



# The relational calibration of fear

Ami Harbin<sup>1</sup>

Received: 1 June 2021 / Accepted: 26 April 2022 / Published online: 6 June 2022  
© The Author(s), under exclusive licence to Springer Nature B.V. 2022

## Abstract

In this article, I consider how fear in contexts of crisis shapes and is shaped by agents' relationships. I survey a number of approaches to understanding fearing at the intersection of empirical psychology and philosophy, highlighting the extent to which interpersonal relationships are positioned as involved in processes of fearing, and establish what I take to be insufficient attention paid by these approaches to the ways interpersonal relations shape the emotions we come to have. Contexts of acute crisis and uncertainty can involve rapidly adjusting practices of fearing in response to other agents, both those we trust and those we do not. I call for the development of a model of 'relational calibration' for understanding the complex interpersonal dynamics of fearing during crises, including in the context of the COVID-19 pandemic.

**Keywords** Fear · Risk perception · Anxiety · Crisis · COVID-19

In this article, I consider how fear in contexts of crisis shapes and is shaped by agents' relationships. In section one, I survey a number of current approaches to understanding fearing in philosophy, psychology, and neuroscience, highlighting the extent to which interpersonal relationships are currently seen as centrally involved in processes of fearing. I establish what I take to be insufficient attention paid by these approaches to the ways interpersonal relations shape the emotions we come to have. In section two, I consider how, in contexts of acute crisis and uncertainty, experiencing fear can involve rapidly adjusting practices of fearing in response to other agents, both those we trust and those we do not. In section three, I introduce the concept of 'relational calibration' and argue for the need to develop it as a model for understanding the complex interpersonal dynamics of fearing during crises. I take as a case study experiences of calibrating our fears in response to those of others in the context of the COVID-19 pandemic. To properly understand fear's effects on wellbeing, we must understand fear in the context of relationships with others.

---

✉ Ami Harbin  
aharbin@oakland.edu

<sup>1</sup> Department of Philosophy, Oakland University, 2200 N. Squirrel Rd, Rochester, MI 48309, USA

## 1 Background: the role of others in fearing

In this paper, I make the case for the importance of and need for a model of relational fear calibration, given the lack of sufficiently relational approaches in the existing literature on fearing. To this end, I begin this section with an overview of some of the central approaches to understanding what fearing is in the literature at the intersection of empirical psychology and philosophy. I focus on basic emotions theory (Ekman, Scarantino), a theory of emotional inculcation (Prinz), and constructionism (LeDoux, Feldman-Barrett). While nearly all accounts of fearing agree that other people play some role in our fearing, and thus there is almost always some sense of relationality involved, I will highlight how in the existing literature, typically these roles are limited to *causal*, *developmental*, or *social-conceptual* participation, and will make the case for why these forms of participation do not sufficiently account for all the senses in which fearing must be seen as relational.

### 1.1 Basic emotions theory

Basic emotions theory was articulated in the 1960s by Silvan Tomkins (Tomkins and McCarter 1964), and developed in the work of Carroll Izard, Paul Ekman and others. Basic emotions theorists hold that several primary emotions are universal, genetically hardwired in the human brain, and experienced in response to relevant stimuli. Fear is one of these basic emotions, along with surprise, interest, joy, rage, disgust, shame, and anguish. In 1992, Ekman outlined nine characteristics which distinguish basic emotions: distinctive universal signals, presence in other primates, distinctive physiology, distinctive universals in antecedent events, coherence among emotional response, quick onset, brief duration, automatic appraisal, and unbidden occurrence (Ekman, 1992, p. 175). Subsequent research has revised and refined this list, and much of the field has since focused on gathering information about how these emotions are expressed and recognized in particular universal facial expressions.

While basic emotions theory has been widely influential and shaped a great deal of research, the approach has also been widely criticized. Constructionists (some of whom we will discuss shortly) hold that there is no empirically supported one-to-one correspondence between emotions like anger, fear, or disgust and any neurological, expressive, behavioral or phenomenological responses, and that there is low coordination between physiological, neurobiological, expressive, behavioral, cognitive, and experiential responses among instances of fear. Andrea Scarantino and Paul Griffiths find these criticisms compelling but argue that basic emotions theory can and should be revised to “stop using unqualified folk emotion categories... and embrace an antiessentialist approach to natural kinds” (Scarantino & Griffiths, 2011, p. 449). They propose that biologically basic emotions are “predictively and explanatorily useful in understanding affective phenomena” (Scarantino & Griffiths, 2011, p. 450).

## 1.2 Emotional inculcation

Other approaches characterize emotions in part by considering the implications of emotional lives for morality. Jesse Prinz (2007) argues for an account of emotions as essential to morality. This account is consistent with his earlier view according to which “emotions are perceptions, and they are used to perceive our relationship to the world” (Prinz, 2004, p. 225).<sup>1</sup> On Prinz’s view, to make a moral judgment is to have an emotional disposition (2007, p. 84). On this view, others play a significant role in emotional lives via moral learning by emotional conditioning. According to Prinz, parents and other caregivers condition children to associate moral wrongdoing with certain negative emotions (2007, p. 37), chiefly using tactics of power assertion (e.g., they punish to promote fear in children), refusals to signal affection (e.g., expressing disappointment, causing children to feel sadness/regret), and/or by calling children to recognize the harms their actions have caused, leading children to feel sympathy and vicarious distress for those harmed (Prinz, 2007, p. 35). Parents and caregivers thus inculcate morality by acting in ways which trigger certain emotions (punishing children, withholding love, communicating about the harms children have caused), and these actions trigger emotions (fear, sadness, sympathy/distress) in their children. As Prinz writes, “When pressed, people’s deepest moral values are based not on decisive arguments that they discovered while pondering moral questions, but on deeply inculcated sentiments” (p. 29). Fear is an important part of this picture. The fear children feel of punishment can be used to shape how they will act in the future.

## 1.3 Constructionism

Joseph LeDoux and Lisa Feldman-Barrett are two theorists who articulate views of emotions as psychologically constructed conscious experiences (LeDoux, 2015, 19; Feldman-Barrett, 2017, p. 31). On LeDoux’s view, feelings of fear are not innate. He has taken care in recent articulations of his view to distinguish (nonconscious) threat detection from the conscious feeling of fear (2015, p. 23).<sup>2</sup> Fear and other emotions are cognitively assembled conscious feelings (2015, p. 20). Only animals with capacity for consciousness can be said to have fear. Many other animals have threat detection, where external stimuli are processed by sensory systems in the brain, and nonconsciously determined to be threats, threat detection circuits trigger increased brain arousal and body changes.<sup>3</sup> When these factors are integrated in consciousness, the conscious feeling of *fear* can be created.

<sup>1</sup> Note that Prinz also uses the term ‘calibration’, but in a different way than I will suggest. For Prinz, the calibration at issue is between an embodied appraisal and judgments of a particular kind. “The calibration file for jealousy is a collection of representations that can track infidelity. It includes the explicit judgment that one’s lover has been unfaithful. When representations in this file are activated, they trigger a somatic response, and that response triggers an embodied appraisal” (Prinz, 2004, p. 101).

<sup>2</sup> As LeDoux details, “The amygdala is indeed wired by evolution to detect and produce body responses to certain kinds of threats, but that it is not required to feel fear. For these and other reasons, I have argued that the amygdala’s role in detecting and responding to threats is more appropriately considered in terms of a non-conscious defensive survival circuit than a conscious fear circuit” (LeDoux, 2020, R620).

<sup>3</sup> As LeDoux puts it, “We should avoid using [the words fear and anxiety] when discussing systems that nonconsciously detect threats and control defense responses to them... rather than saying that fear stimuli

LeDoux notes that threat conditioning typically involves two forms of interpersonal learning: observational learning (observing the effects of danger on others, either in real life or in depictions); and learning by instruction (e.g., children learning about danger from parents and caregivers, or employees learning about danger from their employers) (LeDoux, 2015, p. 68). Other people are involved in this process, as it were, to create the conditions for future matches between stored schemas and present conditions. As LeDoux describes,

When a child has been in a situation of danger, a parent may tell her, ‘You must have been really afraid’...The child also hears others talking about fear or anxiety and sees examples of these states played out on TV and in the movies...The Swiss developmental psychologist Jean Piaget used the term ‘schema’ to describe an organized collection of information about a topic or situation that children acquire and then use in thought and action...In threatening situations, signals in brain and body are monitored, as is one’s behavior. If a match occurs (through a process called *pattern recognition*) between a stored schema and the present situation and/or state, the present condition is cognitively conceptualized (interpreted) as the schematized emotion and labeled with the emotion word assigned to that state. (LeDoux, 2015, pp. 225–226)

On LeDoux’s view, an experience of fear involves: the representation of a sensory object or event in the brain, defensive survival circuit activation, attention/working memory knowing the stimulus is present, semantic memory enabling a person to know what the object is and is not, episodic memory positioning the even as happening to *me, now*, connections from amygdala to long term memory facilitating retrieval of memories of the threat, and recognition that the ingredients present are indicators of fear and the state is categorized as *fear* (LeDoux, 2015, pp. 227–230).

On Feldman-Barrett’s constructionist view, contra basic emotions theory, particular emotion concepts are not genetically predetermined. Any universality across emotions is due to shared concepts (Feldman-Barrett, 2017, p. 38). On Feldman-Barrett’s view, to create emotion concepts, we need a group of people to agree that a concept exists (collective intentionality) (2017, p. 135). Emotion concepts are learned from others during infancy or later if someone moves from one culture to another (p. 145).<sup>4</sup> Emotion concepts have five main functions: they make meaning of our physical states; prescribe action; regulate body budgets (e.g., a categorization of excitement might lead to a moderate release of cortisol, a categorization of fear might lead to a greater release of cortisol); allow for emotion communication; and allow for social influence (pp. 138–139).

This brief overview of accounts is meant to help highlight a diverse set of approaches to understanding the roles of other people in one’s emotional life. I now want to highlight three main ways others are seen as participating in our fearing according to some or all of the above views: *causally, developmentally, and social-conceptually*.

Footnote 3 continued

activate a fear system to produce fear responses, we should state that *threat stimuli elicit defense responses via activation of a defensive system*” (LeDoux, 2015, p. 41).

<sup>4</sup> As Feldman-Barrett puts it, “In every waking moment, your brain uses past experience, organized as concepts, to guide your actions and give your sensations meaning. When the concepts involved are emotion concepts, your brain constructs instances of emotion” (Feldman-Barrett, 2017, p. 31).

### 1.3.1 Causal participation of others

*Causal participation in fearing* describes the ways other people can be the cause of one's fear (e.g., jumping out from behind a door and causing someone to scream). It is clear that one way in which other people participate in our fearing lives is by giving us something to fear: they act (or fail to act) in ways which cause us to fear, or we fear something will happen (or not happen) to them, or we fear they will or will not relate to us in a particular way.<sup>5</sup> All of these are examples of what we might call the causal participation of others in our fearing.

All of the views surveyed above agree that others can participate causally in our fearing. Basic emotions approaches accept that others can play causal roles in one's fearing—other people can be one of any number of stimuli that trigger one's fear. On Prinz's emotional inculcation view, other people (and especially parents) regularly play a causal role in triggering certain emotions (especially in their children). Likewise, the constructionist accounts of LeDoux and Feldman-Barrett agree that others' participation in fearing can include causal participation. The causal participation of others is one among many ways in which we can come to fear. Note that others are not positioned in terms of this causal participation as being much more meaningfully involved in our fearing than any other stimuli. It is nothing about others *as fearers* that qualifies them to cause us to fear. They, like snakes, bears, thunderclaps, and rollercoasters, can be the kinds of things that cause us to fear by virtue of having the capacity to make us feel threatened in some way.

### 1.3.2 Developmental participation of others

*Developmental participation in fearing* typically involves parents or other caregivers helping young children learn what stimuli to be afraid of, or potentially how to express such fear. Fear acquisition, based in part in social relationships, begins in infancy.<sup>6</sup> Infants learn practices of attention, what to pay attention to, and what not to, from other people (Izard, 1971; Waites, 1997, pp. 65–66), and these capacities for attention

<sup>5</sup> Here we are taking the term 'cause' somewhat loosely, since in the latter two instances what we are actually fearing is not the action of another person, but their *being such that they could be affected by some other bad event* (e.g., their being vulnerable to illness or injury). I group these together as causal participation to encompass the broad sense in which others participate in our fearing by being in some sense, either by action or possession of certain traits, the source of our fears.

<sup>6</sup> Gullone (2000) surveys how children's fears have been extensively studied using a variety of methods: retrospective accounts (Hall, 1897; Jersild and Holmes, 1935); observations of children's fear reactions to stimuli (Jersild and Holmes, 1935); third-party reports from parents or teachers (Cummings, 1944, 1946; Lapouse and Monk, 1959); child interviews (Jersild et al., 1933; Maurer, 1965); fear listing (Pratt, 1945); and fear surveys (e.g., Scherer and Nakamura's, 1968 Fear Survey Schedule for Children and its revision by Ollendick (1983) and by Gullone and King (1992)). All these approaches have their strengths and limitations. Retrospective accounts, for instance, where adults are asked about their childhood experiences of fear, have clear limitations given their reliance on memory and the difficulty many adults have in accurately recalling early childhood experiences. While interview data has been seen by some as the most efficient means of learning about children's fears, interviews too have limitations (e.g., 'expectancy effects' where an interviewer interprets responses within their own frame of reference rather than within the interviewee's).

will be a necessary part of fearing, as toddlers begin to notice and attend to some objects as threats.

Developmental participation in fearing has some role in all three of the major approaches to fearing we have discussed. In basic emotions accounts, though the emotion of fear is innate, recognition of others' emotions becomes more fine-grained later in development. Others play a role in our development of the capacities to recognize fear in others. On Prinz's account of emotional inculcation, other people certainly play a developmental role in teaching the significance of certain emotions. Emotional inculcation draws attention to the ways others, participate causally and developmentally in children's fearing, with deliberate moral goals. And the constructionist accounts of LeDoux and Feldman-Barrett agree that others' participation in fearing can include developmental participation.

Awareness of developmental participation in all three approaches is supported by the last several decades of research in developmental psychology of fearing. Rachman (1977) proposed a "now classic"<sup>7</sup> 'tripartite theory of fear acquisition', according to which, in addition to conditioning,<sup>8</sup> two other paths of fear acquisition are common. *Vicarious acquisition* involves acquiring fears by observing others having fear responses to stimuli.<sup>9</sup> Not only can fears be vicariously acquired, but they can also be vicariously reduced (Bandura, 1969; Rachman, 1972, 1976a, 1976b, 1976c). In addition to vicarious acquisition, fears can also be acquired by the *transmission of information and/or instruction*, as in cases where parents or peers give information to children about what they ought (or ought not) to fear. This information may help to explain the *absence* of acquired fears in situations where conditioning might have made it likely for a fear to arise.

A number of other important advances have been made in developmental research on fear which underscore the roles other people very often play in our coming to fear some objects and not others. In addition to Rachman and others' focus on cognitive development and learning pathways, some have focused on the prepotency and

<sup>7</sup> See Ollendick et al. (2002).

<sup>8</sup> Theories of fear acquisition in early childhood and beyond have historically focused on *conditioning*: "neutral stimuli which are associated with a fear or pain-producing state of affairs develop fearful qualities...the strength of the fear is determined by the number of repetitions of the association between the pain/fear experience and the stimuli, and also by the intensity of the fear or pain experienced in the presence of the stimuli" (Rachman, 1977, p. 376). On this theory, fear responses are akin to the development of food aversions (Garcia and Koelling 1966; Seligman and Hager 1972). Like food aversions can develop when a certain food is associated with an illness (e.g., if you ate a hamburger around the time you once had food poisoning, you may come to be averse to hamburgers forever after), when certain stimuli become associated with a fearful state of affairs, a person may come to be afraid of those things.

<sup>9</sup> Rachman gives the example of mothers who were fearful of air-raids during the war being an important determinant in whether their children became fearful of air-raids (John, 1941). He also points to research demonstrating correspondence between the fears of children within the same family (May, 1950), between the total number of fears exhibited by children and their mothers (Hagman, 1932), as well as examples of combat airmen who acquired fears after observing a crew mate expressing such fears (Grinker and Spiegel, 1945). With respect to these studies of fear and children, much more needs to be said about the gendered assumptions about parenting and emotionality that shaped research projects in the 1940s and 1950s (and still today). The only point I take from these studies is one I take to be uncontroversial: that fears can be acquired vicariously.

preparedness of stimuli (Marks, 1987; Seligman, 1971) and the significance of temperament (Gullone, 1996; Kagan, 1989). Parenting practices can clearly shape a child's likelihood of perceiving objects as threats: dysfunctional or abusive parenting can create higher likelihood of hypervigilance in children (Izard & Harris, 1995), as well as atypical patterns of reacting to, coping with, or integrating the emotions they have (Zahn-Waxler et al., 1990). Not only the objects of our fears, but also *what it feels like to us to be fearing, and how we cope with those experiences*, are shaped by other people. Furthermore, genetic influences seem to be associated with a tendency towards fearfulness. All these and other factors do not operate independently, but together shape the fear acquisition of individuals throughout childhood and beyond. As Ollendick and colleagues summarize, "In all probability, stability of behavioural inhibition may be related to a combination of genetic influences, parental psychopathology, and environmental factors that transact in a reciprocal manner" (Ollendick et al., 2002, pp. 103–104).

### 1.3.3 Social-conceptual participation of others

In addition to the causal and developmental participation of others in fearing, *social-conceptual participation in fearing* involves the broad and long-term community-wide agreements on emotion concepts. On constructionist views of emotion, having fear requires having the concept of fear, which requires agreement within a group of people that the concept exists. The existence and acquisition of the concept of fear depends on *social-conceptual participation*. Other people have reached community consensus about the existence and meaning of the concept, and we come to learn and employ the concept only after they have done so. While constructionist views are committed to the presence of this social-conceptual participation, the other two approaches we have surveyed are not. On basic emotions views, fearing does not require social-conceptual participation as defined above—no broad and long-term community-wide agreements on the emotion concept of fear is needed in order for someone to fear. And Prinz likewise does not highlight fear as dependent on the concept of fear having first been developed by social or community consensus (2004, p. 141).

In sum, the above accounts present fear as something other people can cause unintentionally or intentionally (on basic emotions, emotional inculcation, and constructionist views), something other people help us learn to have and express (on basic emotions, emotional inculcation, and constructionist views), sometimes deliberately as part of moral education (on emotional inculcation views), and something that communities create the concepts for, which are necessary for individuals to consciously conceptualize and therefore have the experience (on constructionist views). These are a number of senses in which other people are seen as participants in our fearing according to these views. The model of relational calibration I call for in this article is premised on the idea that further senses of relational involvement in fearing are in need of recognition.<sup>10</sup>

---

<sup>10</sup> These accounts and mine are interested in fear as an occurrent emotion, rather than in fear as a disposition to embody such an emotion in particular circumstances, or in fearfulness as a personality trait, though of course all of these are importantly related phenomena.

### 1.3.4 Constitutive participation of others

To begin to see the further dimensions of relational involvement in fearing we might consider, note that the above accounts of emotion all share the view that emotions are formed prior to their expression. That is, while verbally or non-verbally expressing emotions can be common and important parts of our emotional lives, expression is typically assumed to be something that follows (if at all) after the emotion has been established. I feel fearful, and then I may express my fear to others.

Philosopher of emotion Sue Campbell calls this the “presupposition of individuation” (1997, p. 51). She proposes an alternate view that sees the interpersonal acts of expression as having a more central role in the formation of emotion. Campbell contends that it is the *activity of expression* that forms our feelings, such that they can be recognized and identified (Campbell, 1997, pp. 48–49).

On Campbell’s view, for classic emotions like love or anger that have objects, and for which objects must be identified in order for the emotion to be individuated, expression is sometimes (not always) needed to identify the object of the emotion (1996, p. 76). She gives the example of a case in which the emotion of love is individuated by the establishment of the object(s) of one’s love, and where these objects are established by verbal and non-verbal expression (1997, p. 87). Without expression in this case, the objects of love would not be established, and therefore the emotion would not be formed. For what Campbell calls free-style feelings, not captured by the classic emotion categories, Campbell argues that interpersonal expression and interpretation is *required*.<sup>11</sup> Modeled on Donald Davidson’s externalism, Campbell develops an account of triangulation in affective meaning. She presents cases in which failures of uptake for a person’s expression of feeling can cause the feeling itself to become indeterminate. The formation of feelings can depend on expression and interpretation/uptake. In other words, on Campbell’s view other people can not only participate in the formation of emotions in the *causal, developmental, and social-conceptual* senses described, but also *constitutively*. Their failure to allow for the expression of some feelings, and/or to function well as interpreters for such expressions, can mean that individuals fail to *have* the feelings in the same way, or at all.

While on all the views of emotion we have surveyed, other people have *some* role(s) to play in our fearing, Campbell would note that basic emotions theory, Prinz’s theory of moral inculcation, and constructionist theories all share the presupposition of individuation. Neither basic emotions theory, Prinz’s theory of emotional inculcation, nor the constructionist views of LeDoux or Feldman-Barrett focuses on the activity of expression as having a constitutive role to play in emotion formation. LeDoux explicitly notes that outward expression (verbal or nonverbal) of fear is not a requirement for having a feeling of fear (2020, R622). Feldman-Barrett’s view discusses emotion communication and social influence as two of the functions of emotion concepts, but in these cases, emotions are formed first and only thereafter communicated or influential. When my emotions are expressed to you (verbally or non-verbally), they may influence your emotions—they may even be a *cause* of your fear. But as we have

<sup>11</sup> I engage with Campbell’s view at length elsewhere (Harbin, 2014, 2016). My engagement here does not reflect all the nuance of her account. My goal is to note that Campbell’s is one view of emotion which points to greater relational participation than the other views I have surveyed.



seen, Campbell's view positions interpreters as playing a more foundational role in the formation of emotions.

The moral teaching involved in Prinz's account of emotional inculcation and the learning and teaching of emotions involved in constructionist views are typically characterized as a feature only of childhood, or occasionally of cross-cultural learning among adults. In most cases, the teaching and learning is described as a feature of only certain kinds of (hierarchical, structured) relationships: those between caregivers and their children. Campbell's view holds that many others besides parents and children participate constitutively in each others' emotional lives. The participation of others does not stop when children learn an emotion concept or become competent in its application. On Campbell's view, it continues, both in some cases of classic emotions (in cases when object identification depends on expression), and in cases of freestyle feelings. The model of relational calibration I call for in this paper likewise starts from the assumption that other people can participate constitutively in the formation of emotions beyond the bounded time frame of childhood and beyond the structure of parent–child relationships.

Campbell's view also highlights ways in which emotion concept creation can happen not only at the broad community level (as constructionists describe), but also, especially for freestyle feelings, at the level of more local, interpersonal relationships. A whole community may not reach agreement about the existence of a particular emotion concept, and sometimes this is because not everyone in the community has features of identity or background that make an emotion experience one they can access. Consider the particular emotions associated with experiencing racism. Members of racially privileged groups may not have a number of emotions that are experienced by racially disadvantaged groups. Campbell resists a move to group these as mere species of broader classic emotion categories (e.g., fear). Freestyle feelings can be formed by the process of expression and sympathetic interpretation, even when such feelings are not conceptualized at the broader community level.

In sum, the constitutive role of others in Campbell's view is distinct from the views of emotion I have surveyed above. Campbell's view pushes us to consider more extensive relational dimensions of feeling in general, and fearing in particular.

### 1.3.5 Shaping each others' fears

The lack of attention to the potentially constitutive role of others in emotion formation highlighted by Campbell is not the only sense in which many of the standard views are individualized in focus. The model of relational calibration I call for in section three is motivated in part by the sense that the everyday interpersonal dynamics of emotions extend beyond the causal, developmental and social-conceptual roles highlighted by major approaches in the field. I agree that other people regularly play a role in acting in ways that cause us to fear, including sometimes deliberately as part of moral teaching, raising us in ways which help us learn what is worth fearing and how to express fear, and together coming to consensus about emotion concepts of (and adjacent to) fear. All of these are significant ways in which others participate in our fearing lives. But others' participation extends further and more deeply than just these effects.

As we acquire and modify fears over time, the relational dynamics between people—the trust or lack thereof, the alignment of our beliefs with those of others, the extent to which we depend on and enact responsibility for each other—are all complex conditions which shape what, how, and how much we fear.

The extensive literature on risk and threat perception developed over the last several decades has drawn attention to the ways individuals' understandings and assessments of risk and threat are deeply shaped by the information they get from others. Risk perception commonly involves conceptions of the likelihood of a threat,<sup>12</sup> the severity of a threat, how susceptible individuals believe themselves to be, and how much a possible event or object is perceived as threatening within a community. Risk perception typically depends on the use of biases and heuristics (Tversky & Kahneman, 1974; Warr, 1987; Warr & Stafford, 1983). Past exposure to risk has been shown to generate heightened present worries about risk (Stafford & Galle, 1984) and sensitivity to risk can differ among individuals (Warr, 1987). Much more could be said about this literature, but just one point is key for my current purposes: perceptions of risk and threat are expressive of who fearers are, what they have experienced, their temperament, and their emotional states. All of this means, in part, that risk and threat perception is prime ground for shaping and being shaped by other people.<sup>13</sup>

In senses which extend beyond the causal, developmental, and social-conceptual participation of others, and which may or may not involve the constitutive participation of others in Campbell's sense, other people regularly communicate about and act on the basis of their own fears in ways which influence our own ways of fearing. Of particular significance is the information about fears we gain from the people we trust most. If a person I trust expresses fear about something I have not yet considered as worth fearing, I may come to consider that object as a potential threat. Likewise, if someone I do not trust expresses fear of something, I may be inclined to dismiss that as a legitimate threat, even if that means questioning my own prior beliefs about it. Others' fearing creates conditions within which our fearing is likely to change—sometimes, though not always, in ways which harmonize with theirs.

To develop a model of relational calibration of fear, fear theorists will need to move beyond conceptions of causal, developmental, and social-conceptual participation of others to the many other complex ways in which our fears are shaped by other fearers, sometimes in the constitutive senses Campbell highlights, where we may not have the fear at all absent the expression and interpretation with others, and sometimes in subtler senses where epistemic and moral dimensions of our relationships with others (trust, shared beliefs, and the responsibilities we have to each other) shape what we can and will be likely to fear. The views I have surveyed in the literature have so

---

<sup>12</sup> Perceptions of risk are further distinguished by being perceptions of *uncertain* versus *certain* threats. The distinction between these kinds of perceptions is pronounced, for example, in pandemic contexts when we understand that some of the risks we perceive are certain to amount to actual harms. For instance, when COVID case numbers and hospitalizations rise, we know that a percentage of those cases will result in death.

<sup>13</sup> To be sure, risk perception is only one component of fear, not itself identical with fear. After all, one can perceive risk without feeling fear at all, or even coming to fear excitement. My point in noting that risk and threat perception can be shaped by past experience, temperament, and other emotional states, all of which are prime ground for being shaped by other people is just to note risk perception as another component of fear that is shaped by our interpersonal relationships.

far either neglected or de-emphasized these relational dynamics, or failed to see the central relevance of them for understanding what fearing is. Fearing is not only or centrally a phenomenon belonging to individual fearers.<sup>14</sup>

In the next section we turn to a consideration of these dynamics as complicated by contexts of acute crisis or unpredictability. In section three, I then outline five phenomena present in the particular fear context of the COVID-19 crisis where, for example, some fearers have experienced fearing in the context of a smaller set of particular relationships, or have experienced shifts in those other fearers with whom they relate, or have come to experience new misalignments of fear with people who once shared many of their fears, or have deliberately tried to persuade others to (or not to) fear in particular ways. The fact that these dynamics are not discussed within the major approaches to fearing I have surveyed is motivating this paper's call for a model of fearing that has the capacity to do justice to them.

## 2 Fearing in crisis

In contexts of crisis, it can be difficult to determine what, how, or how much to fear. Whether a crisis is acute and immediate or more long-term and dispersed, fearers can struggle to regulate emotions and to determine whether the fears (or the lack thereof) they are experiencing are appropriate to the circumstances. Research on fear and risk perception has investigated both acute and long-term crises for their effects on fearing. Here I will draw on one major example addressed in the literature surrounding acute crises—the 9/11 attacks on New York City—and one example of a longer-term crisis—the gradual ill effects of climate change. These are different kinds of crises, complex in different ways. While 9/11 was acute and geographically specific, climate change is in some cases seen as both spatially and temporally 'distant' (Spence et al., 2012). Both kinds of crisis have been shown to complicate fearing, making it unclear what, how, and how much to fear. Early research on risk perception and fear during the COVID-19 pandemic points towards the same conclusion, though COVID is a crisis distinct in a number of ways from both 9/11 and climate change. Anyone who has experienced crises may agree that, at least in many cases, processes of fearing are regularly disrupted by them. Being clear on *how* such disruptions can work will be important for my claims about the relational calibration of fear in section three.

The last decades of research on risk perception have made clear that affect and personal experience are significant shapers of risk perception in contexts of crisis. A significant thread running through the risk perception literature is about the significance of affect heuristics in situations of complex risk assessment. When elements of risk in a context are sufficiently uncertain, affective judgments can function as more efficient processors of information than slower, analytical reasoning processes (Johnson & Tversky, 1983; LeDoux, 1996; Slovic et al., 2007). Loewenstein et al. (2001)

---

<sup>14</sup> These claims are situated in a relational turn in conceiving of emotion, similar to the second personal turn in epistemology (see, e.g., Moran, 2001, 2018).

have noted that when there is conflict between affective and analytical responses to a potentially risky situation, affect is likely to take priority in guiding action.<sup>15</sup>

In both acute crises like 9/11 and longer-term crises like those related to climate change, personal experience (e.g., proximity and/or repeated exposure to images of the attacks, or first-hand experience with extreme weather events) has been shown to be a significant predictor of risk perceptions (Weber, 2006; Linden, 2014, p. 2). Personal experience with extreme weather events, in addition to the causal attribution of the event to climate change, can make it easier for an individual to picture frightening future climate catastrophe, and the more vividly a person can imagine negative future climate outcomes, the more likely they are to perceive future risks (Linden, 2014, p. 2). Fear has been shown to be greater for negative situations most vivid in our memories than for those we cannot easily picture (Myers et al., 2012). In some situations, having perceptions of risk informed more by affective than analytical reasoning can motivate decisions that, while intended to reduce risk, in fact put individuals at greater risk. For instance, Lerner et al. (2003) showed that, in response to the September 11, 2001 attacks, fearful individuals perceived greater risks, including a heightened perception of the risk of flying overall. More people therefore opted to drive long distances rather than fly to destinations, which was in fact a riskier behavior, resulting in an increase in driving associated deaths (Denovan et al., 2017).

In contexts of crisis, risk perceptions are also shaped by some social identities more than others. Gender has been shown to be a predictor of higher or lower risk perception. Consistent with section one's discussion of fear acquisition more generally, women-identified fearers have been consistently shown to perceive higher levels of risk in contexts of crisis overall, including with respect to climate change (Brody et al., 2008), and to environmental hazards in general (Dietz et al., 1998). Income, age, and socioeconomic status have not been shown to make such a difference to perceptions of risk in climate change (Linden, 2015, pp. 116–117), but political ideology has been shown to be another clear predictor of risk perception. In fact, *how much* an individual knows about climate change does not straightforwardly predict how much risk an individual will perceive, but political orientation will—more knowledge about climate change tends to lead to higher concern for liberals, and not for conservatives (Linden, 2015, p. 114).

The COVID-19 pandemic is a crisis both like and unlike the acute crisis of 9/11 and the long-term crisis of climate change. Its onset was experienced by many in the United States as sudden and dramatic, in the form of lockdowns, school and workplace closures, and health care system overwhelm. Its persistence over the many months to follow, and its implications for economies, industries, relationships and social practices have been devastating. Unlike some other crises, Pine et al. note that the COVID-19 pandemic is:

---

<sup>15</sup> For a detailed analysis of the distinction between the 'risk-as-feelings' hypothesis (Loewenstein et al., 2001) and views emphasizing affect heuristic (Slovic et al., 2007) in the context of climate change risk perception, (see Linden, 2015, p. 115). The point I aim to make here is more general: risk perception in contexts of crisis is complex, and certainly shaped by affect and personal experience.

geographically-global, demographically-wholistic, invisible (both the crisis itself and the medium of transmission), and long-term...The COVID-19 pandemic involves a high embeddedness of risk in people's daily lives...people have to balance managing risks with attending to the concerns of normal life...[the] pandemic has been accompanied by massive uncertainty, making it particularly difficult to comprehend and regulate risks for both governments and individuals. (Pine et al., 2021, pp. 2–3, 5)

The perceived risks of the COVID-19 pandemic extend beyond the risks of COVID-19 illness themselves. Han et al. (2021) have found that individuals have also expressed concern about 'secondary illness' risks (e.g., risks of death from other causes, chronic conditions exacerbated), sociobehavioral risks (e.g., mental illness, isolation, career setbacks, relationship difficulties), economic risks (e.g., recession, job loss), and risks of crumbling institutions (e.g., health care, education).

Early research on fear and risk perception during the crisis of COVID-19 has begun to give us reason to think that some of the ways other crises have shaped risk perception are also characteristic of this pandemic. We are learning that, like in other crises, in COVID-19, affect and personal experience are important factors in shaping how people judge risk during this time. Unsurprisingly, more fearful individuals are likely to perceive higher risks of negative outcomes of COVID-19.<sup>16</sup> As Han and colleagues explain,

fearful individuals would perceive the COVID-19 pandemic as a high-risk event due to appraisals of lack of individual control, uncertainty, and unpleasantness...In addition, the intense, immediate response and high mental imagery of fear...would outweigh the cognitive evaluation of the actual threat posed by COVID-19. This suggests that fearful individuals are more likely to make inflated risk perceptions which are unrepresentative of actual risk levels. (Han et al., 2021, p. 7)

Higher levels of fear have also been shown to correspond with individuals taking more preventive measures (Yildirim et al., 2021). The more fearful an individual's temperament, the more likely they are to perceive high risks of COVID, and the more likely to act with caution.

As in cases of other crises, social identity also makes a difference to how the risks of COVID-19 are perceived. Consistent with research in other crisis contexts, women-identified individuals have been shown to have higher perceived risk and higher levels of preventive behavior than men (Yildirim et al., 2021). Older people have been shown to be more fearful of COVID than younger people (Han et al., 2021). Higher levels of education have been correlated with more preventive behaviors at the same time as *less* fear (Yildirim et al., 2021). While the research on demographic trends in COVID risk perception is early, we might anticipate that just as we have seen that *knowledge about* other crises (e.g., climate change) does not always predict higher perceptions of risk or more risk-averse decision making, since such perception and decision-making is often politicized, so too will knowledge about COVID not itself predict higher perceptions

<sup>16</sup> Han et al. (2021) designed a new 13-item scale to assess COVID-19 Fear, adapted from earlier inventories which assessed Ebola Fear (Blakey et al., 2015) and Swine Flu Anxiety (Wheaton et al., 2012).

of risk. Risk-perception and behavior during COVID-19, particularly with respect to mask wearing, social distancing, and vaccination, has clearly been politicized. In an early pandemic study of over 50,000 participants across 67 countries, Jay Van Bavel and colleagues found that high levels of partisanship within a country—that is, the strong identification with a specific political party, whatever the views of that party may be—predicted risky behavior (Van Bavel preprint, 18).

During COVID, and particularly during the early months of the pandemic, it was difficult for individuals to know whether we were accessing accurate or sufficient information to inform our perceptions of risk. Drawing on crisis informatics research, Pine et al. (2021) conducted a qualitative study to investigate what sources of information have shaped perceptions of COVID risks. As they note, the process of accessing information during COVID has been complicated:

Despite an overwhelming amount of risk information about COVID-19 illness risks, it is still fraught with uncertainty, ambiguity, conflicting information, inaccurate information, and can be too complex to understand. Thus, people are developing perceptions of risk with partial information, drawing on a variety of sources in the information landscape to do so. (Pine et al., 2021)

Pine and colleagues found that study participants often pieced together individualized combinations of information sources, including local news, social media accounts of perceived experts, friends and personal contacts, press briefings, and first-hand accounts from patients, doctors, and family members of those diagnosed with COVID. Whether by direct in-person communication, phone and video calls, text messages, or DMs with friends, family and coworkers, the researchers identified regular patterns of turning to these others for accessing and deciphering risk information. The significance of social media for risk communication, particularly during the early weeks and months of the pandemic cannot be overstated.<sup>17</sup> These others to whom individuals regularly turned—Pine et al. call them ‘human filters’—were key sources and interpreters of information for the study’s participants. Information was found to be conflicting, overly complex, rapidly changing, and in some cases inaccurate (Pine et al., 2021). Study participants communicated directly with friends who had expertise (physicians, scientist) or direct experience (family members of those being treated for COVID, or coworkers in other areas of the world where COVID was hitting hard). Firsthand accounts of experience with COVID were found to be particularly powerful in sensitizing people to the seriousness of the crisis.<sup>18</sup>

In this section, we have seen that crisis, in its variety of forms, can reshape individuals’ experiences of fear and risk perception. Whether in more acute or more long-term crises, affect, personal experience, and identity have been shown to make a significant difference to the amount of risk individuals will perceive. Risk perception is thus likely to vary among individuals given their different affective backgrounds and tendencies,

---

<sup>17</sup> This is true to such an extent that the coinage ‘doomscrolling’ was selected as New Zealand’s 2020 word of the year.

<sup>18</sup> Even at this early stage of dissemination, a number of research teams have attended to the higher rates of fear and its effects on mental health and illness during COVID. When heightened fear has in some cases led to dangerous outcomes and mental health burdens, researchers have considered strategies for ameliorating these effects (Bakioğlu et al., 2020; Ornell et al., 2020).

their proximity and exposure to crisis, and their social identities. We have seen that the significance of affect in these perceptions should not be underestimated—in emergent, complex situations like those of crises, affective responses are significant shapers of our perceptions of risk, and in many cases more powerful predictors of risk perception than analytic assessments of the facts. Particularly in contexts of crisis so complex as the COVID-19 pandemic, where sources of information can be conflicting, rapidly changing, and in some cases inaccurate, it can be difficult for individuals to know what, how, and how much to fear. In these contexts, I will now suggest, we can see relational practices as deeply influential.

### 3 A call for a model: relational calibration

I now want to suggest that in attempting to understand fearing during COVID-19 and other crises, a model of *relational calibration* should be developed to conceptualize the complex relational dynamics that can be involved in fearing. Research on the dynamics of fearing during COVID is at an early enough stage that we do not yet have the empirical basis to make definitive claims about the extent to which relational calibration has been at play during this time. My suggestion is that fear researchers develop a model of relational calibration as a helpful explanatory tool as we gather and process the information about fear during COVID in years to come.

By relational calibration, I mean a phenomenon where fearers continually adjust what, how, and how much they fear in response to other fearers' expressions of fear. I mean calibration in the sense of *adjustment of a measurement against a standard* in order to ensure that an instrument will produce accurate results. I do not mean calibration in the sense of a harmony or equilibrium always being reached. In fact, as we will see, the calibration of fears can result in disharmony: one person's fear may even be heightened in response to another person's fear being lowered. My suggestion is that we attend to the ways fearers regularly calibrate and recalibrate our fear responses in the context of relationships with other fearers. Individuals see what, how, and how much these others fear, and, in cases where we trust them, adjust practices of fearing in light of them, towards or away from alignment with them.<sup>19</sup>

We can begin to imagine how risk and threat perception might be dramatically shaped by the relations an individual has with those she trusts, particularly in a context like the COVID-19 pandemic where there are clear reasons to fear bad outcomes, while information about exactly how much risk, for whom, and what the bad outcomes will be is emerging and unclear. Fearers are likely to turn to those they trust in an attempt to determine the appropriateness of their own responses. As a model for considering fear in contexts of crisis, relational calibration draws attention to: *who* fearers turn to in expressing, and receiving expressions of, fears; *how* fearers turn to them (i.e., what communication practices might be common in such contexts); *how much* fearers turn to them; *what goals* fearers have in turning to them; *how fearers respond* when turned to by others; *who* fearers turn *away* from, and for what reasons. Calibration is thus intimately bound up with practices of trusting, entrusting, and losing trust. Trust is

<sup>19</sup> This may or may not be a process that is apparent to the fearer, or which they have a capacity to describe.

both embedded in fearing—those we trust can shape what and how we fear—and also in some cases undercut by fearing.<sup>20</sup>

Language of calibration is helpful here for a number of reasons.<sup>21</sup> For one thing, calibration indicates an ongoing process. We calibrate and recalibrate, in some cases prompted by shifts in trust or changes in information. This calibration is *relational* since the suggestion is that fearers are often calibrating in *response* to each other, not unidirectionally or asymmetrically. Many views of fearing make it look like fear happens within an individual fearer, in response to a stimulus (which may or may not have capacities for fearing themselves, but in either case, the potential fear of the stimulus does not affect the fearer). By contrast, a model of relational calibration would draw our attention to points of interpersonal triangulation and response involved in an individual's fearing. A fearer relates not only to stimuli, but also to other fearers who are sources of information, gauges for appropriate or inappropriate levels of fear, confirmers or challengers, as well as people who will themselves be affected in many possible ways by the perceptions, communication, actions, and decisions of an individual fearer. In order to continue to relate to other fearers, we often need to understand and express understandings of their fears, and in some cases to express how we see our own fears aligning with or diverging from theirs in content or quality. Relational calibration of fear occurs within a broader web of people fearing, who are also shaped as fearers by institutions like the media, health care systems, education systems and state agents.<sup>22</sup>

In what remains of this section, I outline some of the phenomena that such a model should account for. We saw in section two that it has been difficult for individuals to access and interpret reliable information about the risks of COVID-19. We also saw that affect, personal experience, and social identities are significant factors in shaping perceptions of the risk of COVID. We know that our affective tendencies (e.g., towards or away from fearfulness) are shaped by our personal relationships, and that we may turn to people who have first-hand experience with the threats of COVID and/or who share features of our social identities as key sources and interpreters of information about risks. I now draw some of these insights together in order to explore how real-world interpersonal interactions in contexts of crisis may shape fearing. In the context of COVID-19, a model of relational calibration should be developed to investigate the following: implications of 'relationship funneling' on fearing; dynamics of attempts to persuade others to fear; pauses or distance-taking within fear-calibrating relationships; experiences of *repelling* fears; and attempts to prevent others from bringing their fears

---

<sup>20</sup> Ray and Vanstone (2009) have shown that interpersonal trust can be compromised by fear, which can prompt retreat and withdrawal. Fearful subjects can be less trusting of others than non-fearful subjects.

<sup>21</sup> Pine et al. (2021) also use language of calibration when discussing how participants in their study "examine the information landscapes that individuals encounter as they calibrate crisis-related risks" (12).

<sup>22</sup> This discussion is about calibration in response to other *fearers*, whether we are in close relationship to them or not, rather than about calibrating risk perception in light of new published research or CDC guidelines. It may be about calibrating in response to how fearful or at ease some expert, epidemiologist, or doctor is – I might respond to the fear they express or lack thereof. But it is calibrating in light of their fear rather than in light of the facts they provide.



into alignment with ours (e.g., especially in cases of relationships with vulnerable others like children).<sup>23</sup>

### 3.1 Recalibrating fears in funneled relationships

In the early months of the pandemic, social scientists in France conducted a survey of more than 16,000 people about their experience of ‘life in confinement’ (La Vie en Confinement, 2020). The goal was to learn more about effects of the early lockdown on social inequities, on individuals’ ways of relating to the state, and on their relationships with one another. One of the interesting findings of the survey was the prevalence of a phenomenon the researchers described as ‘relationship funneling’: “Some contacts were prioritised and strengthened through care, support and increased communication, while other connections have fizzled out or been damaged” (Vrain et al., 2020). Which relationships were typically prioritized versus deprioritized varied by demographic and circumstance. Younger participants more commonly reported increased contact with particular friends, deprioritizing family, while older participants reported increased contact with family members, deprioritizing friends and coworkers. Those with caregiving responsibilities also more commonly turned to family rather than friend or coworker relationships. These were early results (May 2020), and we can expect data to show further developments in relational shifts in the many months of COVID-19 that have followed, but even these early data point towards a question: what effect does ‘relationship funneling’ have on fearing during COVID-19?

Consider the way the cultivation of fewer, stronger, and more intimate relationships might mean that one’s fearing is being more regularly triangulated, and calibrated in light of, the fears of particular, fewer others, whom one potentially trusts more than those with whom one’s connection has ‘fizzled out’. For many, this might have meant intensified communication about fears and perceptions of threat with others they were inclined to trust deeply. Relationship funneling could lead to ‘epistemic bubbles’ which could shape what, how, and how much one is likely to fear by limiting exposure to the perspectives of those inclined towards different amounts or objects of fear.<sup>24</sup> Those who are in trusting relationships with one another often have that foundation of trust based on shared experiences, perspectives, and values. Among other commonalities, they may share social identities, family backgrounds, geographical locations, nationalities, socioeconomic class positions, gender identifications, and so on. Each shared feature might make it more likely that their perspectives on risk and threat during crisis will be similar (though of course their personalities and temperaments may also differ and make a significant difference to what or how much they fear).<sup>25</sup>

<sup>23</sup> In this discussion, I remain interested in the interpersonal shapings of fear as an occurrent emotion, more than in the interpersonal shapings of fearful dispositions or personality traits, though the relational implications for these are also interesting.

<sup>24</sup> For an insightful discussion of distinctions between and effects of, echo chambers and epistemic bubbles, see Nguyen (2020).

<sup>25</sup> It is important also to note that trust can be domain-specific: I may trust your perspective on parenting without trusting your judgment about COVID. In such a case, I may have become less likely to calibrate my COVID-specific fears in response to yours, while still being likely to calibrate fears regarding parenting in response to yours.

For an example of how relationship funneling might impact the relational calibration of fear, imagine two middle class women, raised in racialized, migrant families in the midwestern United States. Perhaps by virtue of these similarities, they have had similar past exposure to risk: similar exposure to micro and macroaggressions based on race and gender, similar senses of what their families would do to keep themselves safe. When these friends turn to each other in a context of crisis, they will likely meet the criteria of having existing fearful affect (it is a context of crisis, after all—no shortage of reasons to be worried), making them each more susceptible to heightened vigilance overall and heightened perception of bad outcomes as likely. They will likely employ heuristics in assessing risk, including such shortcuts as believing sources of information that they have believed in the past, and experiencing confirmation biases. In their relating to each other, they may feel validated and assured by the ways in which the other's perception of risk mirrors or aligns with their own. Where their perceptions differ, there may be incentives to bring them into alignment, whether doing so requires slight or not-so-slight shifts in perception on the part of one or both parties. In a context of relationship funneling where they are in closer contact with fewer people, they may function as a more significant than usual source of information and feedback in each other's lives. They would seem to be very likely to calibrate their fears in response to each other, bringing their fears closer into alignment with each other. Because they are not functioning in a closed system—even 'funneled', they are still in relationships with numerous others—the calibration between them will always also be affected by the shifts in their fearing that come from new information, others' perspectives, and so on. But they may become for each other two significant nodes within a smaller, tighter, web of fearers-in-crisis. Note that this is not yet to say anything about bringing *actions* into alignment (e.g., turning to each other to determine what to *do* in a context of changing expert advice), though calibration of action may also occur.

Future research on the effects of later months and years of pandemic on relationships will hopefully show what comes after funneling—what happens to those relationships that were prioritized and those that were not. For now it seems plausible that the relationships which matter most during crisis may not always be those which are prioritized outside of crisis, and even that those relationships prioritized during one kind of crisis (COVID) may not be the same as those prioritized in past or future crises. A model of relational calibration could help draw attention to some of these dynamics of fearing.

### 3.2 Persuading others to fear as I do

Another phenomenon for which a model of relational calibration might help us account is that of deliberate attempts to generate or minimize fear in others.<sup>26</sup> When in relationships with others who might be swayed by our perceptions, and when their perceptions of risk seem to be troublingly out of step with ours, we might attempt to motivate them to calibrate their level of fear to be closer to our own. Consider families whose members have had different levels of fear and concern about COVID-19. Perhaps a brother

<sup>26</sup> I have written elsewhere about the phenomenon of inducing fear in others and its ethical significance (Harbin, 2020). My analysis here will be more limited in scope.

feared much more than his sister and she found it overkill, or much less than her and she found him overconfident. Discrepancies in fear among loved ones have been addressed tangentially, for example in studies of relations between pro- and anti-mask family members, or between those who were pro- and anti-vaccine.<sup>27</sup> In some cases, persuasion attempts between those who disagree remain at the level of attempts to change the other's *action or behavior* (e.g., to convince a loved one to wear a mask or get a vaccine). But the relational calibration model might also help us attend towards dynamics of attempts to press others to *feel* differently—specifically to feel more or less fearful. For instance, frustrating early experiences of relating to elderly parents who felt apparently unconcerned about COVID may have involved citing frightening statistics, numbers of cases, numbers of hospitalizations and deaths, to try to *put the fear of COVID into them*. This is an attempt to set a measure of what seems to be an appropriate level of fear and then to pull a loved one towards alignment with it. The same could happen in the other direction: perhaps I feel a friend is *too* fearful, and out of concern for them as well as potential self-interest of wanting them to feel and act more like I do, I might send them reassuring articles from experts, updates about falling numbers of cases or high levels of vaccination, trying to pull them towards aligning with me in fearing less. These are all examples of attempting to prompt others to calibrate their own fears into closer alignment with our own. These dynamics and their implications should be of interest in future research and a model of calibration can help draw attention to some of the subtleties of these patterns of relating.

### 3.3 Taking distance within fear-calibrating relationships

A model of relational calibration should further be developed to help account for the way documented changes in relationships during COVID, including the ‘relationship funneling’ described earlier might not only *affect*, but also *be affected by* dynamics of fearing. We have seen already how relationships which survive the funneling might be shaped by fear—potentially tightening practices or loops of mutual fear calibration, and/or leading towards attempts to persuade others to fear in particular ways. In addition to this, discovering *non*-aligned experiences of fear during COVID might be part of what leads to other relationships being deprioritized, damaged, or ‘fizzling out’. Relationships which may have been central and even mutually fear-calibrating pre-COVID may have become less central during COVID in part because of discovering distance between levels of fearing among the parties. If one friend is extremely cautious and fearful of COVID early on, and another is only marginally cautious and less concerned, they may find themselves taking distance from one another. The distance may persist after the acute crisis of COVID has passed, or it may not. This source of non-alignment is distinct from numerous other points of conflict we have seen emerge during the pandemic,<sup>28</sup> so it is likely to be only one among many contributing factors in determining which relationships persist, but it is one to which the relational calibration model could help draw attention.

<sup>27</sup> See Taylor and Asmundson (2021).

<sup>28</sup> See for example Fetters (2021) on conflicts among friends when some lied in order to get vaccinated sooner.

### 3.4 Repelling fears

In addition to the ways fears might be calibrated in relation to the fears of those we care about, we might also begin to see a phenomenon of *anti-calibration* or polarization of fearing. Consider the emotional dynamics involved when someone who is fearful of COVID perceives others expressing and behaving non-fearfully in the face of COVID. For instance, a May 7, 2021 article in the Daily Local news out of Chester County, Pennsylvania reported the following:

More than 100 demonstrators rallied outside the Chester County Health Department at the Government Services Center Friday to support the unmasking of children. Not one protestor, adult or child, wore a mask during the ‘Let Them Breathe Rally,’ amid the ongoing pandemic that has killed more than half a million Americans. Nor did anyone practice social distancing (Rettew, 2021).

Protesters held signs that said “Children are not biohazards” and resident Charmaine Rusin was quoted as saying “The virus is no risk for children.” What emotional effects might these and other expressions of *lack of fear* have on those who continue to fear the potential harms of COVID for both children and all those who have not yet been vaccinated? In addition to any number of emotional responses—anger, rage, sadness, acceptance—the relational calibration model might make it possible to investigate something like the *opposite* of the calibration or alignment of fears. Protesters’ expressions of non-fear might prompt *more fear* in observers. In relationships between those with conflicting views, one’s expression of non-fear might prompt a *repelling* response: when they go fearless, we go fearful.

### 3.5 Preventing calibration

A final phenomenon we might be enabled to attend to using a model of relational calibration is that of attempts to prevent others from bringing their fears into alignment with ours. Here I am thinking in particular of relationships within which individuals would like to protect others from fearing. For instance, much of the advice given to parents during COVID has been about how to respond to the fears of their children without exacerbating or multiplying them. Parents are likely aware that, whatever fears we have of COVID, we can contextualize them within the broader understanding that this is one period our lives, and will not persist forever. We also know that children may have less access to this context and perspective. Parents are thus counseled to be careful about expressing their fears in unfiltered form to their children. They are advised, for instance, to avoid talking to their children about frightening aspects of COVID until they themselves have had time to process the information and prepare themselves to present what is necessary in a way which will be age-appropriate and contextualized by reassurance (Ehmke, 2020). We know that the fears and fearfulness of parents can shape the fearing practices of children. Relations between parents and children as fearers may therefore appropriately take the form of parents responding to their own fears in ways which prioritize the wellbeing of their children, in some cases

by preventing them from knowing about the extent of their fears as parents, and in some cases by ensuring that they as parents do not become overwhelmed by fearing.

In sum, my suggestion is that a model of relational calibration might be developed to help us better understand these and other complex relational dynamics involved in fearing during crisis.

In all these phenomena, we might notice that the process of relational calibration could be broken down into what we might call *epistemic* and *active components*. In the process of relational calibration's *epistemic component*, we look to others to come to know what they are fearing and to come to know how their fears have changed in response to the new context of crisis. In the process of relational calibration's *active component*, we engage with others in ways which shape what new shared baseline fears will be. While a future full articulation of a model of relational calibration might do well to tease these out further as independent components of the process, it will be key that we understand these forms of participation as interrelated. The phenomena we have discussed involve fearers relating to each other in ways which subtly shape and reshape all participants' fears, not always as a product of a linear process of learning, reflection, and decision. A future model of relational calibration must represent the complexity and dynamism of such processes, and must not assume that processes of knowing about and shaping fears will fully come apart.

Recall the approaches to fear surveyed at the beginning of this paper: basic emotions theory, emotional inculcation, and constructionism. While there are many ways in which the views differ, they all share the focus on the *discrete* fears, of *individual* fearers, at *single* moments in time. For the most part, they aim to fulfill their commitment to understanding fearing by characterizing (in various ways) what it means for one fearer to have one fear at one moment. The phenomena described in this section—recalibrating fears in funneled relationships, persuading others to fear as I do, taking distance within fear-calibrating relationships, repelling fears, and preventing calibration—all require attention to patterns of fearing, the ways they change over time, and the ways they shift across individuals in relationship. These patterns matter a great deal both for understanding what fearing is, and for understanding and/or predicting fearers' behavior, including behaviors of urgent moral significance (e.g., vaccine refusal).

I am arguing that a new model of relational calibration is needed to account for these five (and likely other) phenomena associated with the relational complexities of mutually shaping each others' fears in an ongoing way. As such, it is worth taking a moment to note the ways in which what I mean by relational calibration, as exemplified by these five phenomena, extends beyond the causal, developmental, and social-conceptual senses of participation detailed in section one.

To begin, note the ways in which *relational calibration extends beyond the causal participation of others* in our fearing. Recall from section one that causal participation involves the ways in which other people act or fail to act in ways which cause us to fear (e.g., intentionally jumping out from behind a door, or failing to answer when I call for them, to scare me), or function as the cause of our fears in that we fear something will happen to them, or we fear a certain way of relating to them (e.g., we fear losing them). We might think the above phenomena of recalibrating fears in funneled relationships, persuading others to fear as I do, taking distance within fear-calibrating relationships,

repelling fears, and preventing calibration could be reduced to causal participation in the following sense: if how I see others reacting to a crisis affects how I assess risk and when I feel fear, isn't this simply another form of causal participation? If not direct causal participation, since it is not the action of those others scaring me, why not see it as *indirect* causal participation? Seeing what they are scared of affects my beliefs about what is risky, and thus shapes my own fears.<sup>29</sup>

In fact, relational calibration should not be reduced to causal participation, in either direct or indirect senses. Causal participation, in either direct or indirect senses, primarily describes phenomena that involve *relatively isolable, primarily unidirectional* chains of events, with *relatively predictable, expected, and retrospectively identifiable effects*. By contrast, the five phenomena for which I have suggested a model of relational calibration should account are non-isolable, not primarily unidirectional, and have relatively unpredictable effects.

First, cases of causal participation are *relatively isolable* in the sense that either X causes Y, or (if indirect), X causes Y which causes Z. The phenomena of relational calibration I have described function more like *webs of mutually influencing relations*, sometimes with dyads or smaller groups of people who calibrate, persuade, take distance, repel, and prevent calibration among themselves, but typically also with members of those dyads and groups calibrating in the context of multiple relationships at the same time. It would be not only difficult but also misguided to envision these relations primarily as isolable chains of effects. My coming to fear something more or less can be constantly shifting in response to my calibrating in response to others in my closest, funneled relationships, as well as others persuading me to fear as they do, the distance from certain others who would disagree, increased fears in response to others I disagree with fearing less, and (whether I know it or not), others subtly attempting to prevent me coming to fear like them. All or some of this can be happening at the same time. While we might interpret some of these pieces causally, a causal participation model will not suffice for helping us understand the complexity of the web. A model of relational calibration would give us a better starting point.

Second, cases of causal participation are primarily *unidirectional* in the sense that either X causes Y, or (if indirect), X causes Y which causes Z, without Y or Z also simultaneously causing changes in X. By contrast, the phenomena I have described are likely to shape fears in multiple directions, sometimes with looping effects. In funneled relationships, individuals are regularly shaping each others' fears, towards becoming more fearful at some times and less fearful at others, and those whom we persuade to fear more or fear less are also at times (or at the same time) attempting to persuade us. Some instances might be more likely unidirectional and asymmetrical (e.g., in the example of a parent trying to keep their child from fearing as much as they themselves do), but most are likely to be more multidirectional. If we are trying to understand the interpersonal complexity (and the moral upshots of, or potential responsibilities for, such complexity), a model of relational calibration will do better than an account of causal participation at accounting for the multi-directionality and potential looping nature of these effects.

---

<sup>29</sup> I thank an anonymous editor for this point.

Third, many cases of causal participation have *relatively predictable, expected, and/or retrospectively identifiable effects*. In the case of you jumping out from behind the door, it is relatively predictable that, if I am the type to hate being spooked like that, I will shriek. Likewise, if I am the type to fear that those I love may be harmed by serious illness or injury, and if my loved one is vulnerable to serious illness or injury, I will fear that. By doing something (e.g., jumping out) or having a certain characteristic (e.g., vulnerability), another person predictably and identifiably causes my fear. By contrast, the phenomena of relational calibration we have discussed are cases where fears can be shaped and reshaped in ways which are relatively unpredictable and sometimes difficult to identify. Given all the variables (dispositional, circumstantial, features of particular relationships), it can be difficult to predict what effects the phenomena will have. For instance, if friend A, someone I love very much, rarely talk to, but have always found to be impeccably trustworthy suddenly contacts me to warn me of some threat, I may be likely to calibrate my fears into full alignment with their warning and act accordingly. If friend B, someone I speak to regularly and trust but experience as occasionally overreactive warns me of the same threat, I may be slower to fear. If both warn me at the same time, this may not only speed and intensify my recalibration, but also potentially shift me towards more promptly trusting friend number two in their future warnings about other threats. Exactly which factors, which actions on the part of other fearers, recalibrated my fears in this instance may be difficult to identify. All this might happen before the threat comes to be realized—if it ever does. If it never does, my relationships with both friends and the immediacy and speed with which I calibrate in light of their future warnings will likely be adjusted. However, all of this will be simultaneously and complexly shaped by the other things we do in these relationships—for relationships are never *only* locations for fear calibration—and so the exact ways calibration will go in future will be, at least to some extent, unpredictable.

Given that the phenomena I have described (recalibrating fears within funneled relationships, persuading others to fear as I do, taking distance within fear-calibrating relationships, repelling fears, and preventing calibration) are non-isolable, not primarily unidirectional, and have relatively unpredictable effects, they cannot be reduced to causal participation, of the kind that extant accounts of fearing have described. A model of relational calibration would be better suited to account for them.

These five phenomena are also not well accounted for as instances of *developmental participation*. Recall that developmental participation describes the senses in which other people participate in our developing appropriate capacities for fearing. Other people, and especially caregivers (parents, teachers, and others with significant positions of shaping our growth), direct our attention towards things worth fearing, help us learn how to recognize fear in others, have their own fear responses which cause us to fear vicariously, and/or transmit information about what we should or should not fear. Others also shape what it feels like to be fearing, and what capacities we develop for coping with such experiences.

The focus in accounts of developmental participation is on those still learning to fear—primarily children, as well as others who might be partly re-learning to fear, like those who have experienced traumatic events or injuries and are experiencing threat perception in new or altered ways. As discussed in the existing accounts surveyed

in section one, developmental participation is (as was true of most causal participation) typically unidirectional: the more experienced fearer (parent/caregiver/adult) shapes the fearing of the less experienced fearer (child). The experienced fearer, having already developed largely stable capacities for fearing, does not change much as a result of the participation. The underlying assumption is that fearing involves a set of skills that one acquires and then, barring some serious cognitive event, maintains. Fearers become practiced at paying attention to threats, recognizing fear in others, and experiencing and coping with fear in a relatively consistent way.

By contrast, relational calibration, including phenomena of recalibrating fears in funneled relationships, persuading others to fear as I do, taking distance within fear-calibrating relationships, repelling fears, and preventing calibration, is ongoing. It is something which grows as individuals reach developmental maturity, and then continues. The presence or prevalence of it can vary from person to person: different people may experience it to a greater and lesser degree, depending in part on personality and the availability and character of one's relationships. It can wax and wane throughout one's life, and in response to circumstances (e.g., becoming more acutely present during periods of crisis or vulnerability). And it is bi- or multi- (rather than uni-) directional among those who participate. All participants are affected.

The phenomena I have described are also not well accounted for as instances of *social-conceptual participation*. Recall that social-conceptual participation in fearing, in the sense articulated by Feldman-Barrett, involves a community coming to agree that an emotion concept exists, as a precondition for the learning of such concepts during infancy. These concepts are requirements for us to make meaning of our physical states, prescribe action, regulate body budgets, allow for emotion communication, and allow for the role of emotions in social influence. Other people reach community consensus about the existence and meaning of the concept of fear, which is necessary for us to come to learn and employ the concept.

While social-conceptual participation is about the establishment of fear concepts, as well as the norms surrounding fearing, the phenomena I have described are not so much about coming to conceptualize fear as they are about how, how much, when, in what manner, and with whom we practice fearing. While social-conceptual participation highlights consensus at the community level, these phenomena are more localized. Only a dyad or small group of people may be involved in these forms of participation, apart from or potentially out of normative step with their broader communities. For instance, while two participants in a funneled relationship remain within the broader social community and share in its consensus about what fear is and roughly what kinds of behaviors indicate fearfulness, they might nonetheless be quite isolated in their assessments of what is worth fearing, how to act in light of those fears, or how to relate to people who do not share those fears. A model of relational calibration would not contradict the senses of social-participation articulated by constructionist accounts, but would focus on the relational complexities of participation in fearing at a more local level.

For the above reasons, the phenomena I have described are not well accounted for as instances of causal, developmental, or social-conceptual participation. As I noted in section one, these are all important senses of relational participation accounted for in the existing literature. My claim is that there are additional senses of relational



participation for which a model of relational calibration would be better suited to account.

I have noted that the phenomena I describe can in some cases involve *constitutive participation*, while also involving other senses of relational participation for which a model of relational calibration would better account. Recall that in Campbell's sense, constitutive participation in fearing involves other people functioning as an interpreter for expressions of a feeling in ways which allow the individual to have the feeling, or to have it in a particular way. When others fail to allow for the expression of some feelings, and/or to function well as interpreters for such expressions, individuals can fail to have the feelings, or to have them in the same way. On Campbell's view, whether others are constitutively involved in fearing in a particular case will depend to some extent on the specifics of the feeling (i.e., whether it is a classic emotion or more idiosyncratic freestyle feeling), and the expressive and interpretive actions at play. Even in instances where constitutive participation is clearly involved—where other people are involved in allowing for an individual to *have* some feeling by functioning well as an interpreter for *expression* of the feeling—there can be senses of relational calibration at play that extend beyond Campbell's sense of constitutive participation. In the example of the two women in the Midwest, they might be participating constitutively in the expression of each other's fears (functioning well as interpreters for each other's expressions) while also subtly bringing their fears into alignment with one another. But these remain distinct forms of participation—they could come apart. This is why I suggest a model of *calibrational participation* must also be developed, to account for the ways others' fearing creates conditions within which our own fearing is likely to change (towards or away from harmony with theirs).

The phenomena I am discussing are the complicated yet familiar dynamics of how the fears we come to have and express reflect and respond to the fears others come to have and express. These dynamics have not been within the purview of accounts that characterize fear by descriptions either of individual fearers' neurological and/or cognitive processes, or of community consensus about concepts, or of universal experiences across the human population. Dominant approaches have been, in a sense, both too narrowly and too widely focused to attend to the granularity and intimacy of the interpersonal dynamics of fearing that interest me here.

As researchers continue to unpack the ways fear has shaped and been shaped by the COVID-19 pandemic, a relational lens should be employed to ensure we properly understand the phenomenon as extending beyond the experience of isolated individuals. The pandemic has affected fearers in part by affecting the relationships between us.

## 4 Conclusion

In this paper, I have argued that a model of relational calibration of fear should be developed to help researchers understand fearing in contexts of crisis. We must understand the relational dynamics of fearing if we are to properly understand the effects, and indeed, the moral significance of fearing in human lives. Reflections on the moral status of fearing itself have long been part of virtue theoretical and other moral approaches,

which reflect on whether, when, or to what degree fear is morally acceptable, and on whether there is such a thing as fearing the right things, to the right extent, for the right reasons.

We need to understand the ways in which relationships shape fearing and fearing shapes relationships if we are to begin to ask questions of what responsibilities we have to ourselves and others in our fearing. Some of the phenomena discussed here—for instance, relationship funneling, or taking distance within fear-calibrating relationships—partly involve decisions and actions that might be enacted in more or less morally responsible ways.

**Acknowledgements** My thanks to anonymous referees for their thoughtful questions and comments, to Guest Editors Charlie Kurth and Juliette Vazard for their feedback and all their work on this collection, and to Michael Doan for helpful discussion at a number of points.

## References

- Bakioğlu, F., Korkmaz, O., Ercan, H. (2020). Fear of COVID-19 and positivity: Mediating role of intolerance of uncertainty, depression, anxiety, and stress. *International Journal of Mental Health and Addiction*. Early view online.
- Bandura, A. (1969). *The principles of behavior modification*. Holt, Rinehart & Winston.
- Blakey, S. M., Reuman, L., Jacoby, R. J., & Abramowitz, J. S. (2015). Tracing “Fearbola”: Psychological predictors of anxious responding to the threat of ebola. *Cognitive Therapy and Research*, *39*, 816–825.
- Brody, S. D., Zahran, S., Vedlitz, A., & Grover, H. (2008). Examining the relationship between physical vulnerability and public perceptions of global climate change. *Environment and Behavior*, *40*(1), 72–95.
- Campbell, S. (1997). *Interpreting the personal: Expression and the formation of feelings*. Cornell University Press.
- Cummings, J. D. (1944). The incidence of emotional symptoms in school children. *British Journal of Educational Psychology*, *14*, 151–161.
- Cummings, J. D. (1946). A follow-up study of emotional symptoms in school children. *British Journal of Educational Psychology*, *16*, 163–177.
- Denovan, A., Dagnall, N., Drinkwater, K., Parker, A., & Clough, P. (2017). Perception of risk and terrorism-related behavior change: Dual influences of probabilistic reasoning and reality testing. *Frontiers in Psychology*, *8*, 1721.
- Dietz, T., Stern, P. C., & Guagnano, G. A. (1998). Social structural and social psychological basis of environmental concern. *Environment and Behavior*, *30*(4), 450–471.
- Ehmke, R. (2020). Talking to kids about the coronavirus crisis. *Child mind* Retrieved 30 May, 2021 from <https://childmind.org/article/talking-to-kids-about-the-coronavirus/>.
- Ekman, P. (1992). An argument for basic emotions. *Cognition & Emotion*, *6*, 169–200.
- Feldman-Barrett, L. (2017). *How emotions are made: The secret life of the brain*. First Mariner Books.
- Fetters, A. (2021). Some people are lying to get vaccinated and it’s testing their friendships. *The Washington Post*. March 25.
- Garcia, J., & Koelling, R. A. (1966). Relation of cue to consequence in avoidance learning. *Psychonomic Science*, *4*(3), 123–124. <https://doi.org/10.3758/BF03342209>
- Grinker, R., & Spiegel, J. (1945). *Men under stress*. Churchill.
- Gullone, E. (1996). Developmental psychopathology and normal fear. *Behaviour Change*, *13*, 143–155.
- Gullone, E. (2000). The development of normal fear: A century of research. *Clinical Psychology Review*, *20*(4), 429–451.
- Gullone, E., & King, N. J. (1992). Psychometric evaluation of a revised fear survey schedule for children and adolescents. *Journal of Child Psychology and Psychiatry*, *33*, 987–998.
- Hagman, C. (1932). A Study of fears of children of pre-school age. *The Journal of Experimental Education*, *1*(2), 110–130.
- Hall, G. S. (1897). A study of fears. *American Journal of Psychology*, *8*, 147–249.

- Han, M., Mahendran, R., & Yu, J. (2021). Associations between fear of COVID-19, affective symptoms and risk perception among community-dwelling older adults during a COVID-19 lockdown. *Frontiers in Psychology, 12*, 638831.
- Harbin, A. (2014). Mentorship in method: Philosophy and experienced agency. *Hypatia: A Journal of Feminist Philosophy, 29*(2), 476–492.
- Harbin, A. (2016). *Disorientation and moral life*. Oxford University Press.
- Harbin, A. (2020). Inducing fear. *Ethical Theory and Moral Practice, 23*, 501–513.
- Izard, C. E. (1971). *The face of emotion*. Appleton-Century-Crofts.
- Izard, C. E., & Harris, P. (1995). Emotional development and developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology. Theories and methods* (Vol. 1, pp. 467–503). Canada: Wiley.
- Jersild, A. T., & Holmes, F. B. (1935). *Children's fears*. Teachers College, Columbia University.
- Jersild, A. T., Markey, F. V., & Jersild, C. L. (1933). *Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories*. Child Development Monographs, 12. Columbia University Press.
- John, E. (1941). A study of the effects of evacuation and air-raids on pm-school children. *British Journal of Educational Psychology, 11*, 173–179.
- Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology, 45*, 20–31.
- Kagan, J. (1989). Temperamental contributions to social behavior. *American Psychologist, 44*, 668–674.
- La vie en confinement. (2020). <https://enqueteconfinement.wixsite.com/site/a-propos-de-nous>
- Lapouse, R., & Monk, M. A. (1959). Fears and worries in a representative sample of children. *American Journal of Orthopsychiatry, 29*, 803–818.
- LeDoux, J. E. (1996). *The emotional brain*. Simon and Schuster.
- LeDoux, J. E. (2015). *Anxious: Using the brain to understand and treat fear and anxiety*. Penguin.
- LeDoux, J. E. (2020). Thoughtful feelings. *Current Biology, 30*, R617–R634.
- Lerner, J., Gonzalez, R., Small, D., & Fischhoff, B. (2003). Effects of fear and anger on perceived risks of terrorism: A national field experiment. *Psychological Science, 14*(2), 144–150.
- Loewenstein, G. F., Weber, E. U., Hess, C. K., & Welch, E. (2001). Risk as feelings. *Psychological Bulletin, 127*, 267–286.
- Marks, I. (1987). The development of normal fear: A review. *Journal of Child Psychology and Psychiatry, 28*, 667–697.
- Maurer, A. (1965). What children fear. *The Journal of Genetic Psychology, 106*, 265–277.
- May, R. (1950). *The meaning of anxiety*. Ronald Press.
- Moran, R. (2001). *Authority and estrangement: An essay on self-knowledge*. Princeton University Press.
- Moran, R. (2018). *The exchange of words: Speech, testimony and intersubjectivity*. New York: Oxford.
- Myers, T., Maibach, E. W., Roser-Renouf, C., Akerlof, K., & Leiserowitz, A. (2012). The relationship between personal experience and belief in the reality of global warming. *Nature Climate Change, 3*, 343–347.
- Nguyen, C. (2020). Echo chambers and epistemic bubbles. *Episteme, 17*(2), 141–161.
- Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy, 21*, 685–692.
- Ollendick, T. H., King, N. J., & Muris, P. (2002). Fears and phobias in children: Phenomenology, epidemiology, and aetiology. *Child and Adolescent Mental Health, 7*(3), 98–106.
- Ornell, F., Schuch, J. B., Sordi, A. O., & Kessler, F. H. P. (2020). Pandemic fear and COVID-19: Mental health burden and strategies. *Braz J Psychiatry, 42*(3), 232–235.
- Pine, K.H., Lee, M., Whitman, S., Chen, Y., & Henne, K. (2021). Making sense of risk information amidst uncertainty: Individuals' perceived risks associated with the COVID-19 pandemic. In *CHI conference on human factors in computing systems '21*. May 8–13, Yokohama, Japan. Association for Computing Machinery
- Pratt, K. C. (1945). A study of the "fears" of rural children. *The Journal of Genetic Psychology, 67*, 179–194.
- Prinz, J. (2004). *Gut reactions: A perceptual theory of emotion*. Oxford University Press.
- Prinz, J. (2007). *The emotional construction of morals*. Oxford University Press.
- Rachman, S. (1972). Clinical applications of observational learning, imitation and modelling. *Behav Therapy, 3*, 319–391.
- Rachman, S. (1976a). The passing of the two-stage theory of fear and avoidance: Fresh possibilities. *Behaviour Research and Therapy, 14*, 125–134.

- Rachman, S. (1976b). The passing of the two-stage theory of fear and avoidance: Fresh possibilities. *Behav. Res. Therapy*, 14, 125–134.
- Rachman, S. (1976c). Therapeutic modelling. In M. Feldman & A. Broadhurst (Eds.), *Theoretical and experimental bases of behaviour therapy*. Wiley.
- Rachman, S. (1977). The conditioning theory of fear acquisition: A critical examination. *Behaviour Research and Therapy*, 15, 375–387.
- Ray, S. L., & Vanstone, M. (2009). The impact of PTSD on veterans' family relationships: An interpretive phenomenological inquiry. *International Journal of Nursing Studies*, 46(6), 838–847.
- Retnew, B. (2021). Anti-mask rally in Chester County: 'Let them breathe'. Daily Local News. [https://www.dailylocal.com/news/coronavirus/anti-mask-rally-in-chester-county-let-them-breathe/article\\_e9ee402c-af55-11eb-968d-f32de0af3918.html](https://www.dailylocal.com/news/coronavirus/anti-mask-rally-in-chester-county-let-them-breathe/article_e9ee402c-af55-11eb-968d-f32de0af3918.html)
- Scarantino, A., & Griffiths, P. (2011). Don't give up on basic emotions. *Emotion Review*, 3(4), 444–454.
- Scherer, M. W., & Nakamura, C. Y. (1968). A Fear Survey Schedule for Children (FSS-FC): A factor analytic comparison with manifest anxiety (CMAS). *Behaviour Research and Therapy*, 6, 173–182.
- Seligman, M. (1971). Phobias and preparedness. *Behaviour Therapy*, 2, 307–320.
- Seligman, M. E., & Hager, J. L. (1972). *Biological boundaries of learning*. Appleton-Century-Crofts.
- Sjöberg, L. (2005). The perceived risk of terrorism. *Risk Management*, 7(1), 43–61.
- Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research*, 177, 1333–1352.
- Spence, A., Poortinga, W., & Pidgeon, N. (2012). The psychological distance of climate change. *Risk Analysis*, 32, 957–972.
- Stafford, M., & Galle, O. (1984). Victimization rates, exposure to risk, and fear of crime. *Criminology*, 22(2), 173–185.
- Taylor S, Asmundson G.J.G. (2021). Negative attitudes about facemasks during the COVID-19 pandemic: The dual importance of perceived ineffectiveness and psychological reactance. *PLoS ONE* 16(2).
- Tomkins, S. S., & McCarter, R. (1964). What and where are the primary affects? Some evidence for a theory. *Perceptual and Motor Skills*, 18(1), 119–158.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131.
- van der Linden, S. (2014). On the relationship between personal experience, affect and risk perception: The case of climate change. *European Journal of Social Psychology*, 44(5), 430–440.
- van der Linden, S. (2015). The social-psychological determinants of climate change risk perceptions: Towards a comprehensive model. *Journal of Environmental Psychology*, 41, 112–124.
- Vrain, E. Ryan, L. Grossetti, M. (2020). "Lockdown 'funnelling': How the pandemic has changed our relationships. *The conversation*. <https://theconversation.com/lockdown-funnelling-how-the-pandemic-has-changed-our-relationships-141831>
- Waïtes., E. (1997). *Memory quest: Trauma and the search for personal history*. Norton.
- Warr, M. (1987). Fear of victimization and sensitivity to risk. *Journal of Quantitative Criminology*, 3, 29.
- Warr, M., & Stafford, M. (1983). Fear of victimization: A look at the proximate causes. *Social Forces*, 61(4), 1032–1043.
- Weber, E. U. (2006). Evidence-based and description-based perceptions of long-term risk: Why global warming does not scare us (yet). *Climatic Change*, 77, 103–120.
- Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2012). Psychological predictors of anxiety in response to the H1N1 (swine flu) pandemic. *Cognitive Therapy and Research*, 36, 210–218.
- Yıldırım, M., Geçer, E., & Akgül, Ö. (2021). The impacts of vulnerability, perceived risk, and fear on preventive behaviours against COVID-19. *Psychology, Health & Medicine*, 26(1), 35–43.
- Zahn-Waxler, C., Kochanska, G., Krupnick, J., & McKnew, D. (1990). Patterns of guilt in children of depressed and well mothers. *Child Development*, 50, 319–330.