Anger as a moral emotion: A 'bird's eye view' systematic review

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Abstract

Anger is common problem for which counselling/psychotherapy clients seek help, and is typically regarded as an invidious negative emotion to be ameliorated. However, it may be possible to reframe anger as a moral emotion, arising in response to perceived transgressions, thereby endowing it with meaning. In that respect, the current paper offers a 'bird's eye' systematic review of empirical research on anger as a moral emotion (i.e., one focusing broadly on the terrain as a whole, rather than on specific areas). Three databases were reviewed from the start of their records to January 2019. Eligibility criteria included empirical research, published in English in peer-reviewed journals, on anger specifically as a moral emotion. 175 papers met the criteria, and fell into four broad classes of study: survey-based; experimental; physiological; and qualitative. In reviewing the articles, this paper pays particular attention to: how/whether anger can be differentiated from other moral emotions; antecedent causes and triggers; contextual factors that influence or mitigate anger; and outcomes arising from moral anger. Together, the paper offers a comprehensive overview of current knowledge into this prominent and problematic emotion. The results may be of use to counsellors and psychotherapists helping to address anger issues in their clients.

Keywords: anger; emotion; moral; systematic review.

Anger is a central topic of concern within counselling and psychotherapy, understood to be a noxious emotion that can cause great suffering to those burdened with it (Mayne & Ambrose, 1999). There are many considerations when it comes to dealing with anger in such contexts, but one particularly important one is how anger is appraised and conceptualised; or, to put it another way, what is the *meaning* of anger. This is a crucial question. It is often harder for clients to deal with anger if it is *simply* a noxious negative emotion that serves no apparent adaptive function (Davenport, 1991). Conversely, if anger can be framed as actually serving some such process, even if it is unpleasant, its effects may be easier to bear and to process. In that respect, it may be helpful to consider the perspective of 'second wave' positive psychology, which includes the possibility that negatively-valenced emotions may serve some adaptive purpose in promoting long-term wellbeing (Lomas & Ivtzan, 2016), as elucidated further below. As such, this paper looks at the issue of whether anger can be framed, at least sometimes, as a moral emotion. We'll begin though by first considering the range of perspective on anger that have developed over the years.

Perspectives on anger

Anger has long been of interest to psychologists and philosophers. Indeed, its potency as an elemental passion driving human behavior has been recognized since antiquity; the Roman physician Claudius Galen (circa 130-200 C.E), for instance, reflected on his 'hatred' of anger, such was its power to rob people of reason and dignity (cited in Kemp & Strongman, 1995, p.397). In analyses and debates around anger throughout the intervening centuries, and in recent academic literature in particular, two key questions are, how does anger occur, and why does it occur?

The first question concerns the physiological and phenomenological manifestations of anger. Anger can be defined simply as an 'emotional state that consists of feelings that vary in intensity, from mild irritation or annoyance to fury and rage' (Spielberger, Jacobs, Russell,

& Crane, 1983, p.162). That said, it is a complex state, involving a multidimensional play of 'physiological reactions, facial expressions, vocal responses, visual attention, body postures, and a host of behavioral strategies including social exclusion, insults, argumentation and aggression' (Sell, 2011, p.382). In phenomenological terms, anger is characterized by unpleasant physical arousal, including muscle tension, increased heart-rate, and prickling heat (see e.g., Fernandez and Johnson (2016) for a review of its presentation in the context of psychological disorders, as well as an analysis of its prevalence, aetiology and prognostic implications). Such sensations are explained in physiological terms as being generated by activation of the sympathetic nervous system, as per the 'fight-flight' response, where autonomic arousal resulting from threat or provocation will lead either to fear and escape behaviours (in the presence of flight-producing cues) or anger and aggression behaviours (in the absence of such cues) (Tyson, 1998). Of course, these physiological mechanisms interact with psychological processes in complex ways; for instance, faster sympathetic recovery from anger is associated with better emotion regulation skills (Kahle, Miller, Lopez, & Hastings, 2016).

These sensations are similarly conceptualized in cognitive terms using 'hydraulic' metaphors, in which anger is understood in both ontological and epistemic terms using metonymic concepts relating to physical forces of heat and pressure, reflected in idioms such as 'exploding with anger' (Lakoff, 1987). Such metaphors capture the notion that anger can be physical and emotionally intense, and can lead to a loss of control that can be problematic and even dangerous. Although it might be assumed that the 'how' of anger (its physiology and phenomenology) is relatively well understood, it nevertheless remains an area of considerable debate, for instance in terms of the appropriacy of conceptualizing it in hydraulic terms (Bushman, 2002), or the extent to which it is indeed 'uncontrollable' (Faupel, Herrick, & Sharp, 2010); indeed, the point above about the role of emotional regulation skills

indicates that it may be stoppable to an extent, in ways that vary with individuals (Kahle et al., 2016).

While the 'how' of anger remains a live issue, arguably of greater debate is the question of *why* anger occurs. Typologies of precipitating factors identify a wide range of triggers, including 'insults, cost imposition, inattention, anger from another, insufficient reciprocity, insufficient praise, another's ignorance of your achievements and so on' (Sell, 2011, p.382). Given this diversity, attempts have been made to organize these precipitating factors within an overarching theory. Such theories hail from a range of academic paradigms and disciplines, from evolutionary psychology to psychodynamic psychotherapy. From an evolutionary perspective, we find a wealth of psychobiological theories aiming to account for the adaptive value of anger. For instance, Gilbert and Miles' (2000) social rank theory views anger (and other emotions such as shame) as a key mechanism in regulating social status, a theory which continues to find empirical and clinical support (see e.g., Wetherall, Robb, and O'Connor (2019) for a systematic review of its role in depressive symptoms and suicide risk). The theory holds that when status and access to scare resources are threatened, this can be countered through survival mechanisms, including anger (as a counterattack signifying agency and dominance), shame (a show of submissiveness to avoid future conflict), and even prosocial emotions (as a way of eliciting co-operation). Alternatively, Sell's (2011) 'recalibrational theory' – which likewise continues to draw empirical support (e.g., Wyckoff, 2016) – holds that the function of anger is to 'recalibrate' people who place insufficient weight on the welfare of others when making decisions; the anger of these wronged others raises the target's 'welfare tradeoff ratio,' prompting the actor into placing greater importance on their needs.

Alternatively, from a psychodynamic perspective, Freud's hydraulic model posits that frustrations (e.g., arising from thwarted desire satisfaction) lead to anger, which consequently

'builds up' (as per fluid dynamics) until it is either released in a manageable cathartic way, or is bottled up until it explodes as aggressive rage (Freud & Breuer, 1895). While this idea has proved influential (as per the metonymic idioms identified by Lakoff (1987), noted above), recent studies have found flaws in it, including critiquing its 'aetiological' analysis that unless anger is 'vented' it will build and explode as rage (Bushman, 2002). Other psychological models that are less psychodynamically inclined also link anger to frustration and other aversive events (from provocation to hot temperature). For instance, Berkowitz's (1993) 'cognitive neo-association' theory holds that aversive phenomena generate negative affect, which in turn stimulate thoughts, memories, motor reactions, and physiological responses associated with fight and flight tendencies, with fight associations consequently producing feelings of anger (see e.g., Gresham, Melvin, and Gullone (2016) for recent empirical testing and support).

Arguably the most prominent model of anger currently is general strain theory (GST), developed principally by Agnew (1985) in the context of criminality, which likewise links anger to aversive events. The theory continues to be deployed to help analyze and understand a wide range of behaviours and outcomes, including gambling and substance use (Greco & Curci, 2017), delinquency (Moon & Morash, 2017), and bullying (Walters & Espelage, 2017). Initially, the theory posited that 'strain' resulted mainly from goals being blocked, with strain then leading to anger, and anger to deviance. That is, strain can generate negative emotions, such as anger or depression; these in turn provoke people into initiating corrective or coping responses to alleviate or manage these dysphoric states. When the response is anger, the chance of deviant behaviours increases, as people may respond with retaliatory, instrumental or escapist responses. However, more recently the model has been expanded – see Cullen (2017) for a recent summary of developments – where the causes of strain are not only blocked goals, but factors including noxious circumstances, losing something of value,

and situations perceived as unjust (Agnew, Brezina, Wright, & Cullen, 2002). It is this last factor that the current paper is concerned with. That is, while anger may have varied causes, from frustration to threat, one of these causes may pertain to judgements around justice and ethics; thus, sometimes, anger may be a 'moral emotion,' as the next section elucidates.

Anger as a moral emotion

Over recent years, there has been increasing interest in the idea of moral emotions, including other-regarding states such as anger and disgust, and self-regarding states like guilt and shame (Rozin, Lowery, Imada, & Haidt, 1999). This idea of moral emotions has a long, distinguished pedigree. For instance, many enlightenment philosophers argued that morality was founded upon emotionality (a position associated most prominently with Hume, 1740), in contrast to those who saw morality as built upon rationality (as argued by Kant, 1789). The notion of moral emotions was still current as the field of psychology emerged at the dawn of the 20th Century (see e.g., Brown, 1912). However, as the century progressed, psychologists tended to focus on the cognitive, rational dimensions and mechanisms of morality, as exemplified in the work of Piaget (1932) and Kohlberg (1968), such as the acquisition of perspective and role-taking capacities, leading to the development of a type of moral logic that would guide one's actions.

Since the 1980s though, there has been renewed attention on the emotional basis of morality, prompted initially by the work of scholars like Kagan (1984) and Rosaldo (1984). Intriguingly, such work did not suggest that morality was grounded in emotionality *instead* of rationality, but argued that emotions themselves manifest their own form of rationality, in which the felt, embodied nature of moral emotions is inextricably linked to cognitive judgements of right and wrong. As Kagan put it, 'beneath the extraordinary variety of surface behavior and consciously articulated ideals, there is a set of emotional states that form the bases for a limited number of universal moral categories that transcend time and locality'

(p.118). Since this renewed focus on moral emotions, a range of theoretical positions have been developed and tested empirically.

One prominent theoretical model formulated by Rozin et al. (1999) focuses on the origin of three other-regarding emotions: anger, contempt and disgust. Rozin et al. draw on Shweder, Much, Mahapatra, and Park's (1997) 'big three' theory of morality, which identifies three main moral spheres: autonomy, community, divinity (later reconceptualised as sanctity/purity; Haidt & Joseph, 2007). Shweder et al. argued that each of these spheres is based upon a different conception of the person: autonomy reflects the status of people as individual agents with a unique preference structure; community recognizes that people are also embedded within a communal network of other people, holding responsibilities to this interpersonal nexus; and divinity concerns the belief that human beings possess some element of the sacred, sharing to some extent in a common nature with a divine being.

Building on this framework, Rozin et al. (1999) argued that anger arises due to violations of autonomy (e.g., infringing individual rights and freedoms), contempt due to violations of community (e.g., a person fails to fulfil their social obligations), and disgust due to violations of divinity (e.g., a person causes degradation or impurity to themselves, others, or God). The model continues to receive much empirical attention and support (e.g., Steiger & Reyna, 2017), although scholars have also challenged or complicated the original theory in various ways. For instance, Hutcherson and Gross's (2011) social-functionalist account corroborated the idea of anger, disgust and contempt being functionally distinct (differentiable in both antecedent appraisals and consequent actions), but found that disgust played a more significant and broader role than suggested by the original theory. More challengingly, while Royzman, Atanasov, Landy, Parks, and Gepty (2014) also supported the notion of these as three distinct emotions, they argued that anger appears to be the main emotional response to transgression, irrespective of the normative content of the

transgression. Yet others have argued that the anger at unfair treatment identified by Rozin et al. (1999) is not the only form of moral anger; other cases include empathic anger (at the harming of someone about whom one cares) (Batson et al., 2007). Thus, given such debates and open questions, there is a clear need for an up-to-date review on the state of the literature on this topic, which this paper aims to provide. Before getting into the specifics of the review however, it is worth providing an overarching theoretical context within which to situate the various work on anger as a moral emotion. To that end, one particularly useful paradigm is the emergent idea of 'second wave' positive psychology, which includes the possibility that negatively-valenced emotions may serve some adaptive purpose in promoting long-term wellbeing (Lomas & Ivtzan, 2016).

Second wave positive psychology

The field of positive psychology emerged in the late 1990s, defined by an avowed interest in psychological phenomena deemed 'positive' in some way, set within an overarching focus on broad concepts such as wellbeing, happiness, and flourishing. The initial impetus for the creation of the field was a disenchantment with the way 'psychology as usual' was mainly focused on disorder and dysfunction (apart from pockets of scholarship such as Humanistic psychology; Waterman, 2013). This emergent focus on positive topics energized scholars and students worldwide (Rusk & Waters, 2013). However, at the same time, various issues were raised by critics, including with respect to its foundational notion of the positive. For example, in accentuating the positive, PP could be seen as promulgating a polarising view of psychology, in which apparently positive qualities and processes were seen as necessarily beneficial (and thus to be sought); this logically meant that ostensibly negative phenomena were conceptualised as inherently undesirable (and thus to be avoided). However, critics from both inside the field (e.g., Wong, 2011) and outside (e.g., Held, 2004) began to show that the picture was more complicated. For instance, one can (and should) differentiate between

positive and negative *valence* (whether something is experienced as pleasant or unpleasant) versus positive versus negative *outcome* (whether something facilitates or hinders wellbeing). In doing so, one can find situations in which positively-valenced qualities can have negative outcomes, such as 'unrealistic' optimism being linked to under-appreciation of risk and thus to subsequent health risk behaviours (Weinstein, Marcus, & Moser, 2005). Conversely, negatively-valenced states can sometimes have positive outcomes, such as anger motivating someone to act against an invidious situation that had been hindering their wellbeing (Tavris, 1989).

Through such arguments, the initial premise of PP – defined as it was by a focus on the positive – appeared to be somewhat challenged. However, rather than destabilising the field, these types of critical arguments ushered in an increased awareness and appreciation of the subtle dynamics of the interplay between positive and negative. Indeed, it should be noted that such insights were implicit in the field from the beginning, with Seligman (1990) arguing that one must be wary of the 'tyrannies of optimism' and be 'able to use pessimism's keen sense of reality when we need it' (p.292). However, in the initial phase of the field, this kind of nuanced critique of the notion of the 'positive' needed to remain only *implicit*, otherwise the field would arguably have not got off the ground at all. Then, once the field had been accepted and substantiated, such ideas could be made more *explicit*. Thus, from a Hegelian perspective, if 'psychology as usual' was the thesis (focusing mainly the negative aspects of human functioning), and first wave PP its antithesis (emphasising instead the positive), this newer phase of scholarship constituted something of a synthesis. It is this synthesis that has attracted the label of 'second wave' PP – a phrase coined by Held (2004) and subsequently adopted by Ivtzan, Lomas, Hefferon, and Worth (2015) and Lomas and Ivtzan (2016) – or alternatively PP "2.0" (Wong, 2011). This second wave is still driven by concern with the same meta-concepts that underpinned the first wave, such as flourishing and wellbeing.

However, it is characterised by a more nuanced approach to the concepts of positive and negative, an appreciation of the ambivalent nature of the good life, and above all by an understanding of the fundamentally dialectical nature of wellbeing – as Ryff and Singer (2003) put it, recognising that flourishing involves an 'inevitable dialectics between positive and negative aspects of living' (p.272).

This paradigm of the second wave offers a useful context within which to consider the phenomenon of moral anger. That is, while anger is undoubtably a negative emotion in terms of *valence*, it may yet have the potential to serve a positive *outcome* if deployed skilfully. For instance, it has been argued that dynamics of moral anger have helped drive the progressive social movements that have emerged over recent decades, from feminism to civil rights (Zembylas, 2007). In those contexts, while anger may have felt unpleasant to people experiencing it, those same people are likely to have deemed society to have been improved as a result of their struggle, and consequently to believe that their overall flourishing had been well served. was promoted. Indeed, research on anger by Tamir, Mitchell, and Gross (2008) suggests that people prefer to experience emotions that are potentially useful, even if they are unpleasant to experience. This perspective aligns with a core agenda of the second wave, namely helping people to discern the potential value of negatively-valenced emotions and experiences – from boredom (Lomas, 2017) to shame (Wong, 2018) – and to harness them skilfully and adaptively in the service of their overall wellbeing.

In the interests then of better understanding the phenomenon of moral anger, the moment is opportune for an evaluation of the state of the literature in this area. This includes not only ascertaining the extent to which anger is differentiable from other moral emotions (as per Rozin et al.'s (1999) theory), but other issues such as: what are the various antecedent causes and triggers of moral anger; what contextual determinants influence or mitigate it; and what types of outcomes does it generate? As such, the present paper offers a systematic

review of the literature in this area, providing a comprehensive summary of all empirical work published to date in peer-reviewed journals, as outlined below.

Methods

An 'inclusive' literature search was conducted, following the example of Lomas et al. (2018), who conducted an explicitly broad-ranging assessment of the impact of mindfulness-based interventions in the workplace. In that latter case, it meant the authors considering and including a maximally a wide range of designs (e.g., experimental versus observational), types of data (e.g., quantitative and qualitative), populations (i.e., all types of occupations and workplaces), and outcomes (i.e., a very broad range of wellbeing-related outcomes). Following this example, the current paper sought to provide an inclusive 'bird's eye' view of the literature, being open to a similarly wide range of designs, populations, and outcomes. It offers a 'bird's eye' view in the sense of aiming primarily to give an overview of the terrain as a whole, rather than focusing on a specific area. This stands in contrast to more precisely-targeted reviews, such as Huffman and Rittenmeyer's (2012) systematic review of moral distress among professional nurses specifically. While there is of course value in more narrowly-concentrated reviews, there has so far not been an overarching systematic review of the literature as a whole, hence the value of the current paper.

The review was conducted using the MEDLINE, Scopus and Psychinfo electronic databases. The criteria were "moral" (AND) "anger" – searched for in all fields in MEDLINE and Psychinfo, and limited to article title, abstract, and keywords in Scopus. The search dates were from all years (i.e., the start of the records) to the present (1st January 2019). Initially, 1,614 papers were retrieved across the three databases (MEDLINE = 389; Scopus = 504; Psychinfo = 721). The search was immediately narrowed down to papers published in academic journals, bringing the number of papers across the three databases down to 1026, reduced to 525 once duplicates were removed. In terms of PICOS (participants, interventions,

comparisons, outcomes and study design), the key criteria were very open, namely: participants – any; interventions – any; outcomes – any; and study design – any empirical study featuring data collection. These papers were screened according to the following inclusion criteria: 1) an empirical study, 2) published in a peer-reviewed journal, 3) in English, 4) which focused centrally on anger as a moral emotion. The latter criterion was mainly determined by whether authors explicitly framed the anger that was the focus of their study as being moral. In most cases, this screening was possible on the basis of the abstract alone; in a small minority, a review of the full article was necessary. Once papers had been selected for inclusion, the following variables were extracted from each paper: the first author; the year of publication; the type of participant/population; the number of participants; the average age of participants; the gender-ratio of the participants; the location of the study; the ethnicity of the participants; percentages of male and female participants; the study design; and key outcome(s). The process of selecting papers is outlined in the prisma flow chart, detailed in figure 1 below

[Insert figure 1 about here]

Results

Search results

Following the removal of papers not published in academic journals, and the removal of duplicate citations, 525 relevant papers were identified. From the abstract review, 262 papers were excluded, either because they were not empirical papers (n = 246) or not in English (n = 16), leaving 263 papers for full review. (Of the 246 excluded for not being empirical papers, 55 of these were theoretical, review or commentary papers on the moral dimension of anger; these are detailed in supplementary table 1.) From the full review of 263 papers, 88 were excluded as these were deemed to not focus on the moral dimensions of anger (i.e., the presence of both the words “anger” and “moral” in the paper was incidental, rather than

substantive). It should be noted that of the 263 papers subject to full review, 30 of these papers were unobtainable (despite requests made to authors where contact information was provided); however, these were retained on the basis of their abstract. Thus, a total of 175 papers were included in the systematic analysis, involving a recorded total of 60,692 participants (with the participant numbers of 6 papers being unobtainable). These papers fall into four main types, differentiated according to methodology: (a) survey-type studies; (b) experimental studies; (c) physiological studies; and (d) qualitative studies. These four types are detailed in turn.

Survey-based

The first category was studies based simply on surveys and questionnaires of various kinds, including self-report scales, of which there were 50 papers, as outlined in table 1 below.

[insert table 1 about here]

Experimental

The second category was experimental studies of various designs, of which there were 83 papers, as outlined in table 2 below. These included behavioural observations (e.g., activity in manipulated 'game theory' scenarios), experimental tasks (e.g., cognitive tests), and self-report scales in response to moral vignettes.

[insert table 2 about here]

Physiological

The third category is studies involving physiological assessments, of which there were 7 papers, as outlined in table 3 below, including studies using fMRI technology to examine brain areas involved in moral emotions.

[insert table 3 about here]

Qualitative

The final category is articles deploying qualitative methodologies, of which there were 35 papers, as outlined in table 4 below. The majority of these involved one-to-one interviews, though other methods included psychotherapeutic case studies and content analyses of media sources.

[insert table 4 about here]

Discussion

The results highlight the great breadth and depth of recent research into the notion of anger as a moral emotion, with 175 relevant empirical papers. The literature is of course even broader than this, since this review only included empirical work published in peer-reviewed journals; this meant, for instance, that the wealth of journal papers approaching the topic from a theoretical, review-based or commentary perspective were excluded (of which there were 55 such papers, detailed in supplementary table 1). Together, the papers collected here provide a comprehensive picture of the current state of understanding of anger as a moral emotion. With so many relevant papers, this discussion section cannot of course delve into all the nuances of the collated literature. Indeed, as argued above, the main aim of this paper is to provide a 'bird's eye' view of the territory (of anger as a moral emotion), rather than to focus on specific areas and elements. As a result, it will not be possible to provide an overarching analysis that covers all the literature as a whole. Rather, readers are encouraged to consult the tables in the results section – which provide a comprehensive overview of this terrain – and then to engage with the listed papers individually according to their interests and agenda. That said, this discussion will nevertheless attempt to draw out some key themes and findings observed across the literature. In that respect, we can briefly touch upon issues including: (a) differentiating anger from other moral emotions; (b) antecedent causes; (c) mitigating and influencing factors; and (d) outcomes.

Differentiating anger

There was qualified support for Rozin et al.'s (1999) CAD hypothesis, introduced above. That said, this corroboration was not unanimous, and there were some dissenting papers across the various paradigms. For instance, Royzman et al.'s (2014) psychometric analyses indicated that anger may be the principal response to transgressions generally (including in relation to purity and divinity). Making a similar point, in an analysis of facial expressions in response to moral vignettes, Franchen et al. (2018) found that although anger reactions were elicited more frequently by harmful than by impure actions – as the CAD might predict – violations of purity tended to also elicit more expressions of anger than of disgust. Relatedly, a challenge to the conceptual differentiation implicit in the CAD model came from physiological studies: using facial recognition tasks in the context of frontotemporal dementia, Lough et al. (2006) found that while emotion recognition was globally impaired, anger and disgust were particularly (and similarly) impaired, implying a common physiological substrate. A challenge of a different sort was offered by Herz and Hind's (2013) qualitative analyses, which suggested that even when transgressions are labelled 'disgusting,' this is more a figure of speech, and that these violations are not literally experienced as viscerally gross. Finally, issues around cross-cultural variation precludes one making generalizations with regard to CAD. For instance, comparing populations in the USA, India, and Japan, Kollareth et al. (2018) found that although community and autonomy violations both elicited more anger than contempt, Americans and Indians reported more anger than contempt for both types of violation, whereas Japanese reported more contempt than anger for both types.

However, most papers that compared emotions agreed with Hutcherson and Gross (2011) that anger, disgust, and contempt can be differentiated both in antecedent appraisals and consequent actions/judgments. For instance, analyzing responses to arguments about food politics, Clifford (2019) found that moral framings that invoke purity and contamination

considerations elicit disgust, whereas frames raising harm and injustice considerations elicit anger. Likewise, Gutierrez and Giner-Sorolla (2007) observed that, whereas harmfulness to others predicted anger better than disgust, the reverse was found for taboo transgressions. Similarly, in an aural emotion induction design, induced anger increased the severity of judgments concerning crimes against people, while elicited disgust increased the severity of judgments around crimes against nature (Seidel & Prinz, 2013b). Analyzing facial responses, Cannon et al. (2011) found that disgust was highest in response to purity violations, and anger in response to harm violations. Furthermore, whereas disgust may be more reflexive and immediate, anger involves some degree of ratiocination; compared to disgust, people are better able to explain and give reasons for anger (Russell & Giner-Sorolla, 2011b). Likewise, Piazza et al. (2013) found that disgust was a 'categorical' (i.e., either/or) response to judgements of impurity, regardless of circumstances, whereas anger interacted with contextual appraisals in complex ways (as explored further below).

Antecedent causes

Before we dwell further on the contextual factors that mitigate or influence anger, the second key point to consider are the specific types of antecedent harm violations that precipitate it. Sensitivity to such transgressions, and consequent anger, emerges in childhood, with trigger factors including 'contract violations (e.g., breaking promises) (Barrett et al., 2007), and peer rejection (Walter & LaFreniere, 2000). Throughout adulthood, there are diverse triggers. Just as in childhood, appraisals of unfairness are particularly prominent, as explored in diverse contexts, including among: working class people, who resent being scapegoated and blamed for circumstances outside their control (Skeggs & Loveday, 2012); nurses working in hospitals that have brought in 'signing on' bonuses (since such measures are seen as unfairly rewarding new staff) (Mantler et al., 2006); mental health professionals, who railed against the injustice of executing mentally ill prisoners (Radelet & Barnard, 1988); and sacked

employees, who perceived their treatment as unwarranted (Negri, 2008); finally, more generally, psychometric analyses by Lench and Chang (2007) connect anger to belief in an unjust world.

Betrayal is another prominent form of 'moral injury,' triggering anger in populations such as military personnel and veterans (Bryan et al., 2016; Jordan et al., 2017; Lancaster, 2018) and homeless adolescents (Collins & Barker, 2009). Similarly, though perhaps less extreme, analysis of game theory behaviour identifies deceit as a trigger, which in turn provokes acts of revenge (Xu et al., 2012). Other precipitating factors including witnessing unprofessional behaviour at work (Monrouxe et al., 2014), experiencing prejudice (e.g., as felt by disabled people) (Daalen-Smith, 2007), suffering dehumanization and loss (e.g., as felt by traumatized refugees) (Nickerson et al., 2015), being exposed to violence (e.g., on television news) (Unz et al., 2008), and experiencing trauma (Hoffman et al., 2018). It is worth noting though that some scholars have questioned the direction of causality; that is, rather than appraisals of immorality leading to anger, Kayyal et al. (2015) suggest that phenomena judged as morally bad are simply ones which make people angry; similarly, Seidel and Prinz (2013a) found that experimentally induced anger increases the tendency to judge actions as wrong. It's also worth noting that anger can be elicited by a perceived violation of moral values alone, independent of harm done (Landmann & Hess, 2017). Challenges to implications of causality have also been argued from a theoretical perspective: for instance, McAuliffe (2018) takes issue with this so-called 'sentimentalist' stance, arguing that although emotions and moral judgments do often co-occur, there is little evidence that emotions directly cause or constitute moral judgments.

Contextual factors

Turning to contextual factors that influence or mitigate anger, here we see moral judgements around issues such as the blameworthiness of victims, the intentions of aggressors, and the

outcomes of the transgressions, as well as factors such as in-group loyalty. Firstly, a key factor is the extent to which victims of transgressions are deemed deserving. Sensitivity to this emerges in childhood, when unprovoked transgressions are rated as more serious and deserving of anger and punishment than provoked ones (Smetana et al., 1999; Smetana, Campione-Barr, & Yell, 2003). Similarly, in occupational settings, if a worker is treated poorly by management, their co-workers experience more anger, and are more motivated to offer support, when these targets of abuse are considered undeserving (Mitchell et al., 2015; Mulder et al., 2014). Collective action is also more likely in situations with higher group-based anger, group efficacy, and politicized identity (Milesi & Alberici, 2018). Also relevant are appraisals of the extent to which victims are deemed to have had their 'rights' violated (rather than, say, simply being upset) (Giner-Sorolla et al., 2012). The intentions of the transgressor matter too; those acting with perceived 'bad intentions' (Rule & Duker, 1973; Petersen, 2010), or with hypocrisy (Laurent et al., 2013) are deemed more worthy of anger and punishment. From a consequentialist perspective, the outcomes of transgressions also have an impact, as actions with more severe consequences provoke greater levels of anger (Van Der Keilen & Garg, 1994). Relatedly, Baron et al. (2018) found that moral anger was correlated (albeit weakly and inconsistently) with higher utilitarianism. Finally, people's *consciousness* of the situation matters: using a paradigm in which they manipulated exposure to images likely to trigger moral concern, Wisneski and Skitka (2017) found that moral conviction increased only when images were shown at speeds low enough to allow conscious awareness.

In addition to these moral considerations are factors which to an extent undermine the notion of anger as a strictly moral (i.e., non-self-interested) emotion, such as in-group loyalty. Using scenarios around issues such as torture, both Batson et al. (2009) and Uehara et al. (2013) found than anger was only evoked when the victim was from one's own nationality,

suggesting it is a form of 'identity-relevant personal anger,' rather than a case of moral outrage per se. Other factors that can reduce moral anger include adoption of a 'system-justifying' ideology (e.g., believing that poor people are responsible for their poverty) (Jost et al., 2012). Finally, moral anger can also be influenced by complex cultural dynamics. For instance, Oppin et al. (2015) found that first-generation immigrants reported less anger, and more desire to repair transgression when a 'social controller' belonged to host society (rather than to the immigrant community), but that this pattern was reversed for second generation immigrants.

Outcomes

Finally, we might consider what types of outcomes anger can lead to. Some studies highlight potential negative or destructive outcomes of anger, such as aggression and other punitive actions. For instance, Negri (2008) observed that anger resulting from being fired (which was perceived as unfair) could lead to a desire for retribution. Similarly, analyzing reactions to photos of terrorist attacks, Cheung-Blunden and Blunden (2008) found that anger was linked to increased support for war, as did Grizzard et al. (2017) (although it also led to increased desire for humanitarian interventions). Likewise, Wirtz et al. (2015) found that anger towards ethnic minorities in the Netherlands (e.g., due to perceived threats), was associated with political intolerance. Indeed, rather than necessarily being a moral emotion, Plaisier and Konijn (2013) found that anger could enhance *immorality*, since higher levels of anger in peer-rejected adolescents induced greater tolerance of antisocial media content. It has also been seen that anger can reduce pro-social qualities such as forgiveness (Gisi & Carl, 2000) and helping behaviour (Cobb & De Chabert, 2002; Tscharaktschiew & Rudolph, 2015). This reduction can depend on the contextual factors cited above, such as appraisals of the blameworthiness of victims. For instance, studying social service providers, Cobb and De Chabert (2002) found that workers who perceive individuals as more responsible for their

illness reported increased anger, attributed more blame and expressed less willingness to help. Willingness to act and help can also depend on the degree of closeness to the injured party: Pedersen et al. (2018) found that while people who were insulted experienced anger and published the insulter, this response was more muted (albeit still present) if a friend was insulted, and if the victim was a stranger, although the participant experienced modest anger they did not publish the insulter.

However, other scholars have focused more on positive or prosocial outcomes linked to moral anger. There are numerous analyses on anger as a source of moral courage (e.g., (Niesta Kayser, Greitemeyer, Fischer, & Frey, 2010; Halmburger, Baumert, & Schmitt, 2015). For instance, exploring the role of anger in prosocial intervention behaviours (e.g,, stepping in to prevent an injustice), Halmburger et al. (2015) suggests that its motive force enables people to overcome the psychological barrier of the potential negative (social) consequences of intervening. Likewise, studying game theory behaviour, Yamagishi et al. (2009) found that anger leads people to disregard the immediate narrow consequences of their behavior, committing them to behave consistently to preserve integrity and reputation. As such, anger predicts participation in collective action to achieve progressive social change (van Zomeren, Postmes, & Spears, 2012; Vilas & Sabucedo, 2012). This phenomenon has been explored across a wide range of contexts, from peace activists (Adams, 1986), where anger is described as a 'personal fuel' that drives engagement in a meaningful cause, to engagement in consumer boycotts and other forms of protest against corporate transgressions (Braunsberger & Buckler, 2011; Cronin, Reysen, & Branscombe, 2012), to increased participation in political activism (Leach et al., 2006; Milesi & Alberici, 2018). Intriguingly, although anger is ostensibly a 'negative' dysphoric emotion, studies even suggest it can be experienced as a positive, affirming feeling: Becker, Tausch, and Wagner (2011) found that while collective action participants experienced more outgroup-directed anger and negativity,

they simultaneously felt more self-directed positive affect. And, even if one's moral anger is not a positive or affirmative experience, but remains negatively valenced, the contextual response may be such that its impact is ameliorated; for instance, in an interesting gendered analysis, Gallegos et al. (2018) found that crying or expressing anxiety as a result of moral (vs. non-moral) anger reduced the negative effects that stereotypically-conceived 'feminine' displays of emotion have on a male actor's perceived masculinity and competence. Finally, moral anger can lead to outcomes such as eudaimonic meaning-seeking: Grizzard et al. (2017) found that higher levels of graphic violence in news footage led to stronger anger and disgust, which in turn predicted higher levels of moral sensitivity, desires for interventions (including humanitarian efforts), and eudaimonic motivations (i.e., seeking meaning in life).

Conclusion

The wealth of studies reviewed here provides a sense of the complex emotional dynamics of moral anger. In this brief discussion of the key findings in the literature, it was first suggested that anger could indeed be differentiated from other self-directed moral emotions such as disgust and contempt, and that it is primarily driven by transgressions against people. We then saw that anger can be triggered by diverse antecedent causes, from a sense of unfairness to witnessing violence. Thirdly, anger can be influenced or mitigated by various factors, including the culpability of the victim and the intention of the aggressor, as well as other factors such as in-group identity. Finally, we saw that moral anger can lead to outcomes that can be regarded as negative and destructive (e.g., hate and retribution) or positive and prosocial (e.g., progressive social change). With respect to this last point, it is worth reflecting on the words of Dr. Martin Luther King Jr, whose civil rights movement is often cited as a powerful example of the kind of 'righteous anger' that can lead to progressive social change, advocating for a better world, yet at the same time trying to not become burdened by hate. As he eloquently put it in a sermon in 1958: 'As you press on for justice,

be sure to move with dignity and discipline, using only the weapon of love. Let no man pull you so low as to make you hate him' (King, 2007, p.345).

It's in light of this latter sentiment that this review can hopefully assist clinicians, counsellors and therapists in helping their clients deal with issues around anger. From the perspective of second wave positive psychology, it is possible and moreover desirable to – where possible – find value and meaning in phenomena we commonly perceive as negative (Ivtzan et al., 2016). This includes, in this present context, negatively-valenced emotions such as anger. Thus, the review may be of use in helping clients identify possible forms of value and meaning in their experiences of anger, and furthermore, to harness these feelings adaptively in improving their lives. Here is where the sentiment of Dr. King becomes so vital. Research clearly shows that anger, if improperly handled, can fester and become corrosive, degenerating into noxious outcomes such as bitterness, hatred, aggression, and violence (Scarpa & Raine, 1997). So, in cases where it is not possible to somehow remove or neuter a client's anger – for instance through mindfulness-based therapeutic techniques (Wright, Day, & Howells, 2009) – a key task for therapeutic practitioners is to help transmute this anger into something more positive. And one way may be to point out any moral dimensions that might be inherent within the experience (although it should be noted that not all anger necessarily has such dimensions – as discussed further below). This may help to imbue the experience with a certain dignity, meaning, and even nobility. Then, beyond this reappraisal, therapeutic practitioners may be empowered to help clients further understand the dynamics of their anger – for instance by delving into the antecedent causes and contextual factors, as discussed above. Then, building on this, clients may ideally be further assisted to channel their anger towards adaptive behaviours and ends. This could include using it as motivational fuel to work towards redressing the iniquities that may have generated their anger – always

with the proviso that this be done in a way that is constructive and adaptive, as in the spirit of Dr. King's words above.

As a final point though, it is worth situating this review in the broader context of literature around anger generally. In the introduction, it was noted that there are many different perspectives on anger, featuring diverse theoretical positions, from evolutionary psychology to psychodynamic psychotherapy. As such, while anger may sometimes arise as a moral emotion, it has other antecedent causes and factors, like frustration, which that means that sometimes anger is unconnected to moral considerations. To give some indication of the relative prevalence of research on anger as a moral emotion as opposed to other perspectives on anger, when the terms 'anger' AND 'moral' were entered into Psychinfo, 721 results were returned, whereas entering simply 'anger,' 31,936 results were returned, a figure 44 times higher. Thus, it is worth bearing in mind that the notion of anger as a moral emotion is only one perspective on anger, and a relatively minor one at that (statistically speaking); more work is therefore needed in future to tease apart the conditions under which anger is and is not a function and manifestation of morality. Nevertheless, the literature collated and analysed here emphasizes the breadth and depth of thinking in relation to anger and morality, showing the current state of understanding with respect to one of the most topical and problematic of all human emotions. It is hoped that this analysis may be useful to counsellors and psychotherapists in helping clients to potentially see some value and function in their experiences of anger.

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Figure 1

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram

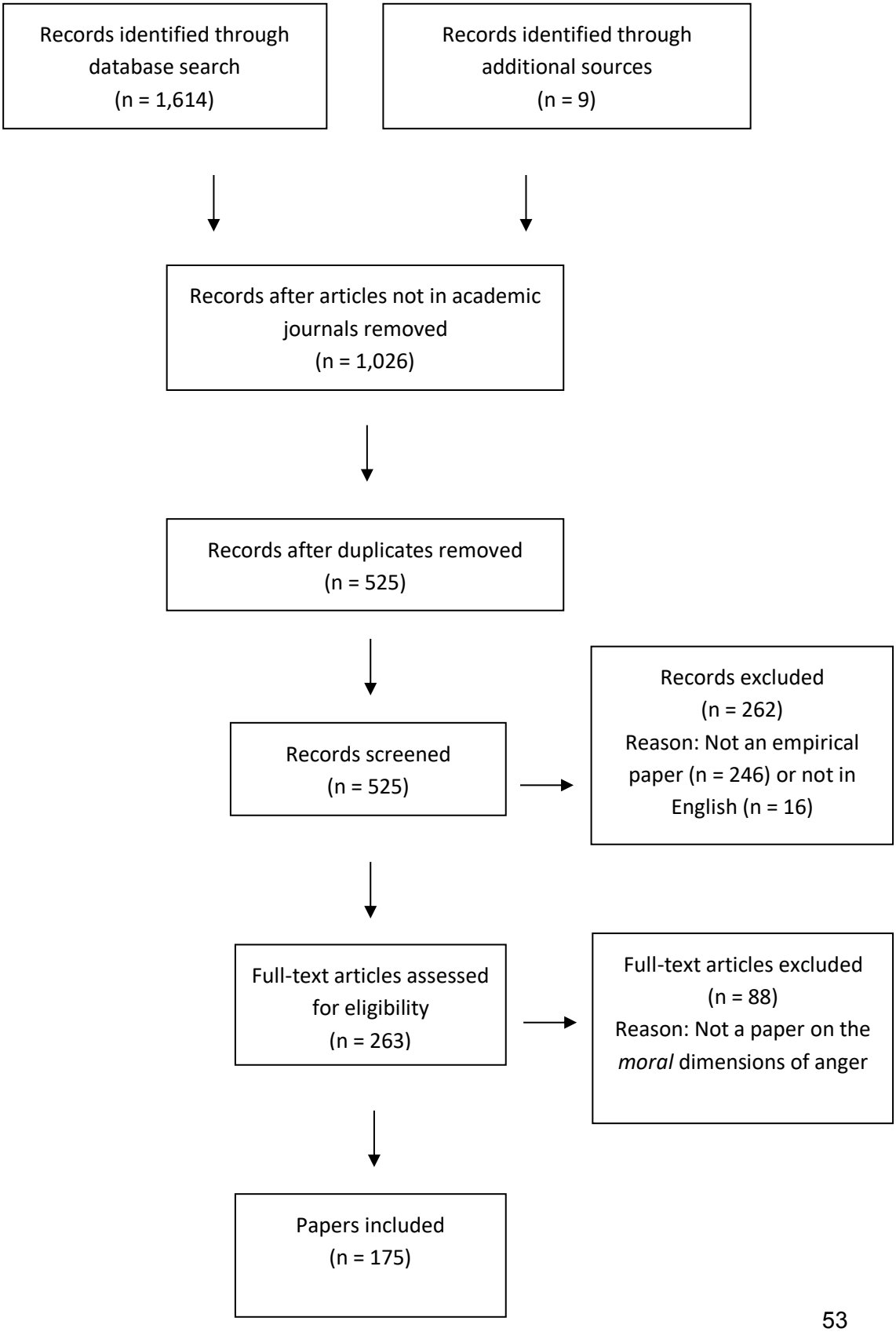

Table 1

Survey-based studies

First author	Year	Sample	N	Age	Sex (% fem)	Location	Ethnicity (% dom)	Design	Key finding
Barclay	2005	Sacked employees	173	45	36	USA (California)	White (87)	Surveys of blame	Attributions of blame mediated the relationship between fairness perceptions and outward-focused negative emotion (e.g., anger)
Baron	1997	Students	317 (5)	NR	NR	USA (Pennsylvania)	NR	Survey on ethical trade-offs	People tend to experience anger at the thought of making trade-offs, and engage in denial of the need for trade-offs
Brondolo	2005	Black and Latino people	420	39.9	69	USA (New York)	Black (73)	Discrimination survey	Exposure to ethnic discrimination was also positively related to the use of anger coping styles; magnitude depended on type of discrimination
Brown	2008	Students	731 (3)	NR	67	Canada (Carlton)	NR	Self-report scales	If person/group is mistreated, those not directly harmed can still experience antipathy toward offenders, leading to secondhand forgiveness dynamics
Bryan	2016	Military personnel	1086 (2)	34.1 & 27	36.2 % 17.7	USA (W & S-W)	White (70)	Self-report scales	Moral injury among service personnel: betrayal associated with anger and PTSD
Cox	2003	Students & parents	98	NA	NA	NA	NA	Self-report scales	Moral disengagement was a predictor of the students' maladaptive anger
Cronin	2012	Community (1) &	571 (2)	42.7	47.5	USA (Kansas)	White (87.5)	Survey regarding Walmart	Greater ethical concerns predicted less consumer support and increased willingness to take

		students (2)							confrontational actions; moral anger mediated this relationship.
Dupre	2010	Heterosexual partners	124	25.4	50	Canada	NR	Self-report scales	Perceived supervisor injustice predicted supervisor-directed aggression, whereas perceived partner injustice predicted lower supervisor-directed aggression
Gisi	2000	Patients with brain injury	51	NA	NA	NA	NA	Self-report scales	Inverse relationship was found between anger and forgiveness, and between anger and social desirability.
Grappi	2013	Shoppers	280	NR	55	Italy	NR	Survey of attitudes towards corporations	Consumers' negative moral emotional responses to corporate infractions prompts negative word of mouth and protest toward the corporation, including anger
Grappi	2015	Shoppers (1,2) & students (3)	574 (3)	43	51.5	Italy	NR	Survey of attitudes towards corporations	Consumer reactions to reshoring: meditating role of positive and negative moral emotions (i.e., gratitude and righteous anger)
Harris	2003	Drink-drivers	720	30	24	Australia	NR	Surveyed after attending court or restorative justice	Factor analysis - three factors: shame-guilt, embarrassment-exposure, and unresolved shame. Shame-guilt related to higher empathy and lower anger/hostility
Hoffman	2018	Refugees	222	NA	NA	Australia	NA	Mental health questionnaires	Two-factor model: Moral Injury-Other (interpreting the violation as being enacted by others) and a Moral Injury-Self factor. Both factors were predicted by

									higher trauma exposure, and predicted more severe anger and depression
Hutchers on	2011	Students	392 (5)	18.8, 17-31, 17-29, 18-23, 34.6	62, 63, 71, 70, 70	NR	White (58, 51, 43, 41, 67)	Questionnaire of moral violations	Social–functionalist perspective: anger, disgust, and contempt are differentiable both in antecedent appraisals and in consequent actions and judgments.
Jia	2019	Adolescents	341	12.5, 15.6, 19.2	NR	China & Canada	NR	Moral emotions assessed following scenarios	Chinese early adolescents rated more intense other-evaluative emotions than the same age group in Canada
Jordan	2017	Veterans	867	NR	NR	USA	NR	Self-report scales	The relationship between betrayal-based morally injurious events and PTSD was mediated by anger
Kaplan	2014	Students	546	NA	NA	NA	NA	Development of moral motivation scale	Overall developmental quality of moral motivation was negatively associated with hate and positively associated with anger toward the victimizers
Kayyal	2015	Non-specific	490 (2)	32	53.5	USA	NR	Self-report scales	Anger correlates with moral judgements: events that make one angry judged as morally bad
Kennedy	2014	Company employees	150	18-21	61	USA	NR	Self-report scales	Injustice Experience Questionnaire: two-factors were differentially correlated to depression and duration of work disability, but not anger
Laible	2008	Adolescents	113	15.8	51	USA (N-E)	White (55.4)	Self-report scales	Factor analyses - two dimensions of conscience: moral affect (including guilt, shame, sympathy, and empathic anger) and moral cognition (e.g., prosocial moral reasoning)

Lancaster	2017	Veterans	182	33.6	19.8	USA	White (78)	Self-report scales	Moral appraisals of combat experiences predict additional distress beyond having been exposed to combat, with moral injury linked to anger
Lancaster	2018	Veterans	161	35.1	28.6	USA	White (73.9)	Self-report scales	Both self-transgressions and betrayal are correlated with guilt/shame and anger
Lancaster & Harris	2018	Veterans	182	NR	NR	USA	NR	Self-report scales	Perceived transgressions by self associated with anger, depression, PTSD, alcohol abuse, guilt and shame
Leach	2006	Non-aboriginal Australians	783 (3)	48, 72.5, 43	49.7, 29, NR	Australia (Perth)	White (100)	Survey about aboriginal population	Those who perceived their in-group as relatively disadvantaged perceived this inequality as unfair and felt guilt/anger. Anger predicted willingness to engage in political action
Leach	2007	Non-aboriginal Australians	150	49	NR	Australia (Perth)	White (100)	Survey about aboriginal population	Non-Aboriginals opposed to government redress were high in symbolic racism and perceived their in-group as deprived (with feelings of group-based anger)
Lench	2007	Students	673 (2)	20.4, 19.3	75.9, 69.9	USA (California)	Asian-American (45), NR	Self-report scales	Belief in an unjust world was related to defensive coping, anger, and perceived future risk
Mantler	2006	Nurses	800	NA	NA	NA	NA	Self-report scales	Nurses in hospitals that offer sign-on bonuses report higher anger and lower optimism – due to reduced sense of distributive justice
Martin	2017	Veterans	562	28.7	26.2	USA	White (66.7)	Self-report scales	Deployment-related betrayal predicts thwarted belongingness in the presence of high but not low or mean levels of aggression

McDonald	2002	Whistle-blowers	95	NA	NA	Australia (W)	NA	Self-report scales	94% of whistleblowers suffered stress-related emotional problems, the most frequent being anger, anxiety, and disillusionment
Milesi	2018	Activists (4)	192, 143, 172, 131	47.1, 49.2, 41.9, 22.9	47.9, 34.6, 57, 59.5	Italy	NR	Self-report scales	Group-based anger, group efficacy and politicized identity are significant predictor of collective action
Nickerson	2015	Treatment-seeking refugees	134	42.4	21.6	Switzerland	Turkish (53)	Self-report scales	Moral injury accounted for 16% of the variance in PTSD, 16% in depression, 10% in explosive anger and 10% in mental health-related quality of life
Ohbuchi	1987	NA	NA	NA	NA	NA	NA	Factor analysis	Aggression interpreted as punishment when directed toward a transgressor – motivated by restoration of social justice (intensity determined by perceived moral responsibility)
Oppin	2015	Students	95	24.2	0	France	'French' (39.2)	Self-report scales	First-generation immigrants reported less anger, and more desire to repair transgression when social controller belonged to host society (reversed for second generation)
Pajević	2007	Adolescents	240	15-18	50	Bosnia and Herzegovina	NR	Self-report scales	A higher index of religious moral beliefs of young people provides healthier and more efficient mechanism of anger control and aggression control
Petersen	2010	Non-specific	4116	15-21	NR	Denmark	NR	Survey about criminal justice	The effect of anger on criminal justice opinions is conditioned by perceptions of the intentions of criminals, while the effect of anxiety is unrelated to these perceptions

Pickett	2017	Adults	5042	NR	NR	USA	NR	Self-report scales	Although punishing crimes may not influence individuals' social or moral beliefs, it might attenuate potentially criminogenic emotional reactions to crime, such as anger
Plaisier	2013	Adolescents & young adults	149	13.8 & 21.4	54 & 78.6	Netherlands	NR	Self-report scales	Anger linked to immorality: Higher levels of state anger in peer-rejected adolescents induced more tolerable moral judgments of antisocial media content
Rai	2015	Non-specific	NR	NR	NR	USA	NR	Survey about corporate behaviour	Companies seen as having 'agentic' mental states (e.g., intentions) but not experiential ones (e.g., pain): companies to elicit anger as villains, but not sympathy as victims
Schieman	2006	Older adults	136	65+	50	USA (DC & Maryland)	White (50)	Survey regarding disadvantage	Association between neighborhood disadvantage and anger is positive among higher-income elders who feel financially disadvantaged relative to their neighbor
Skitka	2004	Non-specific	550	NR	NR	USA	NR	Survey on political tolerance	Effects of anger on political tolerance mediated through moral outrage and outgroup derogation
Steiger	2017	Adults	432, 370	36.2, 39.1	67.4, 57.4	USA	White (77.1, 80.1)	Self-report scales	Trait anger weakly associated with harm/care and fairness values; trait contempt negatively associated with multiple moral values (consistently with harm/care and loyalty); trait disgust positively associated with multiple moral values (consistently with harm/care and reciprocity/equity)

Tausch	2011	Students (1) & Muslims (2,3)	954 (3)	21.6, 22.8, 26.7	48.8, 52.2, 53	Germany (Hessen), India (Aligarh), UK	NR, Muslim (100), Muslim (100)	Survey questionnaires	Anger related to normative action but not non-normative action
van Zomeren	2012	Non-specific	208 (2)	20.5, 24.8	78.9, 44.1	Netherlands, Italy	NR	Survey on recent political events	Anger predicts collective action to achieve social change.
Vilas	2012	Students	NA	NA	NA	Chile (Santiago)	NA	Self-report scales	Efficacy and anger have an influence on the intention to participate in collective action through moral obligation.
Wang	2017	Young adults	464	20.7	65.1	China	Chinese	Self-report scales	Direct and indirect relations between trait anger and cyberbullying were moderated by moral identity (becoming non-significant for high moral identity individuals)
Wang	2018	Young adults	464	20.7	65.1	China	Chinese	Self-report scales	Trait anger associated with aggression. and anger rumination mediated this relation. Moral disengagement moderated the relation between anger rumination and aggression, and between trait anger and aggression
Weiner	1988	Students	208 (2)	NR	NR	USA (Los Angeles)	NR	Surveys about moral attributions	Physically based stigmas (perceived as uncontrollable), and elicit pity, and no anger. Mental stigmas (perceived as controllable), and elicit little pity, and much anger

Wilt	2019	Veterans	187	50.9	27	USA	African American (58.5)	Survey of predictors of moral struggles	Regression analyses identified several concurrent predictors of moral struggles: higher religiousness, lower self-esteem, and attributing one's religious/spiritual struggles to oneself and the military
Wirtz	2015	Students	103	21.1	84	Netherlands	NR	Survey of attitudes towards Muslims	Disgust and pity were strongly related to social distance, whereas anger was more strongly related to political intolerance
Xie	2015	Consumers	110	NR	48	Norway	NR	Survey of response to non-green corporate actions	Individual difference characteristics (social justice values, empathy, moral identity, self-concept) moderate elicitation of negative moral emotions (e.g., anger, disgust)

Note: NR = not reported; NA = not available; N/A = not applicable

Table 2

Experimental studies

First author	Year	Sample	N	Age	Sex (% fem)	Location	Ethnicity (% dom)	Design	Key finding
Angrilli	2013	Serial killer	1	41	0	Finland (Helsinki)	NR	Cognitive and psychometric tests	Relatively intact knowledge of moral rules, but impaired in the recognition of anger, embarrassment and conventional social rules
Barclay	2009	Non-specific	100	23	73	USA (N-W)	NR	Expressive writing task & self-report scales	Experiences of workplace injustice: Participants who wrote about emotions and thoughts reported less anger than participants who wrote only about emotions.
Barger	2013	Students	466 (3)	22	65	USA (S-E)	White (82)	Scenarios & self-report scales	Decreased moral reasoning observed in instances where both sadness and anger were high following a dilemma (but not just either alone)
Baron	2018	Adults	104, 97, 107, 95	45, 47, 44, 42	68, 68, 65, 62	USA	NR	Reactions to scenarios	Higher scores on a utilitarianism scale, were correlated negatively with disgust, positively (but weakly and inconsistently) with anger
Barrett	2007	Children	80 (2)	6.6 & 9.9	50 approx	Germany (Berlin)	'German' (90)	Scenarios & self-report scales	Children able to identify contract violations, and attributed guilt to violators and anger to victims
Bastian	2013	Students (1) &	368 (3)	22.7, 36.4, 33.3	58, 63, 48	Australia (Queensland	Asian (60), White	Scenarios & self-report scales	Moral outrage and dehumanization predicted punishment independently of the effects of crime type or crime severity

		non-specific				), USA, USA	(80), White (77)		
Batson	2007	Students	48	NR	100	USA (Kansas)	NR	Experimental simulation & self-report scales	Conditions that evoked anger were unfair treatment of self or a cared-for other, not unfairness per se
Batson	2009	Students	48	NR	100	USA (Kansas)	NR	Scenarios about torture & self-report scales	Evidence of identity-relevant personal anger (when person from one's nationality is tortured) but little moral outrage (torture of identity-irrelevant nationality person)
Becker	2011	Non-specific	172 (2)	21.3 & 22.9	66 & 69	Germany (Hessen)	NR	Participation in collective action, & self-report scales	While collective action participants experience more outgroup-directed anger, they feel more self-directed positive affect
Calder	2010	Patients with Huntingdon's	40 (2)	50.4, 49.9	42.8, 47.3	England	NR	Facial recognition tasks	Disgust and anger (associated with social disapproval) are frequently impaired in Huntingdon's patients
Gallegos	2018	Adults	219, 224, 535	36, 35, 19	50, 41.9, 53.6	USA	White (78, 78, 79)	Experimental manipulation of men's crying responses	Crying or expressing anxiety as a result of moral (vs. non-moral) anger reduced the negative effects that stereotypically feminine displays of emotion have on an actor's perceived masculinity and competence
Cheung-Blunden	2008	Students	588	NA	NA	NA	NA	Viewing photos of 9/11, & self-report scales	Relation between support for the war and attitudes toward terrorism mediated by anger

Clifford	2019	Adults (3)	504, 921, 786	NR	NR	USA	NR	Responses to arguments about food politics	Frames invoking purity and contamination considerations will elicit disgust while frames raising harm and injustice considerations will elicit anger
Cobb	2002	Social service providers	46	NA	60	NA	NA	Scenarios & self-report scales	Workers who perceive individuals as more responsible for their illness (HIV/AIDS) report increased anger, attribute more blame and express less willingness to help
Franchin	2018	Adults	33	24.8	51.5	Italy	NR	Analysis of facial expressions during scenarios	Anger reactions were elicited more frequently by harmful than by impure actions, while violations of purity elicited more smiling reactions and expressions of anger than of disgust.
Giner-Sorolla	2012	Students	437 (2)	NR	90 & 71	England (S) & USA (S-E)	NR	Scenarios & self-report scales	Judgement of rights violation mediated the effects of harm on anger
Goossens	1991	Children	88	6-11	NA	Holland	NA	Scenarios & self-report scales	Girls with daycare experience responded with more moral indignation and anger than counterparts with no daycare experience
Grizzarrd	2017 (2)	Students	315, 262	19.9, 20.1	44.4, 52.7	USA (N-E)	White (46.7, 45.8)	Response to news footage	Higher levels of graphic violence led to stronger anger and disgust, which in turn predicted higher levels of (a) moral sensitivity, (b) desires for interventions (including military and humanitarian efforts), and (c) eudaimonic motivations (i.e., seeking meaning in life)
Grubbs	2014	Students	334 (2)	19.5	45.9	USA (M-W)	NR	Scenarios & self-report scales	To the extent that people saw their personal transgressions as resulting from stable character traits, they reported greater anger toward God

Gutierrez	2007	Students	288 (2)	NR	76.5 & 85	England (Kent)	NR	Scenarios & self-report scales	Manipulations of harmfulness to others predicted moral anger better than disgust, while manipulations of taboo predicted disgust better
Harvey	2017 (2)	Students, doctors	447, 121	21.6, 55.1	59.7, 28.1	USA	NR	Reactions to scenarios	Individual and contextual factors play an important role in shaping the perceptual and emotional processes by which individuals form reactions to undesirable affective workplace events
Halmburger	2015	Students	68	21.7	76.5	Germany	NR	Reactions to scenarios	Anger (but not guilt) predicted intervention behavior: enables people to overcome psychological barrier of potential negative (social) consequences of intervening
He	2014	Non-specific	328 (2)	34.3 & 20.7	50.7 & 49.7	NR	NR	Scenarios of service industry failure, & self-report scales	Even people with higher moral identity engage in moral disengagement of vindictive negative word-of-mouth if they have higher anger toward the service failure
Heerdink	2018	Adults	174, 154, 399	20.5, 22, 36.7	71.2, 71.4, 58.4	Netherlands	NR	Reactions to scenarios & videos	Observers use others' emotional reactions to infer whether and why a particular behaviour is inappropriate, e.g., because it violates autonomy standards (as suggested by expressions of anger)
Jost	2012	Students (1), protestors (2), teachers (3)	192 (3)	20, 38, 33.7	58, 40, 80	USA (New York), Greece (Athens), England	NR	Writing on experiences (1), scenarios (2, 3), & self-report scales	Even among political activists, system justification plays significant role in undermining willingness to protest.

Karreman	2012	Adolescents	131	15-19	54	Netherlands	'Dutch' (87)	Anger inducement & self-report scales	Gender differences: boys experienced and expressed anger independent of autonomy-connectedness; girls' anger experience depended on the level of sensitivity to others
Kende	2017	Adults	1459	43.6	NR	Hungary	NR	Reactions to refugee crisis	Hierarchical regression analysis and mediation analysis revealed the importance of opinion-based identity and moral convictions as predictors of volunteerism, while efficacy beliefs and anger only predicted political activism
Kollareth	2017	Adults (3)	120, 240, 240	(18.9, 18.1, 19.4) (18.7, 18.7, 19.7) (37.2, 27.2, 22.3)	(75, 60, 48) (90, 32.5, 61.2) (45, 41.2, 72.5)	USA, India, & Japan	NA	Reactions to scenarios	Across all three cultures, moral violations were associated with more than one emotion: all negative rather than positive, anger for most, and disgust for violations involving sex and pathogens
Kollareth	2018	Adults	480	36.4, 19, 20.6	59.3, 63.1, 56.9	USA, India, & Japan	NA	Reactions to scenarios	Community and autonomy violations both elicited more anger than contempt. Americans and Indians reported more anger than contempt for both types of violation, whereas Japanese reported more contempt than anger for both types

Körner	2016	Students	312	23.2	85	Germany	NR	Auto-biographical recollections	Identification of prerequisites explaining more subtle differences between moral emotion clusters as they emerge from analyses (i.e., cluster 1: admiration, pride, and respect; cluster 2: anger, contempt, and indignation; cluster 3: schadenfreude and sympathy)
Landmann	2017	Adults	138	38.5	57.9	Germany	NR	Reaction to newspaper articles	Anger can be elicited by a perceived violation of moral values alone, independent of the harm done
Niesta	2010	Students	375 (3)	25.1, 24.4, 24.1	63.8, 65.9, 68.7	Germany (Berlin, Munich)	NR	Invitation to participate in social action	Justice sensibility, civil disobedience, resistance to group pressure, moral mandates, and anger lead to moral courage, but not to help giving.
Laurent	2013	Students (1), non-specific (2,3)	272 (3)	19.7, 34.3, 31.6	52, 60.2, 50	USA	NR, white (60), white (82.2)	Scenarios & self-report scales	Hypocritical criminal seen as more culpable and punished more than a non-hypocritical criminal (identical crime). Negative moral emotions (e.g., anger) mediated relationship
Lindberg	2002	Students	92	NR	73.9	USA	NR	Inducement of anger & self-report scales	Willingness to file a law suit was predicted by a model including perceived danger and the personality characteristic of anger reactivity
Lough	2006	People with dementia	31	59	19.3	England (Cambridge)	NR	Cognitive tasks	Emotion recognition globally impaired in frontotemporal dementia, but particularly for anger and disgust
Ma	2012	Students	423	NR	22.9	China (Hefei)	NR	Game theory activity	Rejection of unfair offers affected by negative emotions (e.g. anger) even if there are no reputational concerns

Mitchell	2015	Company employees	221	41.5	57	USA	White (81.4)	Self-report scales and observation	3rd parties experience anger when targets of abuse are considered undeserving, and are motivated to harm supervisor and support coworker (but not if deemed deserving)
Molho	2017 (4)	Adults	201, 1252, 819, 347	31.7, 31.9, 33.4, 34.3	45.8, 51.8, 48.4, 48.1	USA	NR	Reactions to scenarios	When the target of a moral violation shifts from the self to another person, anger decreases, but disgust increases. Whereas anger is associated with high-cost, direct aggression, disgust is associated with less costly indirect aggression.
Moore	1996	Students	147	NA	NA	England (London)	NA	Watching violent film clip & self-report scales	Justified violence rated as less extreme
Mulder	2014	Government employees	161	NR	46.5	Netherlands	NR	Scenarios & self-report scales	Workplace abuse: if target deemed responsible, women reported less sympathy and more anger, and men only more anger, resulting in lower helping intention
Mullen	2006	Students	398 (2)	NR	NR	USA (Chicago)	NR	Scenarios & self-report scales	Moral mandate effect: When people have strong moral convictions, they react with anger when outcomes are inconsistent with their moral point of view
Nelissen	2009	Students	65 (2)	20.8, 19.3	58.2, 79.2	Netherlands	NR	Experimental transgression simulation	Anger and guilt independently constitute sufficient but not necessary causes of punishment. Low punishment observed only when neither emotion is elicited.

Nugier	2007	Students	510 (2)	19.5, 22.5	81.2, 92.7	France	NR	Scenarios & self-report scales	Conditions under which social control provokes angry emotions in the perpetrator includes perceived deviance and appraisal of the legitimacy of social control
O'Mara	2011	Students	40	NR	50	USA (Tennessee)	NR	Experimental simulation & self-report scales	A victim (self vs. stranger) excluded (fairly vs. unfairly) from a favorable experience: anger and retribution provided evidence of personal anger, not of moral outrage
Olthof	1989	Children	NA	NA	NA	NA	NA	Responding to scenarios	Anger instigation to property damage is moderated by the ability to take a normative perspective on transgressions
Pedersen	2018 (5)	456, 147, 250, 222, 172		39.9, 55.1, 54.4, 54.5, 58.7	NR	Mixed	NR	Aggression paradigm to contrast second- and third-party punishment	Subjects insulted by a stranger experienced anger and punished the insulter. To a lesser degree, subjects who witnessed a friend receive an insult also became angry and punished the insulter. In contrast, subjects who witnessed a stranger receive an insult did not punish the insulter, although they experienced modest anger
Peter-Higane	2017	Students	132	19.2	73	USA	White (34)	Scenarios for mock jurors	Nullification instructions exacerbated the effect of jurors' attitudes on anger, disgust, and moral outrage toward the defendant. Anger also enhanced mock jurors' reliance on their attitudes under certain conditions
Philippe	2011	Students	298 (2)	22.7	87.4	Canada	NR	Recalling memories & self-report scales	Impact of autobiographical memory (an anger-related vs. a guilt-related memory) on situational anger reactivity with respect to unfair treatment

Piazza	2013	Not-specified	357 (2)	31.6, 28.9	35.9, 41.6	USA	NR, white (82)	Scenarios & self-report scales	Anger negatively predicts the envisioning of mitigating circumstances for wrongdoing, while disgust was unrelated
Puurtinen	2009	Students	194	NR	NR	Finland	NR	Game theory participation	Group competition intensifies the moral emotions of anger and guilt associated with violations of the cooperative norm.
Rothschild	2018	Adults	135, 243, 161, 410	31.1, 32.9, 18.8, 32.1	54.8, 65.4, 60.8, 64.3	USA	NR	Scenarios & self-report scales	For participants low in observer justice sensitivity, feelings of guilt predicted greater outrage and desire to punish a corporation‘s sweatshop labor practices. Furthermore, affirming one‘s personal moral identity reduced outrage and support for punishing a corporate harm-doer among those low, but not high in observer justice sensitivity
Royzman	2014	Students	464 (4)	18-22, 18-22, 22, 35.1	59.3, 58, 50, 45.1	USA, USA, USA, USA	NR, NR, NR, white (81.4)	Scenarios & self-report scales	Anger (not disgust) is predominant response to pathogen-free violations of the divinity code (and to transgressions generally)
Rozin	1999	Students	520 (2)	NR	NR	USA (Pennsylvania) & Japan (Hiroshima)	NR	Matching faces to scenarios (1) & rating scenarios (2)	Violation of autonomy (individual rights) linked to anger, of community (communal codes) to contempt, and of divinity (purity-sanctity) to disgust
Rule	1973	Children	48	8 & 12	NR	Netherlands	NR	Evaluating an aggressor	8- and 12-yr-olds judged the act more negatively when the aggressor's intentions were bad. Younger children

									relied more on consequences to determine their judgments
Russell	2011a	Non-specific	241	19.7	81.3	England (Kent)	NR	Scenario (about meat eating)	Anger responds to the contextual cues of harm and intentionality, while disgust responds uniquely to whether or not a bodily norm violation has occurred
Russell	2011b	Non-specific (1), students (2)	122 (2)	23, 211	75, 71.4	England (Kent)	NR	Questionnaire about pedophilia (1), plus visual prompting using faces (2)	Elaborated reasons were less prevalent when explaining disgust versus anger, perhaps due to the unavailability of those reasons to people.
Russell	2013	Non-specific	245	31.1	52.2	Mixed (MTurk)	White (54.3)	Scenarios & self-report scales	The adjective 'moral' increased the relevance of anger, contempt, and fear in irrelevant domains, which suggests that the adjective increases any emotion's moral relevance
Sabo	2017 (5)	Students, adults, adults, adults, adults	250, 357, 321, 352, 484	20.3, 31.5, 31.5, 33.9, 34.8	37.7, 64.1, 71.3, 55.4, 58.7	England, mixed, mixed, mixed, USA	NR	Reactions to scenarios	Imagining a purely harmful act is given a "fictive pass" in moral judgment, whereas imagining an abnormal act involving the body is evaluated more negatively because it is seen as more diagnostic of bad character
Salerno	2013	Non-specific (1) & students (2)	220 (2)	34, 19	50, 63	Mixed (MTurk), USA	NR	Scenarios (1) & mock jury (2), with self-report scales	Anger toward moral transgressions predicted moral outrage only when it co-occurred with at least moderate disgust (and vice versa)

Seidel	2013a	Students	66	NR	69.7	USA (New York)	NR	Scenarios plus mood induction soundtracks	Induced anger increases the tendency to judge actions as wrong, and happiness increases the tendency to praise actions as both good and obligatory
Seidel	2013 b	Students	166	NR	71.1	USA (New York)	NR	Scenarios plus mood induction soundtracks	Induced anger increases severity of judgments about crimes against persons, and sounds that elicit disgust increases severity of judgments about crimes against nature
Siegal	1985	Preschoolers	80 (2)	4.4	50	Australia (Brisbane)	NR	Scenarios & self-report scales	Newly enrolled (vs 'veteran' preschoolers) regarded social transgressions as naughtier and more worthy of adult intervention and anger
Shao	2018	Adults (3)	87, 117, 217	NR, 23.7, 40.3	NR, 57, 46.5	NR, Australia, NR	NR, Asian (57), White (67)	Rating video scenarios	Leader moral anger had a negative direct effect on follower affective trust but not on follower overall trust.
Singh	2018	Adults	224, 97	36, 35.2	66, 48.4	USA	NR	Emotional induction	Individuals in a state of incidental fear exhibit higher levels of ethical judgment as the moral intensity increases as compared to individuals in a state of incidental anger
Skoe	2002	NA	209	20	50	USA	White (77)	Scenarios and self-reporting feelings	Sympathy and anger uniquely predicted both care (positively) and justice (negatively) orientations. Relational dilemmas evoked more emotions than non-relational ones
Szekely	2015	Non-specific	408 (2)	23.2, 24.5	87.3, 83.2	Romania	NR	Imagining oneself in moral situations	During 'harm to save' moral dilemmas, participants experienced mostly fear and sadness but also compassion, guilt, anger, disgust, regret and contempt

Täuber	2012	Students	98	20.7	80	USA	NR	Scenarios (around national identity) & self-report scales	Group members felt stronger group-based anger and a stronger motivation to reaffirm their group's moral status when an outgroup was morally superior to them
Tong	2018	Students	134, 168, 395	20, 20.9, 22.1	67.1, 63.7, 60.7	Singapore	Chinese (91.8, 87.5, 84.9)	Tasks manipulating blame appraisals	Higher activation of God concepts was associated with a weaker relationship between other-blame and anger
Törestad	1990	Children	339	12-18	NR	Sweden (Stockholm)	NR	Self-classifying situations that evoked anger	Developmental trends and sex differences with respect to who was the provoker and who was provoked in the described situations.
Tscharakt schiew	2015	Non-specific	332	NA	NA	Germany	NA	Scenarios & self-report scales	When person in need is regarded as being responsible for plight, anger is elicited, and likelihood of help giving decreases
Uehara	2013	Students	85	18.8	68.2	Japan	NR	Scenarios & self-report scales	Abduction scenario evoked considerable anger only when the abducted victim in national in-group, regardless of whether restoring fairness was actually expected.
Ugazio	2012	Students	177 (2)	NR	81.8	Switzerland	NR	Emotion induction, plus scenarios (1) essay writing (2), & self-report scales	Emotions influence moral judgments based on their motivational dimension: approach motivation associated with anger makes moral judgments more permissible

Unz	2008	Adolescents (1) and students (2)	153 (2)	14-15, 15.3	50, 50	Germany		Watching TV news: analysis of facial expressions	Viewers react to violence with 'other-critical' moral emotions, including anger and contempt, reflecting a concern for the integrity of the social order
van der Lee	2015	Students	125 (2)	30.2, 21.7	56.2, 67.2	Netherlands	NR	Experimental manipulation & self-report scales	Evaluations of one's own incompetent behaviour induces anger
van Der Keilen	1994	Students	177	NR	82.1	Canada	NR	Scenarios & self-report scales	Degree of responsibility attributed to the offender, anger experienced by the victims, and expectations of repayment or compensation increased with severity of damage
van Prooijen	2006	Non-specific	414 (4)	21, 21.3, 21.1, 19.9	35.2, 42.1, 64.1, 72.1	Netherlands (Amsterdam)	NR	Scenarios and self-report scales	People react more negatively to in-group than outgroup suspects when guilt was certain but react more negatively to outgroup than in-group suspects when guilt was uncertain
van Prooijen	2013	Students	100 (2)	20.9, 21.2	76, 78	Netherlands	NR	Choice manipulation, then measurement of autonomy	Retributive reactions to criminals originate from a desire to regulate autonomy needs: choice opportunities in an unrelated decision-making context prompt people to display stronger retributive reactions
Walter	2000	Children	56	4.1	NA	NA	NA	Naturalistic observation	Girls' anger, but not distress, was negatively related to peer rejection. In contrast, boys' anger and distress were both positively related to peer rejection

Wakslak	2007	Students	566 (2)	NR	75.9, 65.8	USA (New York)	NR	Experimental manipulation & self-report scales	Endorsement of a system-justifying ideology negatively associated with moral outrage, existential guilt, and support for helping the disadvantaged
Wisneki	2017 (2)	Students	462, 171	NR	NR	USA (Chicago)	NR	Reactions to images	Moral conviction about abortion increased only for participants exposed to abortion-related images at speeds slow enough to allow conscious awareness. The relationship between attitudinally relevant disgust and moral conviction was mediated by disgust, and not anger or harm appraisals.
Wong	2005	Students	462	NR	43.7	China & USA	NR	Scenarios with different people as victim	Americans expressed less psychological distance between in-group and out-group members than Chinese
Xu	2012	Students	170	21.4	63	USA	NR	Experimental simulation & self-report scales	When a broker is perceived to act deceitfully by the buyer, the buyer reacts with negative affect (anger) which provokes subsequent acts of revenge
Yamagishi	2009	Non-specific	NR	NR	NR	Japan	NR	Economic game theory	Anger leads people to disregard immediate consequences of their behavior, committing them to behave consistently to preserve integrity and reputation

Note: NR = not reported; NA = not available; N/A = not applicable

Table 3

Physiological studies

First author	Year	Sample	N	Age	Sex (% fem)	Location	Ethnicity (% dom)	Design	Key finding
Cannon	2011	Students	39	27.2	58.9	England (Plymouth)	NR	Analysis of face during consideration of scenarios	Facial disgust was highest in response to purity violations. In contrast, harm violations evoked anger expressions. Extremity of subsequent moral judgments was predicted by facial affect
Huang	2000	Non-specific	1427	23.5	50.3	Taiwan	NR	Analysis of eyes during experimental simulation	The frequencies of masking smiles and casting down of eyes showed that participants who based forgiveness on obligation had more residual anger-related affect to the hurtful event than participants who based forgiveness on the moral principle of love
Kédia	2008	Non-specific	28	NA	NA	NA	NA	fMRI analysis while imagining scenarios	Three emotional conditions associated with the involvement of other, either as agent or victim (guilt, other-anger, and compassion conditions), all activated structures that have been previously associated with the Theory of Mind.
Lawler-Row	2008	Students	114	20.4	55.2	USA	White (95)	Nervous system analyses during calming down	Forgiveness and anger-out were associated with systolic blood pressure, and heart rate and pressure
Mimura	2010	Orbitofrontal	2	NA	NA	Japan	NA	fMRI analysis while imagining scenarios	Neural substrates – conflict between the top-down rational/logical processes and the bottom-up

		cortex damage							irrational/emotional processes: individuals with OFC damage punished more strictly than healthy controls
Pletti	2016	Adults	43	22.5	50	Italy	NR	EEG reactions to scenarios	Stronger emotions for the utilitarian as compared to the non-utilitarian options, with the exception of anger and regret, which in Trolley-type dilemmas were stronger for the non-utilitarian option. Moreover, participants tended to choose the option that minimized the intensity of negative emotions, irrespective of dilemma type
Zahn	2009	Non-specific	29	27.9	50	NR	NR	fMRI analysis while imagining scenarios	Activity in the anterior ventromedial prefrontal cortex correlated with pride and guilt. Activity in the subgenual cingulate solely correlated with guilt. Indignation/anger activated lateral orbitofrontal-insular cortices

Note: NR = not reported; NA = not available; N/A = not applicable

Table 4

Qualitative studies

First author	Year	Sample	N	Age	Sex (% fem)	Location	Ethnicity (% dom)	Design	Key finding
Adams	1986	Peace activists	NA	NA	NA	USA (Conneticut)	NA	Analysis of autobiographies	Anger is a 'personal fuel' that resolves the institutional contradictions that arise in the course of history
Baum	2013	Social workers	26	39.6	100	Israel	Jewish (100)	Interviews	Responses of Jewish Israeli social workers to the health inequalities facing their Arab clients: provoked feelings of anger and moral outrage, guilt, and shame
Braunsberger	2011	Consumer boycotters	1400	NR	NR	Canada	NR	Content analysis of boycott pledges	Pledgees explicitly express desire for the target to abolish its egregious behavior, their anger about the behavior in question, and their desire for punitive actions
Brown	2012	N/A	NA	NA	NA	Canada	NA	Analysis of media reports	Hostage taking incident – emergent themes: retribution, perceived systemic mistreatment, justice/injustice, empathy, disbelief, and loss.
Clement	2017	N//A	N/A	N/A	N/A	USA	N/A	Discourse analysis of leaders' utterances	Discourses supporting the use of force, such as those produced by George W. Bush and Osama bin Laden in the context of the Iraq war, share the structural characteristics of the hero-protector narrative
Cohen	1999	Epilepsy patient	1	69	0	Israel	NR	Case study	Reflex-induced simple partial seizures, triggered by feelings of frustration, anger and despair, provoked by pondering complex political and moral issues

Daalen-Smith	2007	Girls with Spina Bifida	5	NA	100	NA	NA	Interviews	The experience of societal ableism eroded their sense of self-worth, impinged upon their human rights, and isolated them in their own condition, leading to anger
Dahl	2014	Mothers & infants (2)	26, 35	NR	100	USA (San Francisco)	White (76, 57)	Quasi-experimental naturalistic observation	Mothers use intense, angry vocalizations for moral transgressions, fearful vocalizations for prudential transgressions, comforting vocalizations for pragmatic transgressions
Denham	2002	Females	24	21-65	100	USA	White (83.3)	Interviews	Experiences of anger – themes: the realities of the self as moral, the morality of anger expression, and the morality of outcomes
Eatough	2008	Females	5	28-32	100	England (Midlands)	NR	Interviews	Experiences of anger – themes: anger as moral judgment, in particular perceptions of injustice and unfairness
Flemke	2008	Female prisoners	39	NA	100	USA	NA	Interviews	A primary trigger for rage is feeling threatened and emotionally overwhelmed
Ford	2018a	Workers	423	NA	NA	NA	NA	Critical incident analysis	Analysis of the role of moral emotions in the workplace
Ford	2018b	Workers	54	27	53.7	USA	NR	Daily diary study	Gratitude and anger towards one's organization are indicators of employee affective well-being and play a mediating role in the effects of organizational and supervisor supportiveness on employee performance
Gasser	2012	Children	139	8	100	Switzerland	NR	Interviews	Aggressive children judged retaliations as less serious than did nonaggressive children

Goldberg	2000	Incarcerated male	1	NA	0	NA	NA	Psychoanalytic case study	Impact of witnessing significant people who behave as if anger is a legitimate means for dealing with frustration and conflict
Haight	2017a	Child Protection System professionals	38	NR	82	USA	White (66)	Interviews in response to Moral Injury Events Scale	Participants communicated feelings associated with moral injury such as anger and sadness, emotional numbing, and guilt and shame.
Haight	2017b	Parents involved with Child Protection.	8	NR	100	USA	White & black (50, 50)	Interviews in response to Moral Injury Events Scale	Moral injury as a result of own parenting behaviors, but also from involvement with professionals and within social systems, including lasting feelings of guilt, shame and anger, and loss of trust in professionals
Hardman	2015	Children with emotional disorders	12	NA	NA	NA	NA	Moral dilemma interviews	Caring, just relationships engendered happiness and love and inspired a sense of moral autonomy; harsh, unjust relationships fueled feelings of anger, sadness, and fear and led to disobedience and retaliation
Herz	2013	Students	90	19.6	52.2	USA (Rhode Island)	NR	Analysis of use of words to describe scenarios	Moral disgust is not visceral (gross) but rather appears to be representative of anger even though autonomy violations are often labeled as ‘disgusting’
Hexem	2011	Parents of ill children	73	NR	NR	USA (Philadelphia)	NR	Interviews	Some parents reported questioning their faith, feelings of anger and blame towards God, and rejecting religious beliefs or communities

Kocabiyik	2014	Young adults	25	20-25	NR	NR	NR	Interviews	Analysis of relevance and operation of moral emotions (empathy, guilt, shame and anger) in young people's lives
Kraus	1991	Masochistic patients	4	NA	NA	NA	NA	Psychotherapeutic case studies	Self-righteous stance reflected in omnipotent striving to impose wishes on the external world as a defense against the pain and anger associated with lack of love
Lee	2010	N/A	N/A	N/A	N/A	N/A	N/A	Analysis of adverts	Smoking adverts: emotion appeals of anger and sadness are associated with higher ethicality than shame and humor appeals
Miller	1966	Bereaved mothers	2	NA	100	USA (New York)	NA	Psychotherapeutic case study	Because of anger and guilt concerning the death of a child, the mothers have not been amenable to casework help, establishing a masochistic relationship with current child
Monrouxe	2014	Healthcare students	69	NA	NA	NA	NA	Interviews	Students experience anger if they witness or participate in something unprofessional (so-called professionalism dilemmas)
Myburgh	2015	Grade 10 children	48	NR	NR	South Africa	NR	Interviews	A culture of aggression was present in class due to lack of a sound moral base
Negri	2008	N/A	N/A	N/A	N/A	N/A		Analysis of texts relating to case of sacking	Being fired can be perceived as a form of unfair treatment and as a personal and social defeat, generating anger, outrage and resentment, and desire for retribution
Radelet	1988	Mental health	NR	NR	NR	USA	NR	Interviews	Reactions to execution of mentally ill prisoner: ambivalence and anger about the case

		profession als							
Russell	2011	Heterosexu al LGBT activists	127	40	60	USA	White (82)	Interviews	Two major sets of ally motives: those rooted in fundamental principles (justice, civil rights, etc.), and those based on personal experiences (e.g., guilt, and anger)
Skeggs	2012	Working class people	24	NR	71	England	NR	Interviews	Scapegoating of working class: people angered by being judged, blamed and held responsible for an inheritance over which they have no control
Smetana	1999	Maltreated children	55	4.5	NR	USA (New York)	NR	Scenarios & interviews	Children rated unprovoked transgressions as more serious and deserving of punishment than transgressions that were depicted as provoked by another's actions
Smetana	2003	Children	81	7.5	51.8	USA (New York)	White (60)	Scenarios & interviews	Moral transgressions judged more serious and deserving of punishment for prototypical than provoked transgressions and when retaliation involved hitting rather than teasing
Thompson	1987	Children	48	9.5	50	USA (Nebraska)	White (‘most’)	Scenarios & qualitative interviews	Second graders offered more outcome-dependent inferences; fifth graders provided more causal attribution-dependent inferences (e.g., pride, anger)
van Daalen-Smith	2008	Adolescent girls	NA	NA	NA	NA	NA	Qualitative reporting by school nurse	Girls' lived experiences of anger: experiences of disrespect, dismissal, denied agency, and a denial of the right to verbalize anger eventually led to self-silencing
Wosińska	1987	Medical profession als	237	NA	NA	Poland	NA	Content analysis of scripts	Emotions were dominated by annoyance rather than anger; reactions comprised not only the striving to redress the injustice but also acquiescence to injustice

								describing injustice	

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