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SOCIAL THINKING AND INTERPERSONAL BEHAVIOUR

THE UPSIDE OF FEELING DOWN:

THE BENEFITS OF NEGATIVE MOOD FOR SOCIAL COGNITION AND SOCIAL BEHAVIOUR

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Abstract

This chapter will argue that affective reactions, and negative affective states in particular, are likely to provide important benefits for social cognition and strategic interpersonal behaviours in everyday life (Frijda, 1986), operating like domain-specific adaptations (Tooby & Cosmides, 1992). In contrast with the overwhelming emphasis claiming exclusive benefits for positive affect in the recent literature, the results of the experiments presented here highlight the potentially adaptive and functional consequences of mild negative mood states (Forgas & George, 2001). The studies show that people in a negative mood are less prone to judgemental errors (Forgas, 1998), are more resistant to eye-witness distortions (Forgas et al., 2005) and are better at producing high-quality and effective persuasive messages (Forgas, 2007). Given the consistency of the results across a number of different experiments, tasks and mood inductions, the effects appear reliable and robust. These findings are broadly consistent with the idea that over evolutionary time, affective states became adaptive, functional triggers that elicit information processing patterns that are appropriate in a given situation.

Introduction

What exactly is the relationship between the rational, cognitive, and the emotional, affective faculties of human beings? Despite centuries of interest, the relationship between feeling and thinking, affect and cognition remains one of the greatest remaining puzzles about human nature. Affect is a powerful phenomenon in our lives, yet the functions of affective states, and their influence on thinking have received less than adequate attention. Rather than seeing affect, and especially negative affect, as dangerous and subverting rational judgement and behavior, growing recent evidence suggests that affective states are a useful and even essential component of adaptive responding to social situations (Adolphs & Damasio, 2001).

Affect is an integral aspect of social thinking and behaviour (Bower, 1981; Zajonc, 1980, 2000), and plays a crucial role in how people organize and represent their social experiences (Forgas, 1979). This chapter will argue that affective reactions, and negative affective states in particular, are likely to provide important benefits in everyday life (Frijda, 1986), operating like domain-specific adaptations (Tooby & Cosmides, 1992). The chapter will describe a series of experiments in our recent research project investigating the information processing consequences of mild negative affective states. A number of these studies will show that negative affective states produce surprising and unexpected benefits, such as improving memory, reducing judgmental errors, and promoting more effective social behaviours.

Theoretical background

It is intriguing that despite the apparently never-ending human quest for happiness and satisfaction, and the powerful cult of positive affect in contemporary psychology and culture, the emotional repertoire of *homo sapiens* as a species is nevertheless heavily

skewed towards negative feelings. Four of the six basic emotions are negative - fear, anger, disgust and sadness. These emotions were presumably adaptive in our ancestral environment, preparing the organism for flight, fight or avoidance, and there is little doubt or debate about their adaptive benefits. But what about sadness, perhaps the most common and ubiquitous of the negative emotions? What is the purpose or benefit of being sad? Although sadness is one of the most common and enduring affective states, its possible adaptive functions remain puzzling and poorly understood. (Ciarrochi, Forgas & Mayer, 2006).

We may start discussion by noting an interesting puzzle about the way human cultures, and modern industrial societies in particular, think about the costs and benefits of different affective states. Sadness in particularly in our culture is typically considered an unnecessary and undesirable emotion. There is a plethora of self-help books promoting the desirability of positive thinking, positive attitudes and positive behaviours, consigning negative affect in general, and sadness in particular to the category of 'problem emotions' that need to be controlled and eliminated. Much of the psychology profession is employed in dealing with and managing negative emotions.

It is also remarkable that the treatment of negative emotions has been far more accepting throughout the history of western civilizations. From the Greek tragedies through Shakespeare to the great novels of the 19th century, dealing with negative events and evoking negative emotions have long been considered desirable, instructive, and indeed ennobling. It is only in the last few decades that a veritable industry promoting positivity has managed to eliminate such a more balanced view of the full range of human emotions worthy of nurturing.

In contrast with this view, the experiments to be described here suggest that sadness,

like all emotions, also has important adaptive cognitive consequences by spontaneously triggering information processing strategies best suited to dealing with the details of demanding social situations. We do not mean to suggest that positive affect has no beneficial consequences, such as promoting creativity, flexibility, co-operation, and life satisfaction (Forgas, 1994, 1998, 2002; Forgas & George, 2001). However, a series of empirical studies now demonstrate that negative moods such as sadness may promote a more attentive, accommodating thinking style that produces superior outcomes whenever detailed, externally oriented, inductive thinking is required.

The conceptual links between affect to cognition

How can we understand the psychological links between affect and thinking, cognition and emotion? Much research in the past twenty years suggests that affect can influence both the content, and the process of thinking. Affective states can selectively prime related thoughts and ideas to be used in constructive cognitive tasks (Bower, 1981; Forgas & Bower, 1987). Affect can influence not only the content of thinking (what people think), but also the process of cognition, that is, *how* people think.

Early studies suggested that positive affect simply leads to more lazy, heuristic and superficial processing, and negative affect triggers a more effortful, systematic, and vigilant processing style (Clark & Isen, 1982). It was first thought that people in a positive mood may refrain from effortful thinking to maintain this pleasant state, while negative mood might trigger more vigilant, effortful processing designed to improve an aversive state. Recent theories, however, suggest a more complex pattern (Bless, 2001; Fiedler, 2001; Fiedler & Bless, 2006). Rather than simply influencing processing effort, good and bad moods trigger equally effortful, but qualitatively different processing styles. Thus, positive affect recruits a more assimilative, schema-based, top-down processing style. In contrast, negative affect

produces a more accommodative, bottom-up and externally focused processing. Both positive and negative affect can thus produce adaptive, functional advantages depending on the demands of the situation. Our experiments will focus on the adaptive cognitive advantages of mild negative moods.

Attempts at Integration: The Affect Infusion Model (AIM)

Affect may thus influence both the *content*, and the *process* of how people think. Recent integrative theories such as the Affect Infusion Model (AIM; Forgas, 2002) seek to link the informational and processing effects of mood and attempt to specify the circumstances that facilitate or inhibit affect infusion into cognition and behavior. The AIM predicts that affective influences on cognition depend on the processing styles recruited in different situations that can differ in terms of two features: the degree of *effort*, and the degree of *openness* of the information search strategy. By combining processing quantity (effort), and quality (openness, constructiveness) the model identifies four distinct processing styles: *direct access processing* (low effort, closed, not constructive), *motivated processing* (high effort, closed, not constructive), *heuristic processing* (low effort, open, constructive), and *substantive processing* (high effort, open, constructive).

Affect infusion is most likely when constructive processing is used, such as substantive or heuristic processing. In contrast, affect should not infuse thinking when motivated or direct access processing is used. The AIM also recognizes that affect itself has a significant influence on information processing strategies, consistent with the assimilative / accommodative distinctions proposed by Bless and Fiedler (2006). We shall next turn to reviewing a series of recent empirical studies that demonstrate the processing consequences of positive and negative affective states. Much has been published about the beneficial effects of positive affect (Forgas, 1998; Forgas & George, 2001). Much less is

known about the adaptive advantages of dysphoria. The following experiments will explore the subtle advantages of feeling bad in a variety of social and cognitive domains.

Experimental evidence for the cognitive and social benefits of negative affect

The principles we investigated may best be illustrated by an everyday example. Imagine that it is a cold, rainy day as you enter the local newsagency to buy a paper. As you pay, you briefly notice a few strange objects on the checkout counter – a matchbox car, some plastic toy animals, and a few other trinkets. After you leave the store, a young woman asks you to try to remember what you saw in the shop. This is just the sort of study we completed recently (Forgas, Goldenberg & Unkelbach, 2009).

The question we were interested in was this: are people better at remembering everyday details when they are in a bad mood, or do they remember more on a bright, sunny day, when they are in a good mood? Surprisingly, it turned out that people in a slightly negative mood actually had better eyewitness memory for what they saw in the shop than did happy people questioned on a bright, sunny day. This experiment, and others like it, suggest that mental processes can be significantly and reliably influenced by a person's mood state. Several of the following experiments demonstrate the adaptive consequences of negative affect in such areas as judgemental errors, eyewitness accuracy, stereotyping, interpersonal communication and detection of deception, to mention just a few.

Affective influences on gullibility and scepticism

We mostly rely on second-hand, untested information in forming our views about the world and other people. How do we decide if the mostly second-hand information we come across in everyday life is true or false? Accepting invalid information as true (gullibility) can be just as dangerous as rejecting information that is valid (excessive scepticism). Several

recent experiments found that moods have a significant influence on accepting or rejecting information. Some claims (such as 'urban myths') can potentially be evaluated against objective evidence (e.g., power lines cause leukaemia; the CIA murdered Kennedy), while other messages, such as most interpersonal communications, are by their very nature ambiguous and not open to objective validation. Induced mood states can have a significant influence on both kinds of credibility judgements, such as (a) accepting factual claims (*factual scepticism*), and (b) the acceptance of interpersonal representations (*interpersonal scepticism*). (East & Forgas, 2008a,b). We investigated both kinds of effects in our studies.

Negative affect and factual scepticism. There are a large number of beliefs, urban legends and myths that circulate in all societies that propose somewhat plausible, but ultimately unknown and untested claims as facts. What determines if people accept such propositions, and does affect play any role in this process? In one study we asked happy or sad participants to judge the probable truth of a number of urban legends and rumours. Mood influenced scepticism, but only for new and unfamiliar claims. A follow-up experiment manipulated the familiarity of a variety of factual claims taken from trivia games. Happy mood significantly increased the tendency to accept familiar items as true. Negative mood in turn produced greater scepticism, consistent with the hypothesis that negative affect triggers a more externally focused and accommodative thinking style.

In another experiment participants judged the truth of 25 true and 25 false general knowledge trivia statements, and were also told whether each item was actually true. Two weeks later, after a positive or negative mood induction, only sad participants were able to correctly distinguish between true and false claims they had seen previously. Happy participants seemed unable to remember the truth of claims, and were more likely to rate all previously seen claims as true, even if they were told previously that the information was

false. This pattern confirms that happy mood increased and sad mood reduced the tendency to rely on the “what is familiar is true” heuristic.

In contrast, negative mood conferred an adaptive advantage by promoting a more accommodative, systematic processing style (Fiedler & Bless, 2001). This effect seems due to negative mood reducing, and positive mood increasing the tendency to use perceived familiarity as an indication of truthfulness.

Negative affect and Interpersonal scepticism. Mood may also influence people’s tendency to accept or reject interpersonal communications as genuine or false. In one experiment, happy and sad participants judged the genuineness of positive, neutral and negative facial expressions. Those in a negative mood were significantly less likely to accept facial expressions as genuine than were people in the neutral or happy condition. In another study, instead of positive and negative facial displays, the six basic emotions were used as targets (i.e., anger, fear, disgust, happiness, surprise and sadness. Once again, negative mood reduced, and positive mood increased people’s tendency to accept the facial displays as genuine, consistent with the more attentive and accommodative processing style associated with negative moods.

Mood effects on the detection of deception

Can these mood effects influence people’s ability to detect deception? To explore this, we asked happy or sad participants to accept or reject the videotaped statements of people who were interrogated after a staged theft, and were either guilty, or not guilty (Forgas & East, 2008b). Those in a positive mood were more likely to accept denials as truthful. Sad participants made significantly more guilty judgements, and were significantly better at correctly detecting deceptive (guilty) targets (Figure 1). Negative affect produced a significant advantage in accurately distinguishing truths from lies. A signal detection analysis

confirmed that sad judges were more accurate in detecting deception (identifying guilty targets as guilty) consistent with the predicted mood-induced processing differences (Forgas & East, 2008b).

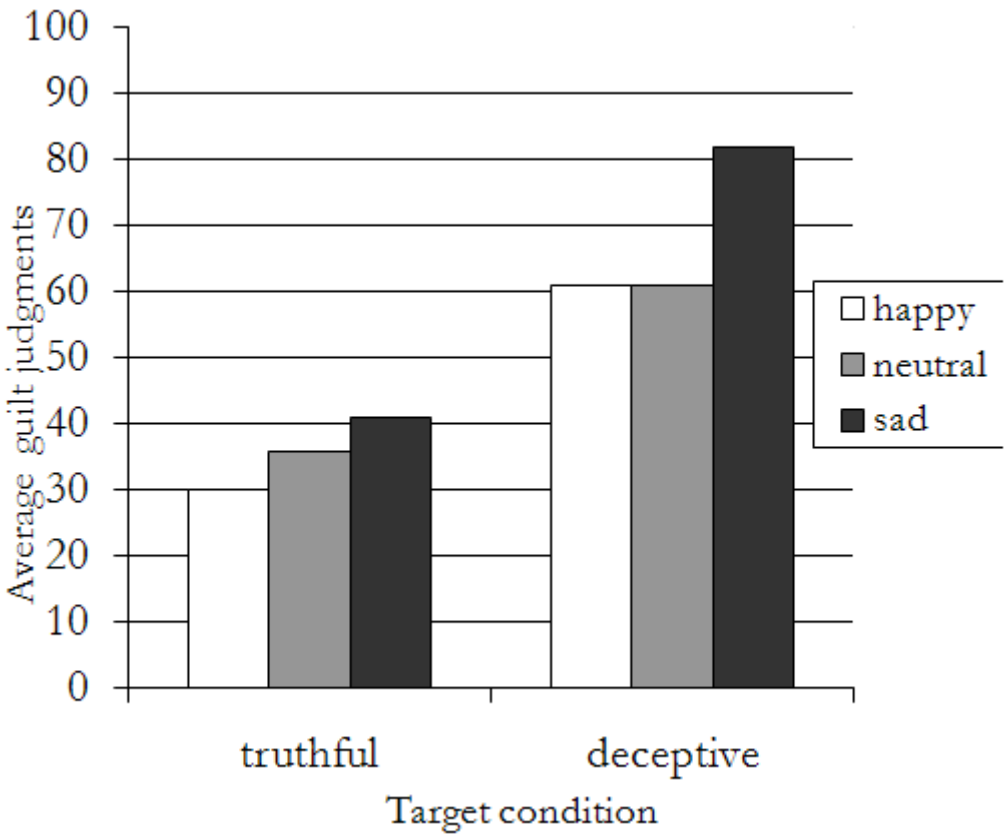

Figure 1. The effects of mood and the target's veracity (truthful, deceptive) on judgments of guilt of targets accused of committing a theft (average percentage of targets judged guilty in each condition). (After Forgas & East, 2008b).

These experiments confirm that negative affect increases scepticism both about factual, and about interpersonal messages, and also significantly improves people's ability to detect deception. These results support the prediction that negative affect generally produces a more situationally oriented, accommodative and inductive cognitive style.

Negative Affect Reduces Judgemental Mistakes such as the Fundamental Attribution Error

People commit many kinds of judgmental errors in everyday life – does negative mood have any identifiable benefits in terms of reducing judgmental errors? The fundamental

attribution error (FAE) or correspondence bias identified a pervasive tendency by people to see intentionality and internal causation and under-estimate the impact of situational forces in their judgements of others (Gilbert & Malone, 1995). This error occurs because people pay disproportionate attention to the actor and fail to fully process information about situational constraints (Gilbert, 1991). If negative mood indeed facilitates accommodative processing and attention to situational information, it should help to reduce the incidence of the FAE (Forgas, 1998). Further, in terms of Jones and Davis' (1965) theory of correspondent inferences, mood effects should be strongest when the behaviour of the actor is particularly salient as it deviates from popular expectations.

To test this, in one experiment happy or sad participants were asked to read and make attributions about the writer of an essay advocating a popular or unpopular position (for or against nuclear testing) which they were told was either assigned, or was freely chosen. Happy persons were more likely, and sad people were less likely than controls to commit the FAE and incorrectly infer attitude differences based on coerced essays. Similar effects can also occur in real life. In a field study, participants feeling good or bad after seeing happy or sad movies read and make attributions about the writers of popular and unpopular essays arguing for, or against recycling. Once again, those in a negative mood after seeing sad films were significantly less likely to commit the FAE. In other words, positive affect increased and negative affect decreased the FAE, especially when the essays were highly salient because they advocated unpopular positions.

To examine if these effects were indeed due to the more attentive processing of situational information in negative mood, happy or sad participants again made attributions based on freely chosen or coerced essays advocating popular or unpopular positions (for or against environmentalism; Forgas, 1998, Exp. 3). Their recall of essay details was also

assessed as an index of processing style. Negative mood again reduced the incidence of the FAE, especially for essays advocating unpopular positions. Recall memory data confirmed that those in a negative mood remembered significantly more than did others, confirming that they processed the stimulus information more thoroughly. A mediational analysis confirmed that as predicted, processing style was a significant mediator of mood effects on judgments. Thus, negative moods reduced the incidence of the fundamental attribution error, and these effects were directly due to the more detailed and accommodative processing style associated with dysphoria.

Affective influences on reliance on stereotypes

What influence do positive and negative mood states have on people's tendency to rely on subliminal stereotypes when responding to members of minority groups? In one recent experiment we investigated this question by asking happy or sad people to generate rapid responses to targets that did, or did not appear to be of Muslims. Negative stereotypes about out-groups, such as Muslims, are difficult to assess using explicit measures, as people are unable or unwilling to reveal such prejudices. Implicit measures of prejudice, such as the IAT, also turned out to be far less satisfactory than hoped (Fiedler, Messner, Bluemke, 2006). Another way to assess stereotyping is to use disguised behavioral tasks that assess subliminal aggressive tendencies (Forgas, 2003). The recent 'shooter bias' paradigm (Correll et al., 2002) found that when individuals have to shoot only at targets who carry a gun, US participants show a strong implicit bias to shoot more at Black rather than White targets (Corell et al., 2002; Correll et al. 2007).

We expected that Muslim targets are likely to elicit a similar bias. In a shooters' task, sad people should be less likely than happy people to rely on pre-existing stereotypes and should be less likely to selectively 'shoot' at Muslim rather than non-Muslim targets. Using a

modified version of Correll et al.'s (2002) shooter game, happy or angry participants were instructed to shoot at targets appearing on a computer screen only when they were carrying a gun. We used morphing software to create targets who did, or did not appear Muslim (wearing or not wearing a turban or the hijab). Participants were shown in rapid succession a number of Muslim or non-Muslim targets who either held a gun, or held a similar object (eg. a coffee mug; see Figure 2). Results showed a significantly greater tendency overall to shoot at Muslims rather than non-Muslims (see Figure 3).

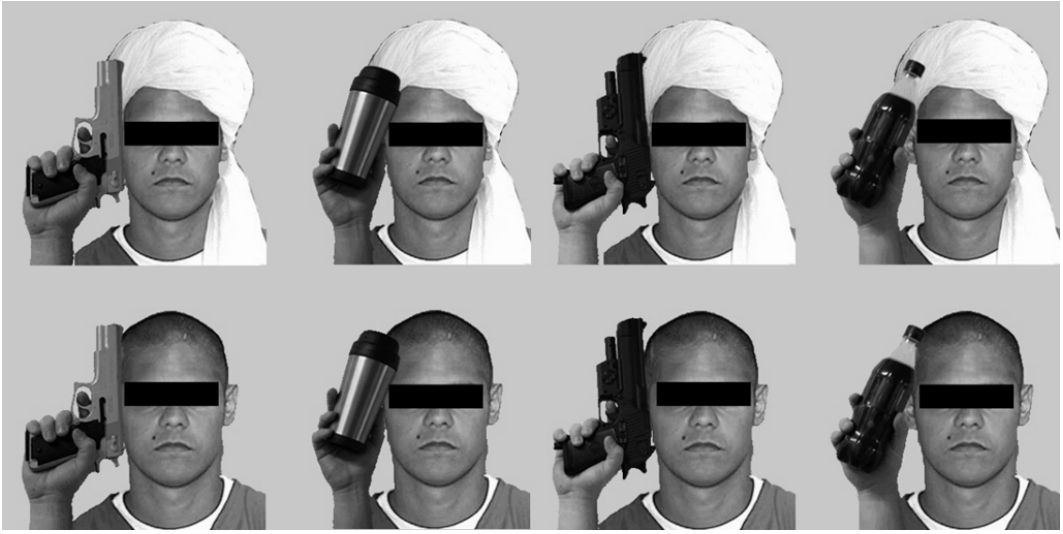

Figure 2. The turban effect: Stimulus figures used to assess the effects of mood and wearing or not wearing a turban on subliminal aggressive responses. Participants had to make rapid shoot / don't shoot decisions in response to targets who did or did not hold a gun, and did or did not wear a Muslim head-dress (a turban). (After Unkelbach, Forgas & Denson, 2009).

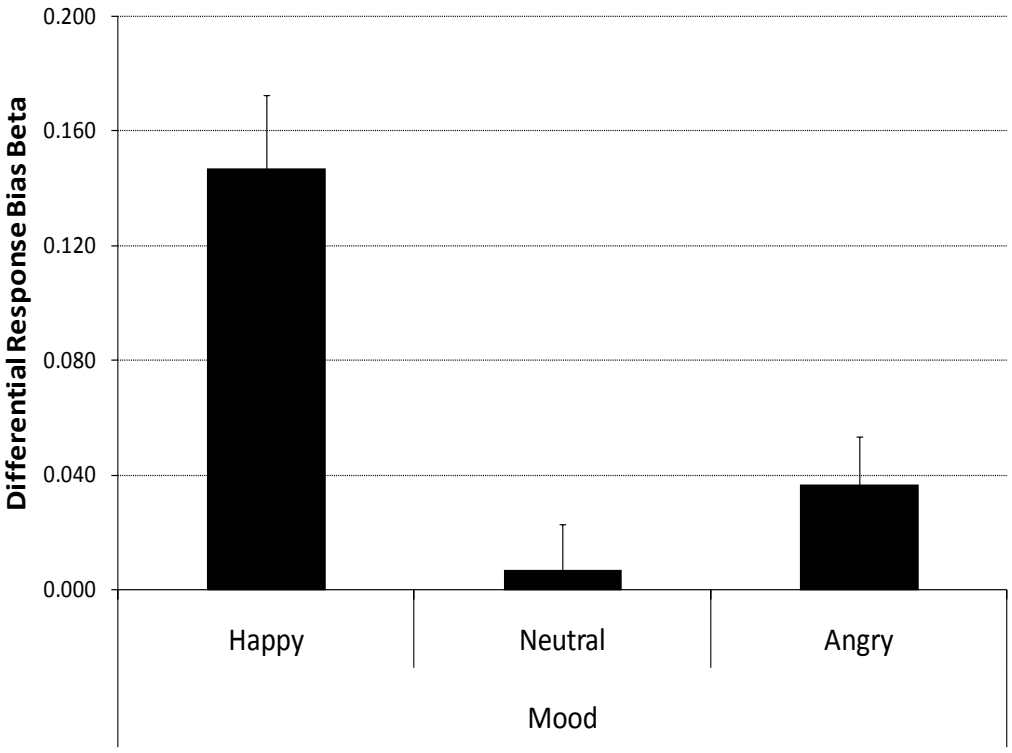

Figure 3. The effects of positive and negative mood on people's reliance on stereotypes in the shooters' bias task: Those in a positive mood were more likely, and those in a negative mood were less likely to selectively shoot at targets wearing a turban.

As predicted, the most intriguing finding here is that negative mood (anger) actually reduced the tendency to selectively shoot at Muslim rather than non-Muslim targets. Positive affect triggered a significant *selective* bias against Muslims, consistent with theories suggesting that positive affect promotes top-down, assimilative processing that facilitates the influence of stereotypes on subliminal responses (Bless & Fiedler, 2006; Forgas, 1998, 2007). Thus, using a behavioral measure of subliminal aggressive responses, we found that negative mood reduced, and positive mood increased stereotype-based aggressive responses to Muslims.

Negative affect improves eyewitness memory

Can mood also influence the accuracy of eyewitness recollections? As the newsagency

study mentioned earlier suggests, the answer is likely to be 'yes': people in a sad mood had better memories of incidentally encountered objects than did people in a happy mood induced by a bright, sunny day (Figure 4).

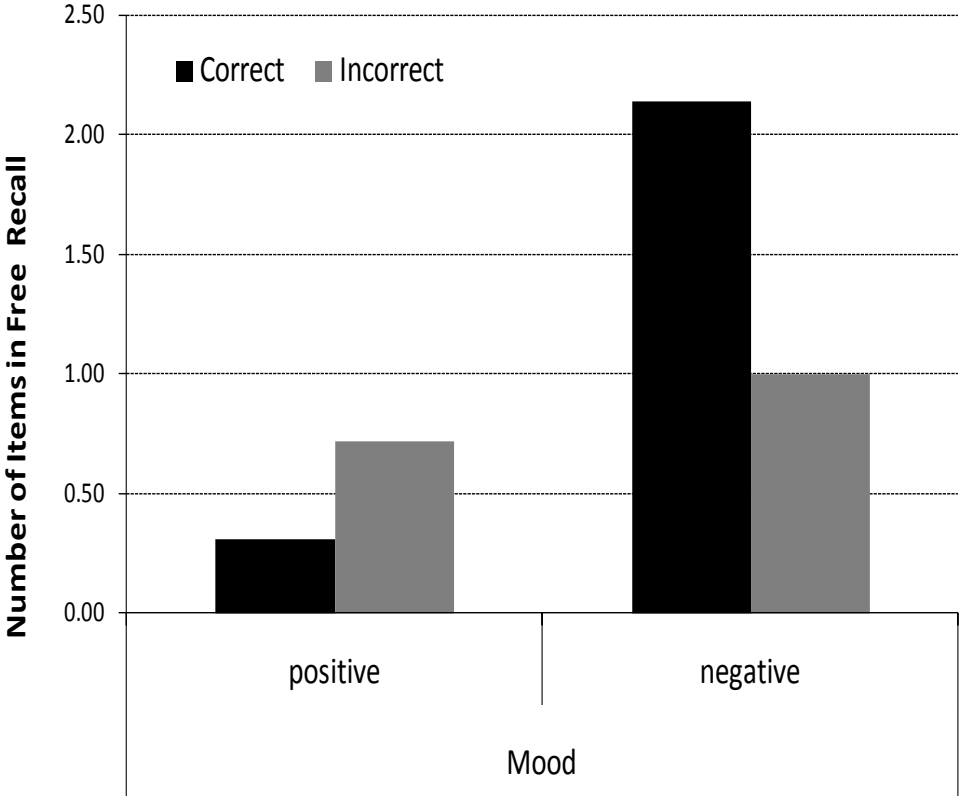

Figure 4. The effects of good or bad mood, induced by the weather, on people's ability to recall items casually seen in a shop. (after Forgas et al, 2009).

Affect may influence eyewitness memory (1) when the event is first witnessed (encoding stage), (2) when misleading information is encountered later on (post-event stage) and (3) when the information is retrieved (retrieval stage). The newsagency study showed that negative mood helps the more attentive processing and accurate encoding of incidental information. In another series of three experiments we also found that positive affect promoted, and negative affect inhibited the incorporation of false details into eyewitness

memories. These studies looked at mood effects at Stage 2, on the incorporation of false information into memories (Forgas, Vargas & Laham, 2005). In the first experiment, participants viewed pictures showing a car crash scene (negative event), and a wedding party scene (positive event). One hour later, they received a mood induction (recalled happy or sad events from their past), and received questions about the scenes that either contained, or did not contain misleading information. After a further 45-minute interval the accuracy of their eyewitness memory for the scenes was tested. As expected, positive mood increased, and negative mood decreased the tendency to incorporate misleading information into their memories. In fact, negative mood almost completely eliminated the common “misinformation effect”, as also confirmed by a signal detection analysis.

In a more realistic second experiment, students witnessed a staged 5-minute aggressive encounter between a lecturer, and a female intruder (Forgas et al., 2005, Exp. 2). A week later eyewitnesses in happy or sad moods responded to a brief questionnaire about the episode that did or did not contain planted, misleading information. After a further interval, eyewitness memory for the episode was tested. Those in a positive mood while receiving the misleading information were more likely subsequently to report it as true (Figure 5). In contrast, negative affect seems to have all but eliminated this source of error in eyewitness memory. Signal detection analyses confirmed that negative affect improved the ability to discriminate between correct and misleading details.

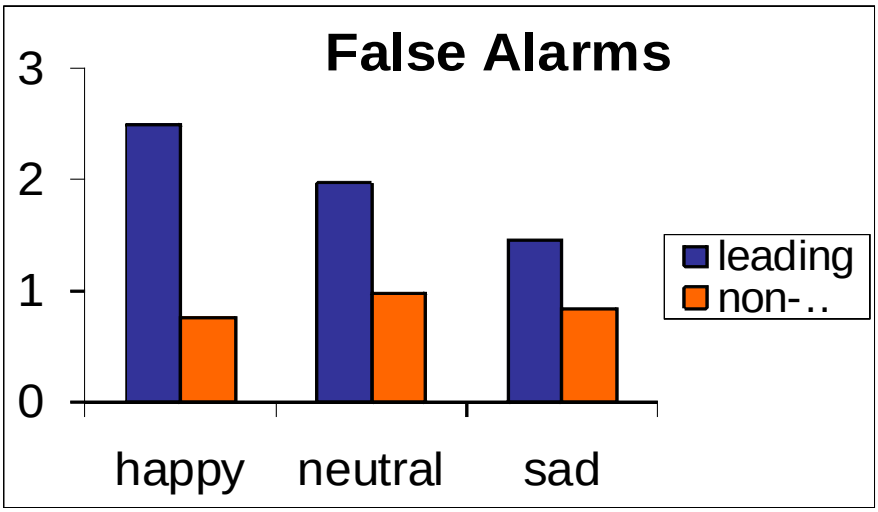

Figure 5. The interaction between mood and the presence or absence of misleading information on recognition (Experiment 2.): positive mood increased, and negative mood decreased the influence of misleading information on subsequent eye-witness reports (false alarms). (After Forgas, Vargas & Laham, 2005).

Is it possible to control such mood effects? Can people *suppress* the impact of their moods when instructed to do so? In a third study, participants saw videotapes showing (a) a robbery, and (b) a wedding scene. After a 45-minute interval they received an audio-visual mood induction and then completed a short questionnaire that either did, or did not contain misleading information about the event. Some were also instructed to "disregard and control their affective states". Finally, the accuracy of their eyewitness memory for the two events was tested. Exposure to misleading information reduced eyewitness accuracy most when people were in a happy rather than a sad mood. A signal detection analysis confirmed the beneficial effects of negative affect for memory performance. Instructions to control affect did not reduce this mood effect.

These experiments offer convergent evidence that negative moods can significantly improve cognitive performance, by reducing susceptibility to misleading information.

Paradoxically, happy mood reduced accuracy yet increased confidence, suggesting that people were not aware of the consequences of their mood states for their thinking and memory. Instructions to suppress affect were generally not effective. These findings are consistent with affect-cognition theories (Bless, 2001; Fiedler & Bless, 2001; Forgas, 1995, 2002), suggesting that both good and bad mood can have processing effects and influence eyewitness accuracy. These findings may have a number of applied implications for forensic, organizational and clinical psychology (Forgas et al., 2005).

Affective influences on persuasive communication

Could negative affect also improve the effectiveness of interpersonal communication, such as the production of persuasive messages? There has been little work on how persuasive messages are produced. We expected that accommodative processing promoted by negative affect should promote more concrete and factual thinking and result in the production of superior persuasive messages. In a first experiment (Forgas, 2007, Exp. 1), participants received an audio-visual mood induction, and were then asked to produce persuasive arguments for or against an increase in student fees, and Aboriginal land rights. The arguments were rated by two raters for overall quality, persuasiveness, concreteness and valence (positive–negative). Those in a negative mood produced higher quality and more persuasive arguments on both issues than did happy participants. A mediational analysis showed that it was mood-induced variations in argument concreteness that influenced argument quality.

In a further experiment, happy or sad participants were asked to produce persuasive arguments for or against Australia becoming a republic, and for or against a right-wing party. Sad mood again resulted in higher quality and more persuasive arguments (see Figure 6), consistent with the theoretical prediction that negative mood should promote a more

concrete, systematic, and bottom-up processing style that is more attuned to the requirements of a particular situation (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001; Forgas, 2002).

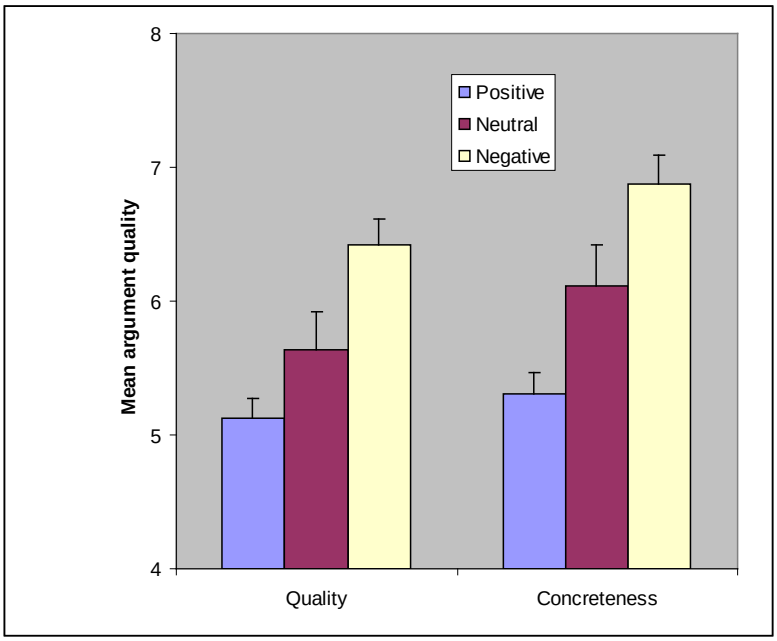

Figure 6. Mood effects on the quality and concreteness of the persuasive messages produced: negative affect increases the degree of concreteness of the arguments produced, and arguments produced in negative mood were also rated as more persuasive. (After Forgas, 2007, Exp. 2).

In Experiment 3 the arguments produced by happy or sad participants were presented to a naive audience of undergraduate students. After reading the persuasive arguments their attitude on the issue was assessed. Changes in attitudes in response to the persuasive arguments were assessed against a baseline measurement obtained earlier. Results showed that arguments written by negative mood participants were significantly more successful in producing a change in attitudes than were arguments produced by happy participants. In a final experiment happy and sad people directed persuasive arguments at a “partner” to

volunteer for a boring experiment using e-mail exchanges (Forgas, 2007). Some persuaders were additionally motivated by the offer of a reward if successful (movie passes). Mood again had a significant effect: People in a negative mood produced higher quality persuasive arguments than did happy persuaders. However, offering a reward reduced mood effects on argument quality, as predicted by the Affect Infusion Model (Forgas, 1995, 2002). As the model predicts, mood effects on information processing—and subsequent social influence strategies—are strongest in the absence of motivated processing. A mediational analysis again confirmed that negative mood induced more accommodative thinking, and more concrete and specific arguments.

These experiments show that persuasive negative affect improved the quality and effectiveness of persuasive arguments. Such arguments were more effective because they contained more concrete details and more factual information. Such messages are seen by people as more interesting and more memorable. However, when motivation is already high, mood effects tended to diminish, as predicted by the Affect Infusion Model (Forgas, 2002). These results suggest that negative affect typically promotes a more concrete, accommodative, externally focused information processing style (Forgas, 1998; Forgas et al., 2005). Such concrete, accommodative processing has marked benefits for the effectiveness of social influence strategies, such as persuasive arguments. Managing personal relationships involves a great deal of persuasive communication, and it is an intriguing possibility that mild negative affect may actual promote a more concrete, accommodative and ultimately, more successful communication style.

Affective influences on strategic behaviours.

Imagine the following scenario: If somebody gave you fifty dollars to divide between yourself and another person any way you like, how much would you keep to yourself? Is it

possible that good or bad mood might influence such strategic decisions? People face a conflict between being selfish and being fair in many everyday situations, and the dilemma inherent in these choices has been a major topic for philosophers and writers since antiquity. Recent research in evolutionary psychology suggests that humans and other primates evolved a sense of justice and fairness as an adaptive strategy to constrain selfishness and maintain social cohesion and harmony (Forgas, Haselton & von Hippel, 2007). Does mood influence how assertive and selfish we are in interpersonal situations? We explored the possibility that positive mood may increase assertiveness and selfishness, while sad mood produces greater fairness in the dictator game, a question that has not been investigated previously. Unlike prior research on altruism, the dictator game allows the exploration of mood effects on pure selfishness in a simple allocation task.

Traditional economic theories predict that a rational allocator in the dictator game should maximise earnings, and keep most of the resource to himself. Actual research suggests a far more complex pattern. In fact, allocators often give 30%, and even 50% to others (Bolton, Katok & Zwick, 1998; Forsythe, Horowitz, Savin & Sefton, 1994), suggesting that behaviour is governed by a subtle combination of the conflicting demands of self-interest, and the norm of fairness (Pillutla and Murningham, 1995; Haselhuhn & Mellers, 2005). In this situation, moods may influence behaviour by subtly shifting the way allocators focus on and interpret **internal** (selfish) and **external** (fairness norm) information. As we have seen, positive moods may promote a more internally oriented, selfish processing style (Bless & Fiedler, 2006). In contrast, negative mood seems to promote a more externally focused, accommodative processing style, with greater attention to the external norms of fairness.

In the first experiment, volunteer students approached on campus received a false-

feedback mood induction, and then they played the dictator game and made allocations either to an in-group member (student in their own faculty) or an unknown person. Mood was induced by giving participants a bogus six-item "test of cognitive-spatial abilities", estimating the surface area of randomly sized geometric figures, and providing positive or negative manipulated feedback describing their performance as 'outstanding' or 'poor' to induce good or bad mood (eg. Forgas, 2007). They were then asked to allocate ten raffle tickets between themselves and another person, with a $20 voucher as the ultimate prize. Results showed that happy students kept more raffle tickets than did sad students, and there was also a non-significant trend for greater selfishness towards a stranger when in positive mood (Figure 8). These results confirm that transient mood had a significantly influence on assertiveness and selfishness.

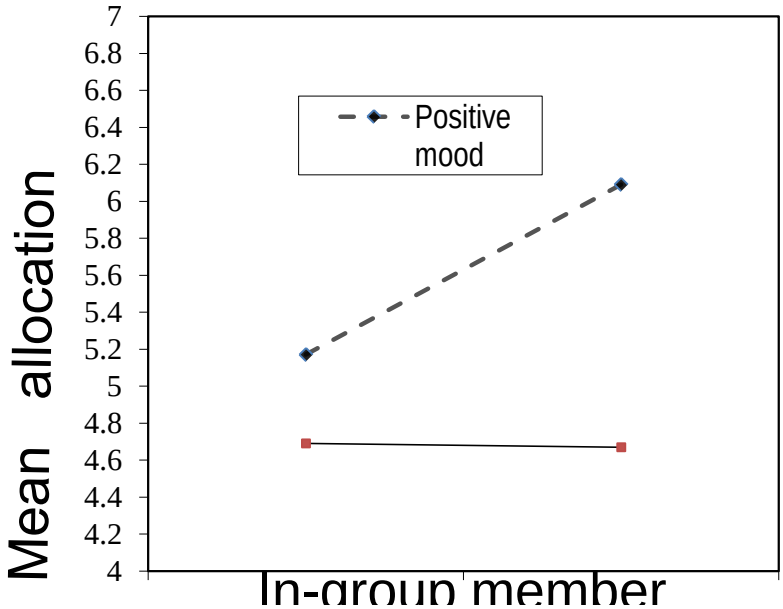

Figure 8. The effects of mood (good, bad) and relationship (in-group member vs. stranger) on the fairness of allocations in a dictator game, showing the mean number of tickets out of 10 individuals kept to themselves in each condition. (after Tan & Forgas,

2010).

Experiment 2 replicated this effect using a different mood induction (affect-inducing films) and a more realistic allocation task in the laboratory, with the names and photos of partners also displayed for each task to increase realism. After viewing films designed to induce happy or sad moods, participants performed a series of allocation tasks described as an 'interpersonal game' with 8 randomly assigned others, each involving the allocation of 10 points. Happy individuals were again more selfish and kept more points to themselves than did sad individuals, and there was also a significant interaction between mood and the eight trials. As the trials progressed, happy individuals became more selfish, and sad individuals became more fair (Figure 9).

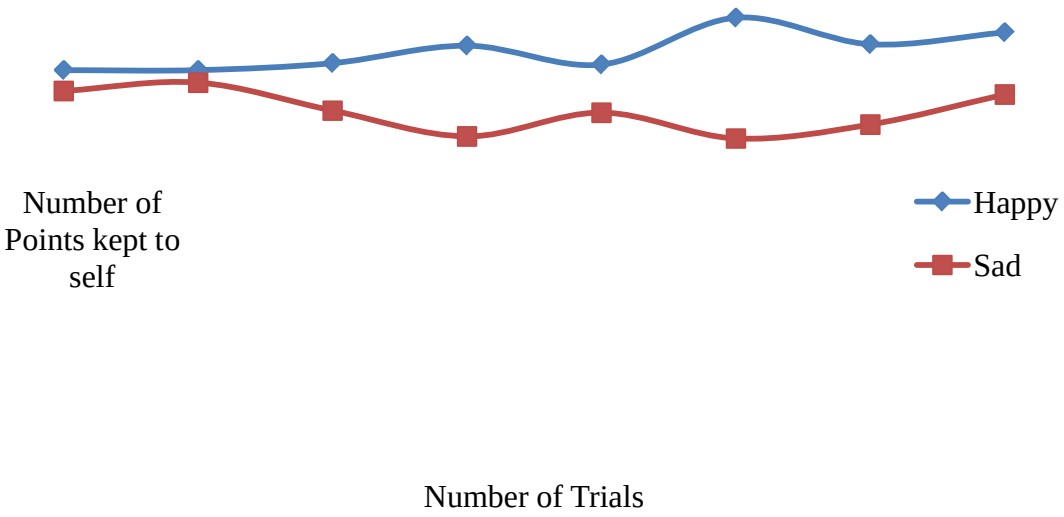

Figure 9. The effects of mood on selfishness vs. fairness: happy persons keep more points to themselves than do sad people, and these effects is more pronounced as allocation trials progress. (after Tan & Forgas, 2010).

In a further experiment we explicitly manipulated fairness norms, by providing allocators with information about the fair or unfair behaviors of previous players in order to reinforce

or undermine the social norm of fairness. Information about unfair allocations should weaken the social norm, and increase the latitude for individual deliberations, thus increasing the scope for mood effects to occur. After viewing affect inducing films, participants played the allocation task, after being exposed to information about *fair* or *unfair* offers of "past proposers" to emphasize or de-emphasize the fairness norm. Happy allocators were significantly more selfish than the sad group, and mood effects on selfishness are greatest when fairness norm was undermined, allowing greater scope for allocators to engage in open, constructive processing about their choices.

These experiments consistently show that happy mood increased assertiveness and selfishness when allocating resources in the dictator game, an almost pure measure of selfishness. Mood effects were greater when the norm of fairness was de-emphasized, as allocators were more likely to process the task in an open, constructive manner. These findings are conceptually consistent with prior evidence showing that positive affect produces more assertive, confident and optimistic interpersonal strategies, while negative mood triggers more pessimistic, cautious responses sensitive to external demands (Fiedler, 2001; Bless & Fiedler, 2006; Forgas, 1999, 2002).

This account is also broadly consistent with functionalist evolutionary theories suggesting that affect has a signalling function about situational requirements (Clore & Storbeck, 2006; Forgas et al., 2007; Schwarz, 1990), with negative affect recruiting a more externally focused, accommodative orientation (Bless & Fiedler, 2006). Positive affect in turn promotes more assimilative, internally focused strategies, further enhancing the tendency for selfishness (Bless, 2001; Bless & Fiedler, 2006; Fiedler, 2001). Many conflict situations in our private as well as working lives involve decisions between acting assertively and selfishly and acting fairly. The kind of mood effects on assertiveness and selfishness

demonstrated here may have important implications for real-life conflict behaviours in personal relationships, organizational decisions, and many other everyday situations where decisions by one person have incontestable consequences for others.

Summary and Conclusion

In contrast with the overwhelming emphasis on the benefits of positive affect in the recent literature, these results highlight the potentially adaptive and beneficial consequences of negative mood (Forgas & George, 2001). Positive affect is not universally desirable: people in a negative mood are less prone to judgemental errors (Forgas, 1998), are more resistant to eye-witness distortions (Forgas et al., 2005) and are better at producing high-quality and effective persuasive messages (Forgas, 2007). Given the consistency of the results across a number of different experiments, tasks and mood inductions, the effects appear reliable. Our findings are broadly consistent with the notion that over evolutionary time, affective states became adaptive, functional triggers to elicit information processing patterns that are appropriate in a given situation.

Dealing with social information is necessarily a complex and demanding cognitive task that requires a high degree of elaborate processing (Forgas, 1995; 2002). The empirical studies presented here suggest that in many situations, negative affect such as sadness may increase, and positive affect decrease the quality and efficacy of cognitive processes and interpersonal behaviours. Much has been learned about the way affective states influence memory, thinking and judgements in recent years, yet not enough is known about the evolutionary mechanisms that are responsible for the way we respond to various affective states.

Author's Note

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