From empathy to apathy: The bystander effect revisited

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Abstract

The bystander effect, the reduction in helping behavior in the presence of other people, has been predominantly explained by situational influences on decision-making. Diverging from this view, we highlight recent evidence on the neural mechanisms and dispositional factors that determine apathy in bystanders. We put forward a new theoretical perspective that integrates emotional, motivational and dispositional aspects. In the presence of other bystanders, personal distress is enhanced and avoidance and freeze-like fixed action patterns dominate. Together, this new perspective suggests that bystander apathy results from a reflexive emotional reaction dependent on the personality of the bystander.

Keywords: bystander effect, helping behavior, empathy, sympathy, personal distress.

When prompted whether they would spontaneously assist a person in an emergency situation almost everyone will reply positively. Although we all imagine ourselves heroes, the fact is that many people refrain from helping in real-life, especially when we are aware that other people are present at the scene. In the late sixties, John M. Darley and Bibb Latané (1968) initiated an extensive research program on this so-called 'bystander effect'. In their seminal paper, they found that everyone helped when being the sole bystander, only 62% of the participants intervened when they were part of a larger group of five bystanders. Following these first findings, many studies consistently observed a reduction in helping behavior in the presence of others (Fischer et al., 2011; Latané & Nida, 1981). This pattern is observed during serious accidents (Harris & Robinson, 1973), non-critical situations (Latané & Dabbs, 1975), on the internet (Markey, 2000), and even in children (Plötner et al., 2015).

Three psychological factors are thought to facilitate bystander apathy: the feeling of having less responsibility when more bystanders are present ('diffusion of responsibility'), the fear of unfavorable public judgment when helping ('evaluation apprehension'), and the belief that, as no one else is helping, the situation is not actually an emergency ('pluralistic ignorance'). While these traditional explanations (Latané & Darley, 1970) cover several important aspects (attitudes, beliefs), others remain unknown, unexplained, or ignored in studies of the bystander effect, including neural mechanisms, motivational aspects, and the effect of personality. Indeed, the only hit for the keyword 'personality' in a recent overview (Fischer et al., 2011), was with journal names in the reference list, for example 'Journal of Personality and Social Psychology'. Consequently, it seems fair to say that the 'literature has remained somewhat ambiguous

with regard to the relevant psychological processes' (p. 518, Fischer et al., 2011). Here, we highlight recent neuroimaging and behavioral studies, and sketch a new theoretical model that incorporates emotional, motivational, and dispositional aspects and highlights the reflexive aspect of the bystander effect.

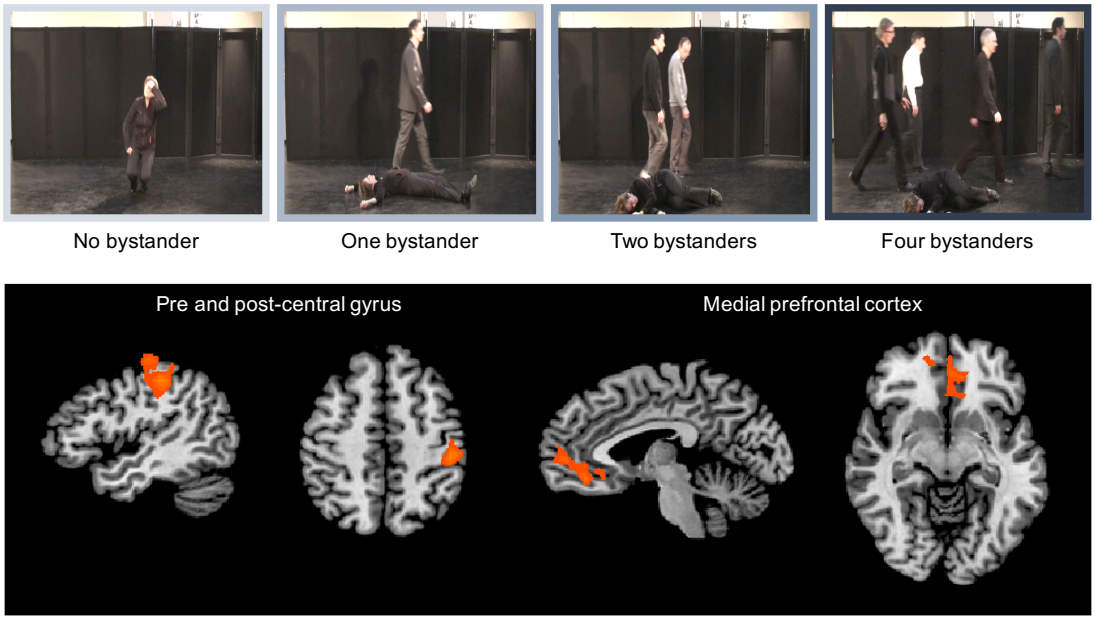
Neural mechanisms of bystander apathy

Can neuroimaging studies inform the investigation of the bystander effect? What are the neural mechanisms underlying bystander apathy? In view of traditional explanations one would expect to find the involvement of brain regions that are important for decision-making. Yet emerging evidence suggests that certain forms of helping behavior are automatic or reflexive (Rand, 2016; Zaki & Mitchell, 2013), and recent neuroimaging studies without a bystander focus, already argue for the automatic activation of preparatory responses in salient situations. Observing a threatening confrontations between two individuals activates the premotor cortex independent of attention (Sinke et al., 2010) or focus (Van den Stock et al., 2015). This raises the question of whether the absence of helping behavior is a cognitive decision or follows automatically from a reflexive process.

A recent fMRI study directly mapped neural activity as a function of the number of bystanders present in emergency situation (Hortensius & de Gelder, 2014). Participants watched an elderly woman collapsing on the ground when she was seen alone on the street, or in the presence of one, two or four bystanders. Activity increased in vision- and attention-related regions, but not in the mentalizing network. Importantly, a decrease in activity was observed when the number of bystanders increased in brain

regions important for the preparation to help, the pre- and postcentral gyrus and the medial prefrontal cortex (MPFC; **Figure 1A**). The MPFC is implicated in a diverse set of emotional and social processes. One proposal for an overarching role is mapping of situation-response association (Alexander & Brown, 2011; Euston, Gruber, & McNaughton, 2012), coding the link between an event, for example an emergency, and corresponding responses, in this case helping behavior. Activity in the MPFC has been linked to prosocial behavior (Moll et al., 2006; Rilling et al., 2002; Waytz, Zaki, & Mitchell, 2012), such as daily helping of friends and strangers (Rameson, Morelli, & Lieberman, 2012). Using a scenario similar to early bystander studies, Zanon and colleagues (2014) showed the importance of the MPFC for helping behavior during a life-threatening situation. In Virtual Reality (VR), participants and four bystanders had to evacuate a building that caught on fire. While doing so they encountered a trapped individual whom they could help. Individuals that offered help compared to those who refrained from helping showed greater engagement of the MPFC within the anterior default-mode network network (**Figure 1B**). However, can this association be quantified as reflexive or reflective? A recent study suggest that computations underlying prosocial behavior with a focus on the need of the other are faster, or reflexive, compared to those with a selfish focus (Hutcherson, Bushong, & Rangel, 2015). Importantly, both these prosocial choices are sustained by the MPFC. Recent indications suggest that coding of reflexive situation-response within this area might be experience- and personality-dependent. When cognition was restricted, activity in the MPFC did not decrease during the observation of distress for people with higher levels of dispositional empathy compared to people with lower levels (Rameson et al., 2012). Together, these recent

A *Decreased brain activity during the observation of an emergency with an increase in bystanders*



B *Increased functional connectivity during helping of an individual in the presence of bystanders*

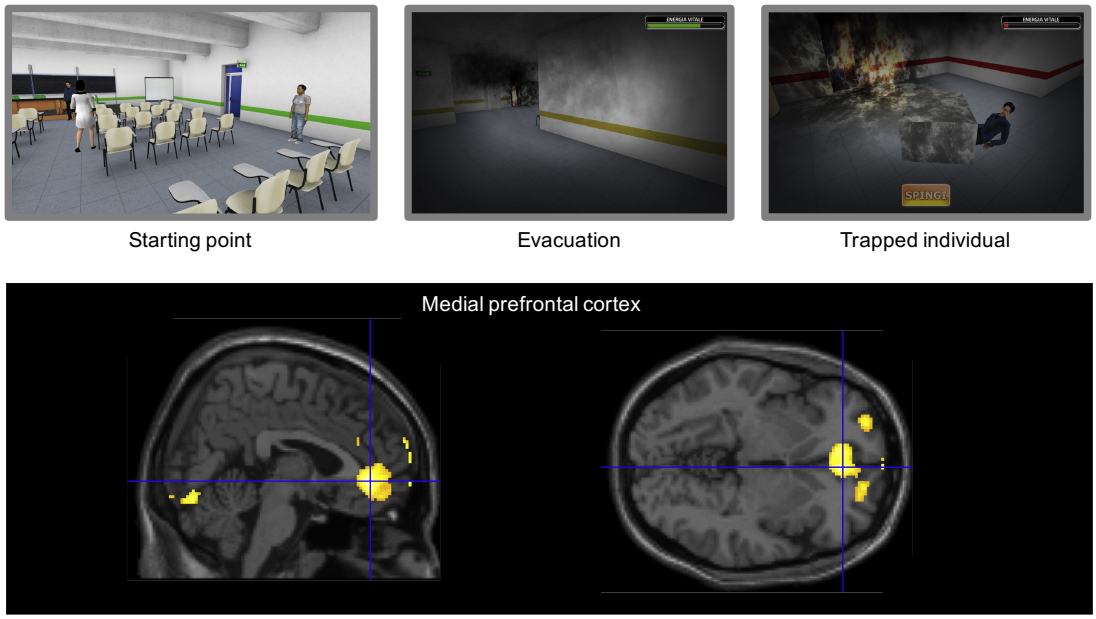


Figure 1. Neural activity related to bystander apathy. (A) A decrease in activity was found in the pre- and postcentral gyrus and the medial prefrontal cortex when participants witnessed an emergency with increasing number of bystanders (Hortensius & de Gelder, 2014). Participants saw an elderly woman collapsing on the ground while in the presence of no, one, two or four bystanders **(B)** Increased functional coupling of the medial prefrontal cortex within the anterior part of the default-mode network in participants who helped a trapped individual during an emergency situation with bystanders compared to participants who did not provide help (Zanon et al., 2014). Participants had to evacuate from a burning building in Virtual Reality. During the evacuation, they encountered a trapped individual whom they could help. Figure adapted from Hortensius & de Gelder (2014) (A) and Zanon et al. (2014) (B).

findings provide a first indication of the neural mechanism underlying bystander apathy and point to a possible reflex-like mechanism that determines the likelihood of helping.

Dispositional influences on bystander apathy

The first experimental bystander study did not find an effect of dispositional levels of social norm following (Darley & Latané, 1968), and since then the role of personality factors has largely been ignored. The general notion is that situational factors rather than personality dominate behavior; thus bystander apathy is present in every individual. This is in contrast to other research areas, where the impact of personality, systematic inter-individual differences consistent across time and situation, on helping behavior have been widely appreciated (Graziano & Habashi, 2015). Two dispositional factors, sympathy and personal distress, have been identified that influence helping behavior (Batson, Fultz, & Schoenrade, 1987; Eisenberg & Eggum, 2009). Sympathy is an other-oriented response and comprises feelings of compassion and care for another individual. The contrasting and automatic reaction of personal distress relates to self-oriented feelings of discomfort and distress in the observer. In stark contrast to personal distress, helping behavior driven by sympathy is not influence by social factors such as social evaluation or reward (Fultz et al., 1986; Romer, Gruder, & Lizzadro, 1986). Inspired by these findings, we studied the interplay between a disposition to experience sympathy and personal distress and the bystander effect by directly and indirectly probing the motor cortex during the observation of an emergency (Hortensius, Schutter, & de Gelder, 2016). As predicted by previous literature, both sympathy and personal distress were related to faster responses to an emergency without bystanders present. However, only personal distress predicted

the negative effect of bystanders during an emergency. Importantly, further testing showed that this association between personal distress and the bystander effect relates to a reflexive, not to a reflective preparation to help. Consistent with the previous neuroimaging findings, bystander apathy is not the result of a cognitive decision to act, but dependent on a reflex-like mechanism, especially for people with a disposition to experience personal distress.

The reflexive aversive reactions to the suffering of another individual are closely related to behavioral avoidance and inhibition. Indeed, state and trait avoidance-related motivations influence bystander apathy (van den Bos, Müller, & van Bussel, 2009; Zoccola, Green, Karoutsos, Katona, & Sabini, 2011). When people are reminded to act without inhibition, thereby temporally shifting the balance between approach and avoidance motivations, helping behavior occurs faster and increases in bystander situations (van den Bos et al., 2009). Behavioral inhibition is sustained by subcortical (e.g., amygdala) and cortical brain regions (e.g., motor and prefrontal areas) that serve as a function of situation and disposition (McNaughton & Corr, 2004). For example, a recent study showed the dynamic interplay between behavioral inhibition, helping behavior and personality (Stoltenberg, Christ, & Carlo, 2013). Variation in the serotonin neurotransmitter system, a crucial modulator of behavioral inhibition, modulated helping behavior and this relation was mediated by dispositional levels of social inhibition. Taken together, bystander apathy is likely the result of a personality-dependent reflex-like mechanism.

Bystander apathy as the result of a motivational system

These recent findings dovetail with a recent motivation model described by Graziano and colleagues (Graziano & Habashi, 2010; 2015), in which two evolutionarily conserved but opponent motivational systems with fixed behavioral consequences are activated in sequence when encountering an emergency. Feelings of personal distress and sympathy are related to the first and second system, respectively. The instantaneous response to an emergency is a feeling of distress and activation of the fight-freeze-flight system. In these conditions, helping behavior does not occur and the behavioral response is limited to avoidance and freeze responses. Over time, slower feeling of sympathy arises together with the activation of a reflective second system. This counteracts the fixed action patterns of the first system. The likelihood of the occurrence of helping behavior is the net result of these two systems, with helping behavior being promoted by the second system. Feelings of personal distress and sympathy are present in every individual, but the dispositional levels of these feelings and strength of these two systems vary between individuals (Graziano & Habashi, 2010; 2015). The presence of bystanders during an emergency selectively increases activity of the first system (**Figure 2A)**. This situational increase in personal distress, combined with dispositional levels, increases the activation of the fight-freeze-flight system and results in a reduced likelihood of helping. Indeed, higher levels of personal distress decrease helping behavior when the possibility to escape the situation is easy (Batson et al., 1987). Ultimately, bystander apathy occurs as the consequence of an inhibitory response seeking avoidance of the situation, but not a conscious decision.

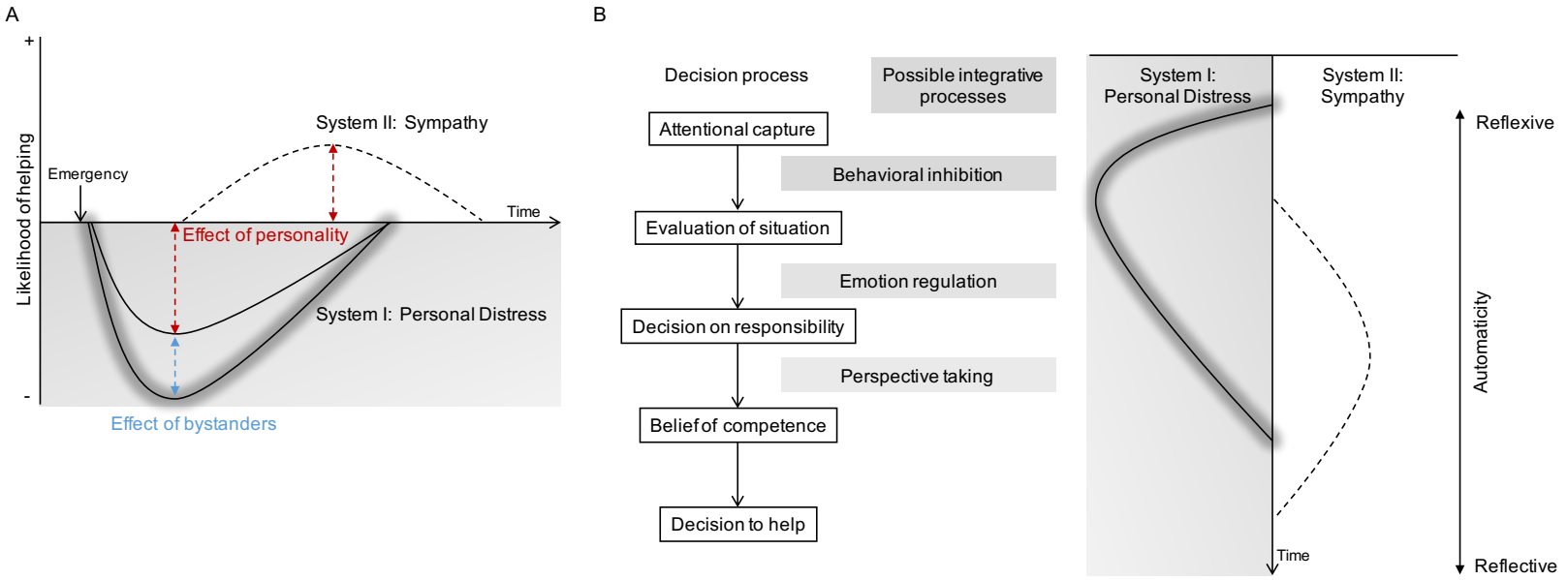


Figure 2. A motivational and integrated account of bystander apathy. (A) Helping behavior is the net result of two opposing processes (Graziano & Habashi, 2010). When encountering an emergency, self-centered feelings of personal distress arise in the individual with activation of the fight-freeze-flight system and helping behavior does not occur. Only with the opposite other-oriented feeling of sympathy and activation of the second system the likelihood of helping increases. The strength of the two systems is the sum of dispositional and situational influences. The strength of System I is increased for people with a disposition to experience personal distress in response to an emergency. As the presence of bystanders results in an additional increase in the strength and dominance of System I, individuals with a disposition to experience personal distress in response to an emergency are more prone to bystander apathy. **(B)** Intermediate processes can be described that can reconcile a cognitive and motivational account of bystander apathy. The decision process as first put forward by Latané and Darley (1970) describes the cognitive steps that occur within the individual from the initial attentional capture and evaluation of the emergency to the decision of responsibility and competence and ultimately to provide help. These processes can be mediated by the integrative processes of behavioral inhibition, emotion regulation and perspective taking that are at first driven by the reflexive system of personal distress and later by the reflective system of sympathy. Ultimately, these personality- and situation-dependent processes can increase or decrease the likelihood of helping during bystander situations.

The ultimate cause of bystander apathy

While this perspective provides new insight into the proximate cause of bystander apathy, it also allows for speculation on its ultimate cause. Why is the motivation to help dependent on the number of bystanders? This might be because, for the best outcome, only the individual that is most able (given strength, experience, etc.) should provide help, while others should not, or at least more cautiously. The training of firefighters and other first-responders directly follows these principles: only well-trained individuals are allowed to help, while trainees are excluded. Taking into account the composition and size of the bystander group is crucial in providing efficient help that maximizes individual survival. This might already be reflected in the calculations within the motivational system. Apathy in novel situations or with unknown bystanders could be the consequence of these calculations. There is indirect evidence for this suggestion as bystander apathy is reduced when bystanders know each other (Fischer et al., 2011), and competence of the individual in relation to other bystanders influences the occurrence of helping behavior (Bickman, 1971; Ross & Braband, 1973). Future studies should formally test the effect of group composition (i.e., known identity, expertise) on the calculations within the motivation system. Are increased levels of personal distress during bystanders situations a way to prevent inadequate helping behavior?

An integrative perspective on bystander apathy

This is not to say that previous decision-based explanations are obsolete. Cognitive, situational, and dispositional explanations are not mutually exclusive and a multilevel approach is crucial in understanding helping behavior and the lack thereof. Thoughts and

feelings are part of every responsive bystander, and the motivational processes described could precede or influence the decision to help. Latané and Darley (1970) describe a five-step process during bystander situations. The potential emergency captures the attention of the individual, who evaluates the emergency as such, decides on responsibility, belief of competence and ultimately makes the decision to help or not. However, these calculations in the decision-making process do not necessarily have to occur at a reflective, cognitive level (Garcia, Weaver, Moskowitz, & Darley, 2002), and can also reflect the outcome of reflexive or intermediate processes.

Several intermediate processes can be described that can reconcile the previous reflective and present reflexive explanations but warrant further empirical confirmation **(Figure 2B**). These processes, behavioral inhibition, emotion regulation and perspective taking, directly stem from the overarching motivational systems (Batson, Fultz, & Schoenrade, 1987). Immediately after the confrontation with an emergency, the integrative processes (behavioral inhibition and emotion regulation) are under influence of the first system of personal distress, while over time the system related to sympathy mediates these processes (emotion regulation, perspective taking). Together, these processes increase or decrease bystander apathy. For example, while behavioral inhibition and freezing at an early stage can help to assess and decide on the situation (McNaughton & Corr, 2004), prolonged inhibition and freezing is ineffective. Similarly, the ability to regulate initial aversive reactions to an emergency, tightly linked to dispositional levels of personal distress and sympathy (Eisenberg & Eggum, 2009), is crucial in deciding to help. Taking into account the perspective of other bystanders, as well as the victim, mediated by the core process of sympathy (Eisenberg & Eggum,

2009), can positively influence felt moral responsibility (Paciello et al., 2013), the cognitive belief of competence and ultimately the decision to help (Patil et al., 2017). This cascade of processes in response to an emergency is reflexive at first, while the later stages can be described as reflective. This distinction between reflexive and reflective might be experience-dependent, with the situation-response coupling being completely reflexive for certain individuals or situations (Rand & Epstein, 2014; Zaki & Mitchell, 2013). As for explaining bystander apathy, however, pluralistic ignorance, evaluation apprehension, and diffusion of responsibility might simply be the summary terms of the attenuated integrative processes of emotion regulation, behavioral inhibition, and perspective taking, mediated by the motivational system of personal distress.

Concluding remarks

This perspective opens up new ways to study the neural and psychological mechanisms of bystander apathy by taking into account situational and dispositional factors. While ecological validity is a challenge in neuroimaging studies, innovations such as VR together with neuroimaging and behavioral testing, portable neuroimaging systems, and laboratory-based investigations of people that provided help in real-life, will allow to take important next steps in bystander research. The bottom-up approach argued for here sketches a novel perspective on the bystander effect and already paves the way for a different explanation. Together, findings from recent neuroimaging and behavioral studies suggest that the bystander effect is the result of a reflexive action system that is rooted in an evolutionarily conserved mechanism and operates as a function of dispositional personal distress. In the end, we do not actively choose apathy, but are merely reflexively behaving bystanders.

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