need to ask. Results indicated that participants in both cultures overestimated the number they would need to ask for help, but differences in their expectations were significantly larger between cultures than the differences in their actual experiences. Finally, participants who focused on the differences between themselves and their conversation partner expected to have a more negative conversation when talking with a different-race partner than when talking with a same-race partner, but their actual experiences in conversation in these cases did not differ significantly [66]. These patterns of larger gaps in social expectations than social experiences match other findings described in the main text involving extroverts and introverts [70,71], between deep conversations with friends versus strangers [30], and in expressions of support between relatively close versus distant others [45].

It is psychologically easy for people to infer that social behaviors directly reflect a person's social experiences [62], but these results should encourage researchers interested in understanding variance in social behavior to also examine the role that potentially miscalibrated expectations may play in creating social norms.

a single culture at a single timepoint. More research will be necessary to examine variance in social expectations and experiences across cultures and across time (Box 2). Second, there is considerably more evidence documenting the existence of miscalibrated expectations about social interactions than identifying the mechanisms that create miscalibrated expectations. More research is needed to identify how the three mechanisms we have described work in concert to create and maintain miscalibrated expectations, as well as to determine whether additional mechanisms may also be at work. Finally, more research is needed to identify how people's expectations guide their decisions to approach or avoid others, and especially to assess the extent to which calibrating people's expectations may encourage sociality and increase well-being.

It is important to note that many expectations about social interactions are not wildly mistaken. Human beings are among the most socially sophisticated creatures on the planet, and have a broad understanding of how to effectively manage relationships with others. However, this broad understanding is still imperfect, and allows systematic misunderstanding that can leave people being overly avoidant. Opportunities for making wiser choices in daily life are unlikely to come in the extremes, where approach/avoidance choices are obvious, but instead in the margins where approach/avoidance conflicts arise. In these cases, recognizing miscalibrated expectations could lead people to reach out a little more often in ways that leave them feeling not only happier, but also surprisingly happier.

Declaration of interests

The authors declare no conflicts of interest.

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