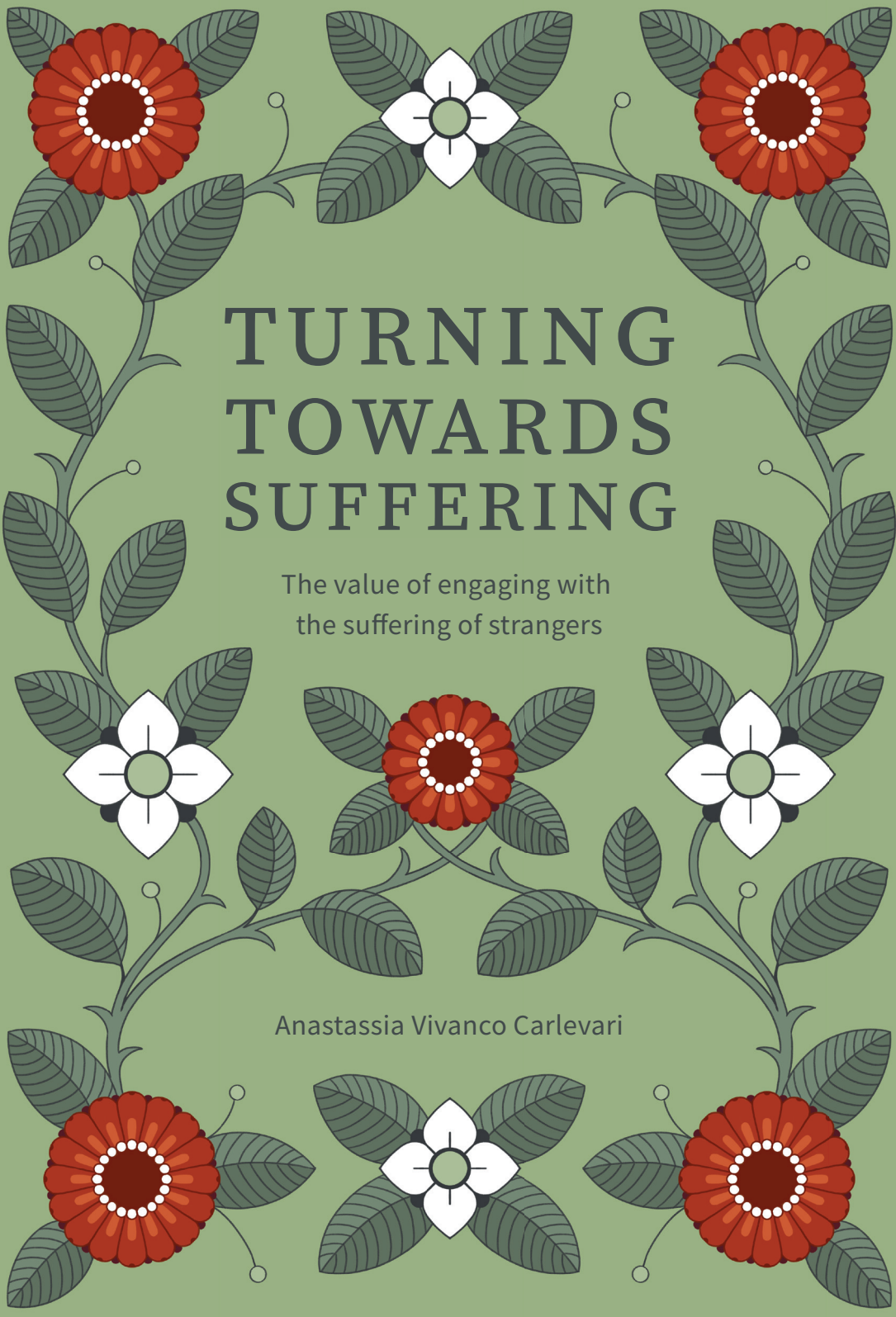


TURNING TOWARDS SUFFERING

The value of engaging with the suffering of strangers

Anastassia Vivanco Carlevari

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Turning towards Suffering

The value of engaging with the suffering of strangers

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CHAPTER 1



General Introduction

"Truly giving one's attention
is the rarest and purest form of generosity."
— Simon Weil

Experiencing pain is an inherent part of being alive. Human experiences of suffering can take many shapes and forms, from global events, historical or current, that affect generations of human beings, to mundane, intimate, and personal experiences of suffering that may be unique to one individual. During the past years, atrocities and catastrophes have flooded the news. Even with the wealth of accessible information present in daily life, it is hard to acknowledge all suffering in the world and fully realize the intensity and severity of its consequences. Simultaneously, it is an ordinary experience to hear about the difficulties of people in more local contexts. We might hear about the terrible accident that happened to a friend's neighbor or read about it on social media. Through different channels, people learn about the financial troubles, health issues, interpersonal conflicts, or accidents that happen to people they do not know personally. But people do not only inform themselves about global events of suffering and discuss local misfortunes of strangers; people also engage with fictional stories that present situations of loss, death, conflict, violence, crime, and more. In short, stories of people suffering hardship can be found all around us –on the internet, in the news, through art, or during a conversation over dinner– because hardship is a part of life.

Consequently, a crucial challenge is to learn how to navigate pain and hardship of other people, in particular given that understanding other's experiences of suffering can be overwhelming, exhausting, and demands cognitive and emotional effort (Cameron et al., 2019). For this reason, it might be tempting to think that people consistently avoid the suffering of others, especially of strangers. But this is not the case. Instead, people seek out information about these instances by

reading the news, watching movies, listening to podcasts, joining a volunteering or political group, and extensively talking to others about situations of suffering. Why do people decide to engage with the suffering of distant others? Why do people voluntarily engage with such instances, if there is no interpersonal bond (as in the case of a friendship or family member) that would justify a sense of responsibility and care towards the other person? Assuming that each individual has to deal with their own personal hardship, and to a certain extent, with their close-others' difficulties, challenges and conflicts, why do people still spend cognitive, emotional, or material resources to voluntarily engage with the suffering of people they do not know? Is there something that they expect to gain?

The central claim of this dissertation is that people approach the suffering of strangers because they find it valuable. Instances of suffering –and content portraying negative situations in general— are costly to approach, but people assess if these costs are surpassed by the benefits these instances can offer (Niehoff & Oosterwijk, 2020). With a series of studies, this dissertation investigates the value of engaging with the suffering of strangers empirically, by unraveling the motives that explain people's choices to approach suffering, and the experienced outcomes of such a decision.

A Motivated Account: Information Seeking, Empathy and Emotion Regulation

Understanding the costs and the benefits of engaging with the suffering of strangers implies a contradiction –or at least a challenge— to traditional approach-avoidance motivation theories (Elliot, 2006). These prominent theories tie the valence of an object, event, or stimulus (i.e., if it is experienced or evaluated as pleasant or unpleasant) to the tendency to approach or avoid the object (Beckmann & Heckhausen, 2018). Consequently, these theories claim a hierarchical understanding, a higher-order principle of motivation, that negatively valenced objects would be avoided and positively valenced objects would be approached (Elliot, 2006). But this is not what we observe in people's real-world behavior. An explanation for this disconnect is that approach-avoidance motivation theories have focused exclusively on the cost of approaching negative events, but have dismissed the value of this behavior.

There are multiple examples in which people voluntarily seek negative content, that is, content that evokes negative emotions. Humans consume content that involves horror (Scrivner et al., 2023a), crime (Perchtold-Stefan et al., 2025),

drama (Hanich et al., 2014), or seek out mildly painful experiences (Rozin et al., 2013). People consume negative news (Robertson et al., 2023), negative content on social media (Shabahang et al., 2023), or raw stories of human rights violations in documentaries (McLagan, 2003). Another examples involve performative, visual, and expressive forms of arts that show tragedy, moral violation, and the grotesque (Karinen et al., 2024; Ozbay et al., 2025). Altogether, these varied contexts in which people decide to approach instances of negative valence or suffering, highlight the question as to *why* people decide to do so.

Research so far has delved predominantly into the costs and risks of engaging with negative content. For example, engaging excessively with negative content on the internet can be detrimental for mental health (Shabahang et al., 2023). Moreover, people in certain professional roles are at risk of burnout due to a high emotional demand and labor (Costakis et al., 2021). These findings align with a traditional perspective, but offer only a partial understanding of the behavior. In order to create a more nuanced, comprehensive, and realistic perspective on why people engage with negative content, it is crucial to look beyond the risks and costs and consider the (perceived) value of engaging with negative content.

In the past decade, various psychological processes have been studied from a motivated, strategic, or goal-oriented perspective. These perspectives share a similar approach, in which the presence of a certain behavior or psychological phenomenon is explained by the extent to which it satisfies certain motives or goals. Most relevant for the central question of this dissertation are motivated approaches to information seeking, emotion regulation, and empathy. Research in these largely separated fields has demonstrated that individual's motives are a central component of behavior, accounting for individual differences and contextual factors that shape choices and outcomes. Although none of these theoretical approaches directly address the question of why people engage with the suffering of strangers, the emphasis on motivation by these models can be applied to this topic by signaling the possible benefits of this behavior.

In a model of motivated information seeking, Sharot & Sunstein (2020) suggest that people decide to consume certain information after assessing its potential cognitive, hedonic, or instrumental value. In this model, cognitive value refers to how information can increase one's understanding of the world, hedonic value refers to how information can be used to induce desired affective states, and instrumental value refers to how information can provide extrinsic rewards and improve performance. In this sense, information can have momentary value specific to a context or situation (Sharot & Sunstein, 2020), involve a transcendent

value about a broader meaning (Raney et al., 2020), or offer a concrete semantic application of knowledge (Erdemli et al., 2024). The core of motivated models of information seeking is that people actively evaluate the value of the information to decide if it is worth approaching it. Importantly, these models are often not empirically evaluated on negative stimuli. Moreover, some scientists in the field have suggested that the processes that drive information seeking may be different when information is negative (Murayama, 2022), whereas others have proposed that the motives to engage with information portraying positives events and negative events may be the same (Niehoff & Oosterwijk, 2020). In short, whether the motives specified for general information seeking can also explain choices to seek information about negative events, given that it can be emotionally taxing and distressing, is an open question.

In a model of motivated emotion regulation, Tamir (2016) proposes that people up-regulate or down-regulate their emotional state depending on whether the emotion serves a function. This perspective also applies to negative emotions, in that people can decide to up-regulate negative emotions (e.g., anger or fear), if this would help them to accomplish certain goals (Kalokerinos et al., 2017). For example, in a negotiation or confrontation, people choose to experience anger as a way of improving their performance (Tamir & Ford, 2012). Tamir's account presents a taxonomy of motives for emotion regulation divided in two axis; hedonic motives and instrumental motives. The first includes prohedonic motives (referring to seeking out pleasant and avoiding unpleasant emotions) and counter hedonic motives (referring to experiencing unpleasant emotions as a way of restoring hedonic balance). The latter includes epistemic motives (referring to experiencing emotions to learn about the world and themselves), social motives (referring to experiencing emotions to affiliate and maintain social bonds), performance motives (referring to experiencing emotion that impact their actions and outcomes), and eudaimonic motives (referring to experiencing emotions that increase a sense of autonomy and self-efficacy; Tamir, 2016). These goals are contextual, personal, and idiosyncratic. Importantly, this strategic understanding of emotion regulation emphasizes the function and utility that negative emotions may have in certain contexts, challenging the idea that negative emotions are exclusively avoided or downregulated.

In a model of motivated empathy, Zaki (2014) argues that this affective process is up-regulated in contexts in which empathy fulfills a specific goal, such as affiliating with others, capitalizing on an emotional state, or confirming personal or social values. In cases in which empathy interferes with ingroup goals, or de-

mands cognitive, affective, or material resources it is down-regulated (Cameron et al., 2019). For instance, in the context of an intergroup conflict people might downregulate and avoid experiencing empathy towards outgroup members. Importantly, this understanding of empathy as a motivated process, has relevance for the question why people engage with the suffering of strangers as it acknowledges the costs, framing this affective and social process as strategically regulated. More precisely, a motivated empathy account explains that people may seek out experiences of empathy when it aligns with their existing goals.

The approach of the present dissertation has elements in common with the three models discussed above. We build on these models by framing the question of why people engage with the suffering of strangers in motivational terms. This frame assumes that engaging with stranger's suffering is a voluntary and motivated decision, momentarily defined by the person's goals and the availability to address the costs of engaging. Nevertheless, our approach is unique, in that it is integrating these largely separated research fields (information seeking, emotion regulation and empathy) as each of them in isolation cannot explain the motives and outcomes of engaging with suffering. More precisely, we build a research agenda to explore the diversity of motives that can specifically explain this behavior, test the motives' relationship to choosing to engage with suffering, and evaluate the experienced value of being exposed to the suffering of strangers.

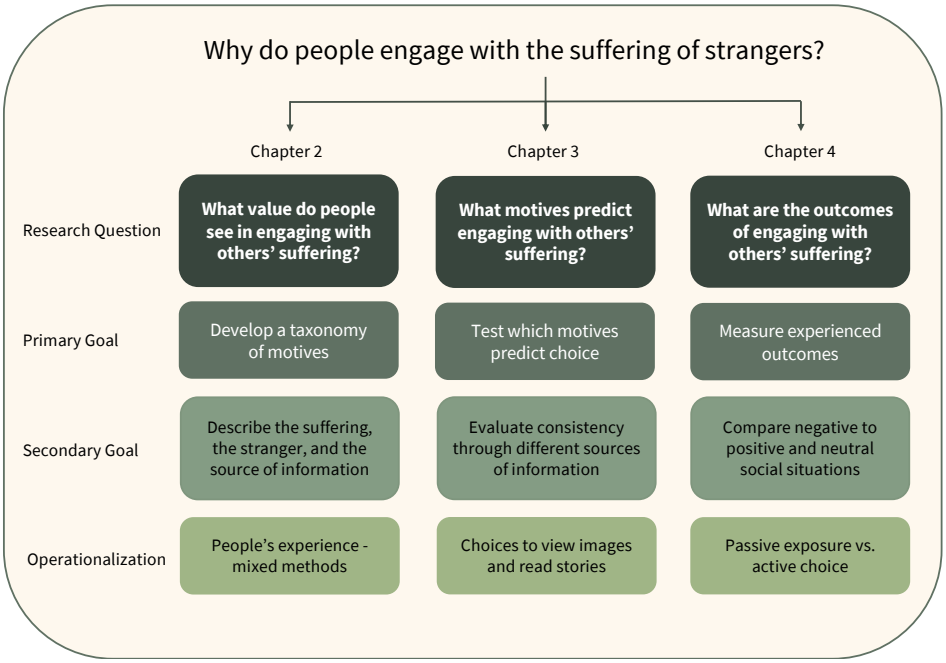
The Value of Suffering: A Cost-Benefit Understanding of Engaging with Negative Content

The central aim of this dissertation is to understand why people engage with the suffering of strangers. In order to reach this goal, we divided the central question of the dissertation in three different sub-questions to guide our empirical approach. Firstly, we ask the question what value people see in engaging with other's suffering. We aim to answer this question by asking people to report their own experiences with engaging with suffering and reflect on the reasons behind this behavior. Secondly, we ask the question which motives predict engaging with other's suffering. We aim to answer this question by examining whether anticipated value predicts decisions to engage with images and stories that portray suffering. Thirdly, we ask the question what the outcomes of engaging with other's suffering are. We aim to answer this question by assessing the experienced outcomes of engaging with images of suffering, and compare these to the experienced

outcomes of engaging with positive and neutral social images. Altogether, these three sub-questions give rise to a research program in which we observe, investigate, and test the value of engaging with suffering from different methodological angles. These projects in this research program complement and build on each other to offer a comprehensive perspective on why people engage with the suffering of distant others.

Figure 1.1

Research Question and Goals of the Dissertation



We started the research program to answer the overarching research question with a project (reported in Chapter 2) that took an exploratory approach and implemented a qualitative design. This provided several advantages and enriched our understanding on why people engage with the suffering of strangers. Firstly, by diving into people's experiences, we cast a wide net that covers the breadth of the phenomenon. This approach allowed us to grasp a rich variety of reflections on why people engaged with suffering in order to formulate a comprehensive taxonomy on the motives that drive this behavior. As a secondary goal, this exploratory approach allowed us to understand the scale and diversity of situations in which people engage with suffering. By accessing people's experiences, we could characterize the stranger and observe that the situations people engaged with

ranged from simple, minor and mundane (e.g., a little girl scraping her knees while playing in the park) to horrors that are difficult to name (e.g., war, human rights violations and social injustices). Finally, with this approach we acquired insight into the variety of sources of information and media that portray stories of suffering. All of these insights accompanied and shaped the following empirical projects by informing the methodological decisions we made and the hypotheses we subsequently tested.

In two subsequent empirical projects (reported in Chapter 3 and Chapter 4), we used controlled and validated paradigms and included emotionally evocative stimuli with different intensities and valence to unpack the specific value of engaging with negative stimuli (e.g., as an operationalization of suffering). Furthermore, we used positive social situations as a contrast condition, portraying a similar diversity of characters in positive and pleasant social scenes. This decision allowed us to compare differences and specificities of engaging with suffering as compared to other social and emotional situations, thereby contributing to an open question in the curiosity and information seeking literature whether approaching negative content operates under different mechanisms than general curiosity (Niehoff & Oosterwijk, 2020). Given that engaging with negative content is emotionally and cognitively costly, it might be that the process of weighing the cost and benefits of approaching the content is different as compared to approaching positive content.

Finally, across the different empirical projects we operationalized the value of engaging with strangers' suffering in different ways. Initially, we investigated people's reflections and personal experiences, their endorsement and perceived applicability of different sources of value to a specific situation. Subsequently, we generated a set of motives based on these reflections that captured the anticipated value of engaging with certain content. Focusing on images and stories of suffering, we evaluated which of these motives had a significant positive (or negative) relationship with the decision to engage with suffering. Ultimately, we evaluated the outcomes of engaging with images of suffering. This was a novel approach to complement the recalled experiences in the first project, as these could overstate the experienced value. Moreover, it was important to examine whether the anticipated value (i.e., motives) that predicted choices to engage with suffering were mirrored in actual experienced outcomes. In this way, we complement the findings, contribute to the robustness of our conclusion, and investigated through different angles the value of engaging with suffering.

Overview of the Dissertation

This doctoral dissertation includes three empirical chapters aimed at answering the overarching research question of this dissertation: Why do people engage with the suffering of strangers? The current section presents an overview of the empirical chapters and how they connect with each other.

Chapter 2, titled: "Why do People Engage with the Suffering of Strangers? Exploring Epistemic, Eudaimonic, Social and Affective Motives" presents a taxonomy of people's reflections on the function, value, or outcome of engaging with the suffering of strangers. Across two studies (N = 497), one fully qualitative and one mixed methods, we asked participants to describe a situation in which they voluntarily engaged with the suffering of a stranger. Furthermore, we asked them to explain their reasons for engaging with this situation. In Study 2.1, we conducted a thematic analysis to investigate four guiding questions: *who* was the stranger, *what* was the situation of suffering, *how* did the participant engage with the situation, and *why* did they engage with the situation. The results demonstrate a wide variety of situations of suffering, characterizations of the stranger, the source of information, and the perceived value of engaging. In Study 2.2, we operationalized these reflections into items and observed from a statistical point of view how they clustered together. This chapter provided a solid foundation for understanding the types of situations of suffering and the breadth of motives for engaging with those situations.

Chapter 3, titled: "Scenes of Suffering: Why do People Choose to Engage with Emotionally Evocative Images and Stories?" aimed to investigate the predictive value of the motives. Based on the results of Chapter 2, we measured a set of motives that represented the variety of reasons to engage. In four studies (N = 1.286), we tested which of the motives had a significant relationship with choosing to engage with scenes of suffering. The stimuli used in these studies were informed by the findings of Chapter 2. We included negative as well as positive social situations, to evaluate the effect of emotional valence in the motives' predictive value. Furthermore, we investigated if the motives' predictive value differed depending on the way in which the information was conveyed. Thus, two studies investigated which motives predicted engaging with images (Study 3.1a and 3.1b), and two studies investigated the motives that predicted engaging with stories (Study 3.2a and 3.2b). We conducted two exploratory studies (Study 3.1a and 3.2a), that sought to select the relevant motives, and two pre-registered confirmatory studies (Study 3.1b and 3.2b), that sought to replicate the findings. This chapter tested

and finetuned a model of the most relevant motives that predict engaging with emotionally evocative content.

Chapter 4, titled: "More Knowledge, More Reflection, More Uncertainty: Unpacking the Value of Viewing Images of Suffering" focused on the outcomes of engaging with suffering. This chapter included three studies (N = 727) and investigated from a different angle the value of engaging with images of suffering. Using a similar set of images as Chapter 3, we asked participants to rate their experienced epistemic, social and affective outcomes of viewing positive, negative and neutral emotionally evocative social situations. In this way, we examined whether negative images evoked valuable outcomes, and compared them to the outcomes following engagement with positive and neutral images. We also tested if the type of engagement (i.e., passive exposure vs. active choice), had an impact on the outcomes.

Chapter 5 presents the General Discussion of this dissertation. The aim of this section is to summarize the main findings of the empirical chapters, discuss their theoretical implications for the understanding of engaging with the suffering of strangers, reflect on the strengths and limitations of this research, and propose future directions.

The empirical chapters of this dissertation are standalone research papers and can be read separately. At the time of the submission of the dissertation, one of them has been published, one is under review, and the last is being prepared for submission. We engaged in open science practices as much as possible, by offering access to the data, code script, preregistration of our hypotheses and analyses plan. The work and ideas presented here are the result of years of research collaboration with my supervisors and co-authors, therefore I use the plural pronoun "we" to reflect the shared thought process and work across the dissertation.

CHAPTER 2



Why Do People Engage with the Suffering of Strangers? Exploring Epistemic, Eudaimonic, Social, and Affective Motives

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Abstract

Reading violent stories or watching a war documentary are examples in which people voluntarily engage with the suffering of others whom they do not know. Using a mixed-methods approach, we investigated why people make these decisions, while also mapping the characteristics of strangers' suffering to gain a rich understanding. In Study 2.1 (N = 247), participants described situations of suffering and their reasons to engage with it. Using qualitative thematic analysis, we developed a typology of the stranger (who), the situation (what), the source (how), and the reason(s) for engaging with the situation (why). We categorized the motives into four overarching themes – epistemic, eudaimonic, social, and affective – reflecting diversity in the perceived functionality of engaging with a stranger's suffering. Next, we tested the robustness of the identified motives in a quantitative study. In Study 2.2, participants (N = 250) recalled a situation in which they engaged with the suffering of a stranger and indicated their endorsement with a variety of possible motives. Largely mirroring Study 2.1, Study 2.2 participants engaged to acquire knowledge, for personal and social utility, and to feel positive and negative emotions. We discuss implications for understanding the exploration of human suffering as a motivated phenomenon.

Keywords: suffering, curiosity, empathy, motivation, social information seeking.

Why Do People Engage with the Suffering of Strangers? Exploring Epistemic, Eudaimonic, Social, and Affective Motives

In the current hyperconnected world, people commonly decide to view, read about, or listen to the suffering of other people. For example, people may read about a local hate crime, listen to a podcast about the victims of a gross injustice, seek out details about the personal conflict of a movie star, click on a video detailing a natural disaster on a different continent, pause on the street to watch a traffic accident, or visit a museum to learn about a terrible historical event. Critically, in all these examples the people who are suffering are not part of the viewer's personal social network – they are strangers. Nevertheless, even in the absence of a direct relationship, viewers are willing to allocate resources – emotional, cognitive, and timewise – to inform themselves about their situation. Why do people decide to voluntarily engage with the suffering of strangers? And who are these strangers and what is their suffering about? The present paper addresses these fundamental questions, focusing on the expected value or benefits people may see in exploring other people's hardship.

Research from a variety of scientific disciplines has shown that people deliberately expose themselves to triggering content through a wide variety of sources. For example, media studies have yielded consistent evidence that people seek out information about threatening events (Robertson et al., 2023), such as terrorist attacks, even though doing so may increase their fear of becoming a victim (Redmond et al., 2019). Similarly, aesthetics research has documented people's interest in (Turner & Silvia, 2006) and enjoyment of art that portrays tragic or disturbing scenes (Menninghaus et al., 2017). Other examples come from fiction, such as the consumption of horror movies or videogames (Hofer et al., 2017; Scrivner et al., 2022), and sad novels or poetry (Koopman, 2015). Finally, research on curiosity has demonstrated that people are curious about images that show death or harm within a social context (e.g., images of fights, accidents, attacks, and war), and even prefer those to viewing neutral social alternatives (Oosterwijk, 2017).

These lines of research raise the question of *why* people seek out this type of content. We propose that the exploration of human suffering is motivated by perceived benefits (Niehoff & Oosterwijk, 2020). In this paper, we take a mixed-methods approach to examine this possibility and map the breadth of the phenomenon by creating a contextualized overview of people's motives to engage with the suffering of a stranger.

Motives for Engaging with the Suffering of Others

Although empirical research on the motives for voluntarily engaging with other people's suffering is relatively scarce, work in the (largely separate) areas of curiosity, information seeking, media, empathy, and emotion regulation provides some initial insights. We provide a brief overview of these key literatures and theoretical approaches to situate our research within the broader field and inform our subsequent interpretation of the collected data.

First, work in the field of curiosity and information seeking suggests that engagement with others' hardship allows people to acquire knowledge about the world. Generally, it is proposed that people seek out information because knowledge acquisition is rewarding (Murayama, 2022; Murayama et al., 2019). Information that is relevant or useful to the self may be sought out in particular (Abir et al., 2022; Sharot & Sunstein, 2020). Recent work has suggested that such informational motives are also important for engaging with negative content (for an overview see Niehoff & Oosterwijk, 2020). For example, when consuming horror, people report not only being motivated by sensation seeking, but also by goals like learning and personal development (Scrivner et al., 2022). Moreover, recent work has shown that decisions to engage with negative COVID-19 news are predicted by anticipated knowledge acquisition and the relevance of this information to one's own situation (Niehoff et al., 2024). In short, people may engage with the suffering of others because their negative experiences hold information that is relevant for the successful navigation of social life (van Kleef, 2009).

Second, research in media psychology and aesthetics indicates that people seek out eudaimonic experiences when they engage with social media, books, films, and other cultural expressions that contain stories of hardship (e.g., Bartsch et al., 2014; Koopman, 2015; Oliver, 2022). In contrast to hedonia, which revolves around the experience of pleasure, eudaimonia refers to seeking out virtuous and meaningful experiences to pursue a life well lived (Gentzler et al., 2021). Art and entertainment portraying tragedy and suffering can promote in the observer a sense or reflection, insight, and cognitive challenge (Raney et al., 2022), and may create an opportunity to experience intense emotions from a safe distance (Menninghaus et al., 2017). In short, this literature highlights that observing and engaging with (artistic) expressions of suffering is a way of finding meaning and developing the self.

Third, work in the field of empathy suggests that empathy plays a role in guiding engagement with other people's suffering. According to a recent perspective,

context shapes motivations to up- or down-regulate empathy (Weisz & Cikara, 2021). On the one hand, people may up-regulate empathy in contexts where they want to affiliate with ingroup members, to capitalize on the positive emotional state of others, or to confirm social values (Zaki, 2014). On the other hand, people may down-regulate empathy because they want to protect themselves against emotionally taxing consequences, to avoid the (cognitive or monetary) costs of engaging with suffering, or to avoid being distracted by outgroup member's emotions in cases of intergroup conflict (Zaki, 2014). For example, individuals with higher power tend to be less motivated to connect with other people's suffering compared to individuals with lower power (van Kleef et al., 2008). The idea that empathy can be costly and requires motivation is further supported by experimental evidence showing that people often avoid choosing tasks that demand an empathic response (Cameron et al., 2019). In short, in order to understand why people deliberately engage with the suffering of others, empathy is an important factor because it can be seen as an expected benefit (e.g., confirming social or personal values) or an expected cost (e.g., sharing distress).

Fourth, work from the field of emotion regulation indicates that people may be motivated to experience the emotional states that negative events evoke. Tamir, (2016) proposed that people use their emotional experiences instrumentally to be able to act (e.g., perform) in a particular way, gain knowledge, relate to others, and develop autonomy and competence. Importantly, people may maintain or up-regulate negative emotions to reach these goals. Empirical support for this perspective comes from studies showing that people sometimes prefer to experience unpleasant emotions (e.g., anger) for instrumental reasons (Tamir & Millgram, 2017). For example, when expecting to compete (vs. cooperate) with other people, participants chose anger- over happiness-inducing tasks to increase their chance of a successful outcome (Tamir & Ford, 2012). This perspective adds to explanations of people wanting to experience negative emotions for hedonic purposes (e.g., sensation or thrill seeking; see Andersen et al., 2020; Rozin et al., 2013).

This theoretical and empirical work provides preliminary insight into the motives that may lead people to engage with the suffering of others, including strangers. In the present study we focus exclusively on why people engage with the suffering of strangers, which represents a particularly puzzling everyday phenomenon that remains poorly understood. In the case of a close other, engagement tends to be a given and the key question is what form the engagement takes (e.g., different strategies of interpersonal emotion regulation; Groth et al., 2023; Kalokerinos et al., 2017). In the case of a stranger, in contrast, engaging with the

suffering could be costly (Cameron et al., 2019) and there are no interpersonal demands equivalent to those in close relationships, nor would there be lasting interpersonal consequences when dismissing the experience. Nevertheless, examples of people deliberately seeking out details about other people's suffering in news, social media, books, movies, documentaries, museums, and on the street are manifold. In light of the ubiquity of this behavior, it is important to understand people's motivation for engaging with the suffering of strangers in particular.

The Current Research

The aim of this project is to enhance understanding of why people engage with the suffering of strangers by creating a theoretically plausible and contextualized taxonomy of motives. To accomplish this, we adopted a mixed-methods approach. In Study 2.1 we employed a qualitative design to (1) develop a typology of the situations of suffering people engaged with (by describing *who* was the suffering person, *what* was the situation, and *how* the participants accessed the content), and (2) gain insight into *why* they chose to engage with that situation. In Study 2.2 we aimed to (1) evaluate the robustness of the motives emerging from the qualitative study by using a quantitative approach and (2) explore possible differentiation in the endorsement of motives depending on the situation. This mixed-method approach lends itself well to addressing our central objective of assessing participants' personal experiences and exploring novel and hitherto unidentified motives for engaging with the suffering of strangers in a rich and structured way (Kelle, 2006).

Following recommendations of the Qualitative Oriented Mixed Methods approach (Poth & Shannon-Baker, 2022), we first conducted an initial qualitative step to build a comprehensive understanding of the phenomenon at hand (Study 2.1), which was followed by a more structured quantitative phase (Study 2.2; for a similar approach Landmann et al., 2019). The initial qualitative phase allowed us to gain insight in the breadth of the phenomenon of interest, develop a preliminary understanding of relevant motives, and develop measures to tap into those motives (Scheel et al., 2021). By using this exploratory strategy, we aimed to obtain a rich and ecologically valid corpus of situations of suffering and motives to engage with these situations that can provide a basis for generating and testing specific hypotheses in future studies.

Study 2.1

Method

Participants

In total, 247 participants were recruited online through the platform Prolific. This sample size was substantially larger than sample sizes commonly recommended ($N \sim 100$) to capture the breadth of a topic and reach saturation (Braun et al., 2021). In the sample, 102 participants identified as women, 116 participants identified as men, and 29 participants reported identifying as non-binary or did not report their gender. The mean age was 30.5 ($SD = 12.38$, range from 19 to 74 years) and 49.4% of the participants were students. The sample included people from 36 different nationalities. English fluency was selected as inclusion criterion. The study protocol was approved by the local Ethics Review Board prior to data collection (#2021-SP-13343). Participants received £4.00 for their participation, which took about 30 minutes. The study was run on April 20th, 2021.

Procedure

Participants were asked to recall and share personal examples of situations in which they engaged with another person's suffering and explain the reasons that guided this decision. Voluntary engagement with other's suffering was defined as a situation in which people "deliberately choose to inform themselves about the suffering of others, for instance by reading about it, watching videos, listening to podcasts, talking about it with others, or in any other way." Given our interest in engagement with the suffering of strangers, participants were further instructed that "we are particularly interested in situations where people engage with the suffering of someone, they do *not* know personally, whether face-to-face or online, involving a complete stranger, a real (famous) person currently alive, a historical figure, or a fictional character (e.g., in a book)."

After these general instructions, participants were asked to share as much detail as possible about the situation of suffering (i.e., what was the event about, who was the stranger, how did the participant access the information). Participants could share up to 5 different situations in which they recalled engaging with distant others' suffering. Then, participants were asked to describe the reason(s) for engaging with each of the shared situations. The question specifically asked participants to reflect on the expected value, function, or outcome of their voluntary engagement with the stranger's suffering. Full details of the instructions are reported in the Supplementary Material and the codebook are available at the

Open Science Framework. The raw qualitative data will be available upon reasonable request for privacy reasons.

Analysis

Data were analyzed manually with semantic thematic analysis (Braun & Clarke, 2006) using Atlas.ti software. This analysis aims to extract meaningful and recurrent patterns from participants' responses and structure them hierarchically into codes, themes, and overarching themes. Codes are the unit closest to the raw data, followed by themes that capture groupings of several codes, and then (where applicable) overarching themes that group several themes.

The coding process followed existing guidelines for inductive coding. These do not state a predefined number of codes; rather, the aim is to generate a manageable and interpretable set of codes while doing justice to the complexity and richness of the data (Linneberg & Korsgaard, 2019). We followed a step-by-step procedure, beginning with an initial familiarization of the data. In this step, responses that were not aligned with the study goal (e.g., situations in which family members, partners, friends, or participants themselves were suffering) were excluded from the dataset. After this initial cleaning, recurring patterns and salient responses were labeled through codes. For example, after reading several of the participants' responses, we realized that a recurrent pattern involved situations of people incidentally and unintentionally hurting themselves (e.g., falls, cuts, or being hit by a car). Therefore, we developed the label "Accident" and tagged all the data entries that described accidents with this code.

Importantly, participants' responses could include one or multiple codes. For example, participants commonly described multiple goals or reasons for their engagement (e.g., "*Curiosity, motivation to not allow that to happen to my kids in the future, any way I could prevent it that maybe they overlooked, I also wanted to get an insight into how the family would be feeling - potentially make myself feel better about my life*" Case 38). Since four different reasons are present in this response, this data entry received four codes (i.e., one for each separate reason). This initial step of the coding process was performed by the first author, after which codes were cross-checked by the second author. In cases where discrepancies emerged, these were resolved through discussion. Next, codes with related content were grouped into themes, and finally themes were grouped into overarching themes (based on conceptual similarity) when appropriate. This part of the process, which resulted in with the final taxonomy presented below, was carried out by the full research team.

Results

Participants shared in total 459 instances of suffering (M = 1.87 situations of suffering described per participant). Ninety-three responses were excluded from the analysis, because participants did not follow instructions. These exclusions concerned instances where the participants described the suffering of a close other (e.g., partner, family member) or themselves. In total, 366 instances were analyzed. See Table SM1 in the Supplementary Material for examples of responses that illustrate different themes. Figures 2.1 and 2.2 present a visual representation of all the themes and overarching themes emerging from the qualitative coding.

Situations of Suffering

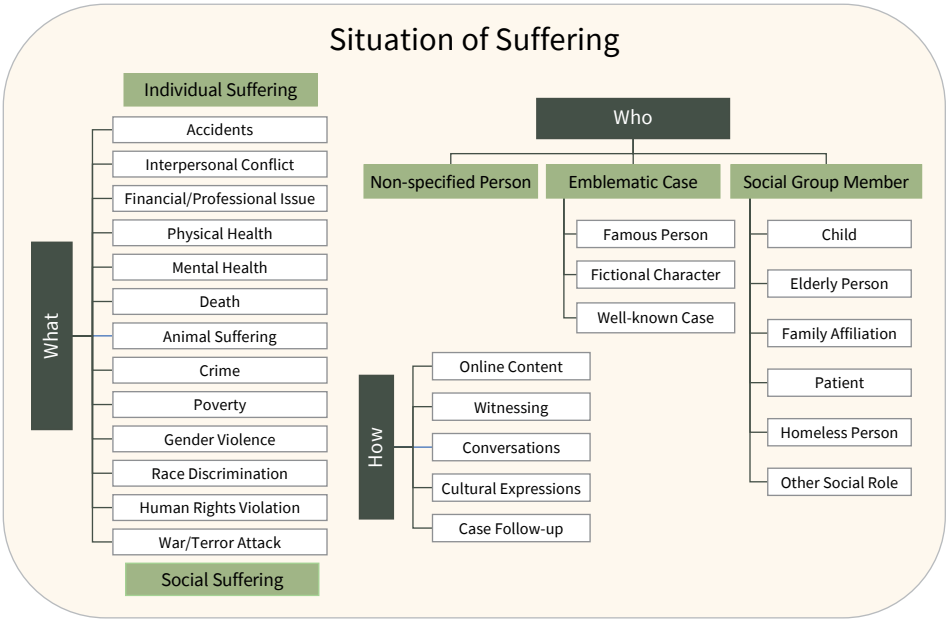
Who were the suffering strangers? The codes characterizing the person suffering resulted in 10 themes, grouped into 3 overarching themes: non-specified person, emblematic case, and social group member.

The first overarching theme was *non-specified person*, which describes instances where the participant did not include any detail that characterized the person suffering. Participants referred to the suffering person as someone, a person, or a stranger.

The second overarching theme was named *emblematic case* and included instances in which the suffering individuals were identified with their names. This contained three different themes: famous people, well-known cases, and fictional characters. First, the theme famous people included politicians, entertainment characters, elite athletes, and other celebrities. For example, Case 53 describes: "*Another formula one driver, Michael Schumacher fell into a coma after an unfortunate fall on the slope. It was a very shocking. experience for me, even though he is a stranger to me*". Second, well-known cases referred to people who have been locally or internationally recognized because of their suffering (e.g., George Floyd). To illustrate this theme, Case 56 stated: "*When Natasha Kampusch got kidnapped, we were told to be careful when we go outside. I was very little back then, but I heard a lot about it and when the movie about her story and a few documentations came out I watched it. She suffered a lot and its crazy that it happened*". Third, the theme fictional characters referred to characters in movies, books, or tv shows (e.g., Gray's Anatomy, Marley and Me). As Case 169 describes: "*The character played by Will Smith in 'The pursuit of happiness' movie was very touching as he went through a lot of suffering"*.

Figure 2.1

Characteristics of the Reported Situations of Suffering, the Strangers Involved, and the Means of Accessing the Information (Study 2.1).



The third overarching theme was named *social group member*. This contained instances in which the person suffering was characterized by an aspect of their social identity or their membership of a certain social group. This included themes where certain details of the person suffering were shared, such as their age (e.g., children or elderly people) or their interpersonal affiliation (e.g., widow(er), parent, wife, husband). Note that "family affiliation" is a code used to specify how an instance placed emphasis on the interpersonal affiliation of the stranger (e.g., a grieving parent); in all cases the suffering person was a stranger to the participant. This theme also included historically marginalized community members, such as disabled people/health patients, people of color, and homeless people. Notably, some responses explicitly described people in situations of vulnerability, such as victims of personal or structural power abuse. For example, Case 120 stating "*A woman being emotionally controlled by her husband*".

What were the situations of suffering about? The coding process resulted in 13 themes characterizing different situations of suffering. The most frequent theme referred to situations of suffering that portrayed death, which included violent death, natural death (e.g., long-term illnesses), suicide, accidental death, and unexpected death (e.g., still birth).

Among the other identified themes, participants described situations involving physical health problems, including disabilities and chronic disease; poverty, including famine or homelessness; interpersonal conflict, involving romantic relationships, friendships, or family issues; accidents, varying from minor events to accidents with life-lasting consequences; mental health issues, including drug addictions, depression, and anxiety; financial and professional issues, including career failures and unemployment; human rights violations, including political imprisonment and cases of state violence; gender violence, including aggression towards women, non cis-gender, and non-heterosexual people; crime, including mainly violent incidents; race discrimination towards non-white people; war and terror attacks, both recent and historical; and animal suffering, including death of pets and cases of animal cruelty.

Based on our observation that participants emphasized systemic and less-systemic sources of suffering, and consistent with similar concepts in social psychology (e.g., collective victimhood; Vollhardt, 2020), sociology (Bourdieu & Ferguson, 1999), and anthropology (Wilkinson & Kleinman, 2020), we placed these themes on a continuum with *individual suffering* on one end, and *social suffering* on the other end (see Figure 2.1). Individual suffering reflected situations that primarily affected the target individual's suffering and/or the suffering of their loved ones. Case 159 wrote, *"I saw that a small girl fall on the playground and her knee was bleeding. I tried to talk to her and comfort her before her mum came"*. Social suffering reflected themes regarding systematic violence, which implied the political, economic, national, ethnic, cultural, or identity aspects of the individual(s) involved (Renault, 2010). For example, Case 188 wrote: *"George Floyd was murdered by police who knelt on his neck until he stopped breathing. This sparked a lot of conversations about systemic racism, and I did a lot of research on his life and the circumstances that led up to his death. I did this by reading, watching the news, and accessing educational resources on social media."*

How did participants access the suffering? The codes characterizing the sources of information participants accessed were grouped into 5 themes, of which 4 referred to a single source and the last one to multiple sources.

First, participants most frequently mentioned accessing suffering through online *content*. This theme mainly described online news (i.e., audiovisual or written news media) and social media platforms (i.e., Twitter, Facebook or Reddit). For instance, Case 21 described: *"I saw a post on Instagram about a 10-year-old boy suffering from cancer and who needed a lot of money"*. Second, participants referred to *witnessing* the event in person ("*Seeing people who have no home*", Case 73). This

theme included street interactions, where the participant actively got involved (e.g., by helping) or observed the situation. Third, participants mentioned *conversations* with others ("*when I get told by the police of recent stabbings in my neighborhood",* Case 60). Fourth, the theme *cultural expressions* included any media format created for sharing a story of suffering, such as movies, documentaries, books (e.g., novels, autobiographies), podcasts with testimonies, videogames, and tv shows. For example, Case 88 said: "*I quite often watch documentaries. These can be a range of different topics from rare medical conditions to oppressive regimes in foreign countries.*"

The fifth and final theme did not explicitly refer to one source but to multiple ones and was labeled *case follow up*. In some instances, participants engaged in an online search or tried in other ways to find out more details or background information about a situation of suffering. For example, Case 70 wrote: *"I have educated myself on various places of conflict across the world including in Palestine, Syria and Lebanon. I have read about this online, attended educational events and listened to podcasts".*

Why Did Participants Engage with the Suffering?

The coding of reasons why people engaged with the suffering of a stranger resulted in 12 themes of motives grouped into four overarching themes: epistemic motives, eudaimonic motives, social motives, and affective motives (see Figure 2.2).

Epistemic motives

This overarching theme represents motives that emphasize the informational aspects of the situation (e.g., due to their novelty) or the potential knowledge gained by engaging with the person's suffering.

Curiosity. Participants described how curiosity-related states stimulated them to explore the situation of suffering. These instances often contained explicit references to epistemic states such as curiosity, intrigue, interest, and fascination ("*I am interested in the psyche of the killers and find that fascinating",* Case 165).

Understand. This theme represented instances in which participants mentioned a motive to acquire knowledge or to understand (the cause of) the situation. More specifically, we coded as part of this theme instances that included the words "learn", "knowledge", "educate me" and "understand". For example, "*Trying to put myself in their shoes to understand what a person can think before committing suicide"* (Case 49).

Significant event. Another theme that reflected the informational value present in the instance was labelled significant event. This theme includes referen-

ces to the frequency of the event (e.g., something that happens very often or very rarely), the novelty of the situation ("*it's a sickness I had never seen before*", Case 147), high social impact (*"I like to keep up to date with current affairs",* Case 165), or severe consequences for the person suffering (e.g., irreversibility).

Self-relevant event. Finally, as part of the epistemic motives, we included instances in which participants reflected on how the situation was connected to their own past or future. For example, "*As mentioned, I experienced recent death which was the loss of my dear mother. This was the first major loss I have experienced and now have great empathy with others who are dealing with grief and bereavement"* (Case 162). Furthermore, the theme included references to personal utility, in which participants mentioned how they themselves or their loved ones could potentially be in that position. For example, *"Because I'm a girl who also likes to go to concerts and knowing that it could've been me or someone, I know is horrible. These people didn't deserve to suffer that much and that's why it also got to me"* (Case 56).

Eudaimonic motives

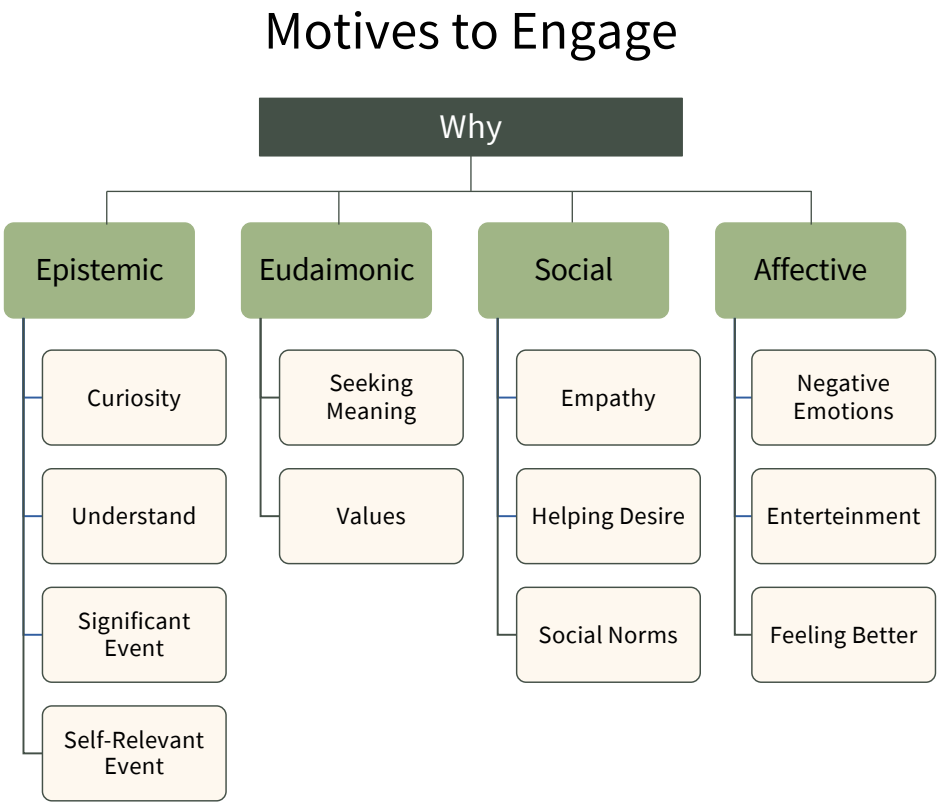
This overarching theme involved existential aspects that motivated engaging with the situation of suffering, including the pursuit of a meaningful life and a desire for self-actualization. Note that these motives are different from the epistemic motives as they exceed the informational value of the event itself and instead refer to reflection, insight, and meaning-making processes to guide self-development (Bartsch et al., 2014).

Seeking meaning. This theme represented instances in which participants reflected on the value or deeper meaning of engaging with suffering. For example, some participants mentioned that suffering gives access to a raw reality or an insight into the human condition. Other participants described being inspired by stories of resilience and post-traumatic growth or reflecting on justice and solidarity (*"I am passionate about social justice and work in an industry where these values are paramount (social work). After George Floyd's death I was angry and engaging with his experience was necessary to confront the injustice of what happened to him*", Case 188).

Values. This theme represents instances in which participants referred to specific personality traits or personal values as reasons for engaging with the suffering, such as kindness, good citizenship, religious belief, or moral duty (e.g., *"Because I am a Christian loving woman that loves everyone. God commands me to be the person I am"*, Case 245).

Figure 2.2

Motives to Engage with the Suffering of Strangers (Study 2.1).



Social motives

This overarching theme included motives that emphasized prosocial feelings or acts, socially desirable outcomes, and norms associated with situations of suffering.

Empathy. This theme included instances that used the words compassion, empathy, or sympathy, or other references to feeling concerned about the other, or taking the perspective of the other, such as feeling sorry for the other person, feeling their pain, wanting to empathize and putting themselves in the other's shoes. Case 53, for example, stated: "*I was just taken by his story, and I was overwhelmed with compassion".*

Helping desire. This theme included a need to help or do something about the situation of suffering. For example: "*I like to help where I can, on social media, people*

usually share phone numbers or banking details where help can be sent. I usually sent something even if it is little but as long as it is helping even if it is a little." (Case 127).

Social norms. This theme included descriptions of how other observers influenced engagement with the suffering (*"to be honest, I chose to engage because everyone around me was doing so"* Case 181). Note that this theme reflected both reactions of support and dismissal of other observers, and situations in which an absence of others implied the need to react ("*I chose to engage because there weren't many people around and it was obvious that they needed help. It was important that I helped otherwise they might have suffered further injuries*." Case 187).

Affective motives

This overarching theme referred to the emotional states associated with engaging with the suffering of strangers. In some cases, participants referred to the desired affective impact or anticipated emotional consequence of exploring the suffering of others. In other cases, the reason for engaging was an existing emotional state or feeling.

Negative emotions. The reason for engaging with the suffering situation included an explicit mention of a negative emotion (mainly anger, guilt, sadness, or worry). For example, *"This incident just angered me."* (Case 253). This theme represents the (negative) emotional reaction experienced by the observer that was given as a reason or consequence of engaging with the situation of suffering. When a discrete negative emotion was explicitly experienced towards the suffering of the other, the instance was also coded as empathy (e.g., I felt sad for her).

Entertainment. Some participants explicitly referred to engaging with the situation to elicit pleasant emotional states such as amusement, fun, or schadenfreude. For example, participants mentioned enjoying horror stories, tragic novels, or online videos, given the thrill they produce ("*it is also quite entertaining in a morbid way*", Case 147).

Feeling better. This theme reflected instances in which participants mentioned that the situation of suffering evoked a positive feeling about their own situation (e.g., gratitude) or a better perspective on their own life. For instance: "*I engage with the suffering that comes with shootings in the USA because it is something I am not used to seeing in my country. In a way, the shootings make me feel safe because I know that all this is happening far, far away"* (Case 181).

Discussion

The central aim of Study 2.1 was to develop a preliminary understanding of people's motives to engage with the suffering of strangers. A secondary goal was

to explore the breadth of the phenomenon by mapping the characteristics of the situations of suffering that people engaged with. Therefore, we developed a typology of the situations of suffering by describing who was the suffering person, what the situation was about, and how the participants accessed the content.

Regarding the who, participants described non-specified individuals (i.e., descriptions of the stranger without any personalized information), emblematic cases (e.g., famous people, well-known cases of suffering), and individuals with a clear social group membership (e.g., elderly, children, ethnic groups). This latter finding connects to work emphasizing the importance of social identity and group membership (Tajfel & Turner, 1979) in social categorization and social cognition (Bodenhausen et al., 2012). Regarding the what, participants described a large diversity of situations, including accidents, conflicts, health issues, race discrimination, human rights violations, and war. Consistent with work in social psychology (Vollhardt, 2020), sociology (Bourdieu & Ferguson, 1999), and anthropology (Wilkinson & Kleinman, 2020), the situations of suffering ranged on a continuum from individual to social suffering. Regarding the how, participants described different sources of information, such as online media, conversations, witnessing the event, and cultural products (e.g., books, documentaries, exhibitions), demonstrating diversity in the ways people acquire information about other people's suffering. In the General Discussion we will address the characteristics of the situation in more detail.

Regarding the why, participants described a large variety of motives that were relatively consistent with the theoretically derived motives described in the Introduction. We organized the motives in four overarching, theoretically driven themes: epistemic, eudaimonic, social, and affective motives. Regarding epistemic motives, participants reflected on the informational value of engaging with the suffering of other people (e.g., understand, learn, know). This is consistent with theoretical and empirical work emphasizing knowledge acquisition as a prime motivator for seeking out (negative) information (e.g., (Murayama, 2022; Niehoff et al., 2024). Furthermore, discrete epistemic states such as curiosity, interest, and fascination were frequently mentioned by participants. Interestingly, in some cases informational value seemed to lie in the perceived possibility that it was useful to engage with the event for personal or future purposes (i.e., instrumental utility, Dubey et al., 2022; Kelly & Sharot, 2021). Regarding eudaimonic motives, participants reflected on meaning making processes and self-transcendent values. In line with perspectives in the literature on eudaimonia, people engaged with the suffering to gain insight in life itself and in the ways in which

hardship is overcome (Bartsch et al., 2014; Koopman, 2015). Regarding social motives, participants reflected on altruistic reasons to engage with the suffering (e.g., helping), together with empathic responses that the situations of suffering evoked (Zaki, 2014). These motives emphasize the interpersonal value of engaging with suffering (Cameron, Scheffer, et al., 2022). Regarding affective motives, participants reflected on the emotional impact of engaging with the suffering. In some cases, consistent with the theoretical perspective of Tamir (2016), people reported negative emotions regarding the event as a reason to engage. These negative emotions may fuel an interest to learn more about the situation (e.g., moral outrage, Zembylas, 2021). In other cases, engaging with the situation evoked positive emotions (e.g., entertainment, schadenfreude) or a positive feeling towards the participant's own situation (e.g., feeling better). In short, our results support the idea that people perceive value in engaging with other people's suffering, by expanding their knowledge of the world, to connect with or help others, or to seek out eudaimonic or emotional outcomes.

Study 2.1 combined open-ended questions with online sampling. This approach allows for casting a wide net around the phenomenon under investigation (Braun et al., 2021). Indeed, the themes emerging from our qualitative coding show a rich and diverse landscape of situations of suffering as well as motives to engage with those situations. Nevertheless, the qualitative design does not provide insight into the prevalence of the motives that emerged. Therefore, the proposed taxonomy and the robustness of the motives' endorsement should be evaluated using a quantitative approach. This was the objective of Study 2.2.

Study 2.2

Building upon Study 2.1, we performed a follow-up study to test the robustness of the motives that emerged from the qualitative study using a quantitative approach. First, to measure differences in motives endorsement, we operationalized the themes of Study 2.1's taxonomy into items and asked participants to rate their applicability. Second, to explore differences in motives endorsement for specific contexts of suffering we incorporated two characteristics that appeared to be relevant in Study 2.1, namely differences in the type of suffering and the source of information. The first was inspired by findings about the identity of the stranger (who) and the type suffering (what). To address this variation, we asked participants to describe situations that affected members of social groups (e.g., minorities or historically marginalized communities, referred to here as social

suffering) or situations that only affected an individual and their close environment (individual suffering). The second refers to a differentiation of the source of information (how) that allowed their engagement. To address this, we asked participants to rate motives for situations of suffering they accessed online, through cultural expressions, or in real life (i.e., direct witnessing).

Method

Participants

As this study is a follow up from Study 2.1, we aligned with the previous sample size, population characteristics, and inclusion criteria. Thus, 250 participants from Prolific completed the study between April 28th and May 2nd, 2022, with English fluency as an inclusion criterion. This sample size was defined to retain a similar diversity in instances across the two studies. In the Supplementary Material we report a post-hoc sensitivity analysis for this sample size. The sample mean age was 31.73 (*SD* = 12.87), ranged from 18 to 76 years. 123 females, 123 males and 4 non-binary/other were part of the study. Participants reported 39 different nationalities; 40.8% were students. The study design was reviewed and approved by the local Ethics Review Board before data collection (approval code #2021-SP-14285). All participants gave informed consent prior to participation and received approximately £4.00 upon completion.

Procedure

The study had a 2 (type of suffering: social vs. individual suffering) x 3 (source of information: online vs. real-life vs. cultural expression) design, with type of suffering varied between-subjects and source of information varied within-subjects.

The procedure was similar to that of Study 2.1, with the following differences. First, considering that not all participants described the suffering of a stranger in Study 2.1 (i.e., some described the suffering of close others) a comprehension check was included. For participants who did not pass the comprehension check (39.2%), a feedback message was given highlighting that the study was about the suffering of people that they did not personally know. As in Study 2.1, cases that involved instances of suffering of close others, the participants themselves, or no suffering at all (i.e., when participants could not recall an instance of suffering), were excluded from the analysis (n = 44 instances out of 750 in total).

After the general instruction, half of the participants were asked to recall and describe a situation of a suffering individual (i.e., "individual suffering" condition) using the following prompt: "We are interested in situations in which you chose to explore, look into, or inform yourself about the suffering of an indivi-

dual who you did not know personally, such as a complete stranger, famous person, or fictional character". The other half of the participants were asked about the suffering of a member or members of a certain group in society (i.e., "social suffering" condition) using the following prompt: "We are particularly interested in situations of suffering that involve certain members of society, such as members of minority groups, or members of groups defined by certain characteristics, such as age or gender." Participants were randomly assigned to one of these conditions. Supplementary Figure SM1 illustrates differences between the situations of suffering described by participants in the individual and social suffering condition.

Each participant was asked to describe a situation in which the suffering was accessed by going online (e.g., through social media or an online news source), a situation in which the suffering was accessed through a cultural expression (e.g., by reading a book, watching a movie, soap opera, song lyrics, art expressions, going to a museum), and a situation in which the suffering happened in a real-life incident (e.g., as a witness on the street). These three questions were presented in a counterbalanced order. Participants had to work on each description for at least 2 minutes. In the Supplementary Material we provide full details of the study materials and report a qualitative analysis of the situations of suffering described by participants.

Measures

Motives. For each shared situation, participants were asked to rate why they voluntarily engaged with it. They were presented with 32 statements about the value, function, or outcome of engaging with a stranger's suffering and asked to think carefully about the extent to which each of these applied to their decision. The items represented the twelve themes that emerged from Study 2.1 (for the full list of items please see Supplementary Material Study 2.2). Some themes were represented by multiple items to capture salient aspects (e.g., "I engaged with the situation because it was a way of helping" and "I engaged with the situation to show social support"). Other items were added based on insights from the larger literature on information seeking (e.g., boredom, Westgate, 2020; outrage, Zembylas, 2021). Specifically, the epistemic motives (9 items) included curiosity (e.g., "because I was curious"), understand (e.g., "to expand my knowledge about the world"), significant event (e.g., "because it was severely impactful"), and self-relevant event (e.g., "because a similar situation could happen to me or my loved ones"). For the eudaimonic motives (5 items), seeking meaning (e.g., "to gain insight in the human condition"), and personal values (e.g., "to become

a wiser person") were included. Social motives (7 items) included social norms (e.g., "because something like this should not be ignored"), helping desire (e.g., "because it was a way of helping"), and empathy (e.g., "to feel compassion for the people involved"). Finally, 11 items represented affective motives including entertainment (e.g., "because I was looking for a thrill"), feeling better (e.g., "to feel better about my own situation"), and negative emotions (e.g., "to feel sadness"). Our goal with this set of items was twofold. On the one hand, we wanted to be comprehensive by representing all motives that emerged from Study 2.1, but on the other hand we wanted to limit the total number of items to keep the study manageable for participants. This led us to use the minimum number of items needed to capture the motives and their sub-facets. In some cases (i.e., for 'singular" motives), one item was deemed enough to capture the essence of the motive. In other cases (i.e., for more complex, multi-faceted motives), we needed more items to fully capture the motive. Furthermore, given the number of items, we employed data reduction methods for grouping these items.

These items were previously tested and finetuned in a pilot study (for details see the Supplementary Material). Each of the 32 statements started with the phrase "I engaged with the situation…". Participants were asked to rate "the extent to which each of the following applies to you" with a 7-point Likert scale from 1 = *not at all* to 7 = *very much*.

Situation characteristics. To explore whether different situations of suffering differ in terms of severity, personal relevance, and frequency of the event, participants were asked a set of additional questions. First, participants rated the impact of the situation in terms of its consequences for (1) the individual(s) involved; (2) society at large, and (3) the participants themselves. Regarding personal relevance, participants rated how relevant the situation was in terms of their own past experiences or future personal life. Finally, participants rated the frequency of the event ("How rare was the situation that you just described?"). Participants answered the questions on 7-point Likert scales (1 = *not at all*, to 7 = *extremely*). Importantly, societal impact was rated significantly higher in the social suffering condition ($p < .001$; $M = 5.67$, $SE = .11$, CI [5.44, 5.89]) that in the individual suffering condition ($M = 5.08$, $SE = .11$, CI [4.86, 5.31]), attesting to the effectiveness of this manipulation ($F(2,430) = 5.73$; $p = .004$). The two conditions did not differ in terms of impact on the stranger and on the participant (see Supplementary Material Table SM2). Analyses involving the other questions did not yield pertinent insights, so they are not discussed further. A full report of these analyses can be found in the Supplementary Material.

Data Analysis

We evaluated how the 32 items grouped together by running a Principal Component Analysis (PCA). The aim of this analysis was to reduce data complexity and facilitate the interpretation of the results. We used oblique rotation (direct oblimin) following common recommendation (Field, 2000/2018). As the criterion for retaining components, we used the Kaiser's criterion of eigenvalues greater than 1. Finally, items were averaged for each component to serve as input for the main analyses.

We performed a repeated-measures ANOVA to examine whether motive endorsement differed across source of information, type of suffering, and/or their interaction. In cases of sphericity violations, we report the Greenhouse-Geisser correction. Pairwise comparisons were performed using Bonferroni correction.

The quantitative data is available at the Open Science Framework.

Results

Motives Categorization

The PCA initially yielded a six-component solution as the best fit to the data, but the factor loadings of 6 items did not reach recommended thresholds (> .40 on main factor, < .40 on alternative factors; see Supplementary Table SM3). The analysis was run again after excluding the items with poor fit (see Supplementary Table SM4). This resulted in a 5-component solution, explaining 59.96% of the variance. The Kaiser-Meyer-Olkin (KMO) measure verified that the sample size was adequate for using PCA (KMO = .896). Bartlett's test of sphericity $\chi 2\ (496) = 7789.89$, $p < .001$, indicated a correlation structure adequate for the analysis.

The component structure emerging from the second iteration of the PCA was at follows. First, most of the epistemic motives' items (e.g., curiosity, understanding, significant events) and the eudaimonic motives' items (e.g., seeking meaning and personal development) organized together. We named this component "Knowledge". Second, most of the social motives' items arranged together in a component that we named "Social Utility". Third, the two self-relevant items grouped together in a component that we named "Personal Utility". Due to dissimilar content and a switched sign for the factor loading, the rarity item was excluded from this component. Finally, affective items organized in two separate components according to emotional valence. The component named "Positive Affect" included items referring to positive-valence emotions while "Negative Affect", included items of negative-valence emotions. Figure 2.3B details the items that were included in each component. Details about factor loadings after

rotation (Table SM4) and correlation between the five motives categories (Table SM5) are reported in the Supplementary Material.

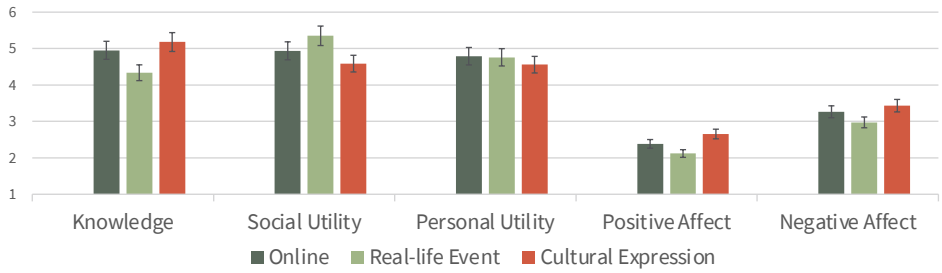
Motives Salience

We performed a 2 (type of suffering) x 3 (source of information) x 5 (motive category) repeated-measures ANOVA to examine the relative endorsement of the motives and to see whether motive endorsement differed across situations. A significant main effect was found for motive category, $F(2.928,629.52) = 277.73$, $p < .001$, $\eta_p^2 = .56$, showing that participants differentially endorsed the five categories of motives. Bonferroni-corrected pairwise comparisons demonstrated that Personal Utility motives ($M = 4.07$, $SE = .09$, CI [4.52, 4.88]) were significantly less endorsed than Social Utility and Knowledge motives ($p < 0.001$). Knowledge ($M = 4.82$, $SE = .08$, CI [4.67, 4.98]) and Social Utility ($M = 4.96$, $SE = .08$, CI [4.80, 5.12]) did not significantly differ ($p > .90$). Affective motives (Positive Affect ($M = 2.39$, $SE = .08$, CI [2.23, 2.54]) and Negative Affect ($M = 3.22$, $SE = .09$, CI [3.06, 3.40]) were significantly less endorsed than all the other motive categories (all ps $< .001$).

Figure 2.3

Endorsement of Five Clusters of Motives Emerging from PCA (Study 2.2)

A. Motives Endorsement per Source of Information



B. Principal Component Analysis items arrangement

Knowledge Items
- to learn something
- to expand my knowledge about the world
- because I was curious
- to gain insight in the human condition
- to become a wiser person
- because I wanted to know what happened
- because I believed it would be a meaningful experience

Social Utility Items
- because it was the right thing to do
- because it is my moral duty to do so
- because it was a way of helping
- to show social support
- because something like this should not be ignored

Personal Utility Items
- because a similar situation could happen to me or my loved ones
- to learn how to handle similar situations in the future

Positive Affect Items
- because I was looking for a thrill
- to feel excitement
- to relieve boredom
- to release stress
- to feel better about my own situation
- because I wanted to be provoked

Negative Affect Items
- because I felt upset
- to feel outrage
- to feel anger
- to feel sadness
- to feel moved

ANOVA also revealed a significant main effect of source of information ($F(2,430) = 6.35$; $p = .002$; $\eta_p^2 = .03$). Pairwise comparisons showed that, overall, the motives were more endorsed for cultural expressions ($M = 4.08$, $SE = .06$, CI [3.95, 4.20]) and online platforms ($M = 4.06$, $SE = .07$, CI [3.93, 4.19]) than for real-life encounters ($M = 3.91$, $SE = .06$, CI [3.78, 4.03]; $p < 0.01$). Furthermore, there was a significant main effect, $F(1,215) = 12.47$; $p < .001$; $\eta_p^2 = .06$) of the type of suffering. Overall, motives were endorsed more for situations experienced by specific social group members ($M = 4.22$, $SE = .08$, CI [4.06, 4.37]) as compared to situations where the individual suffering was not specified ($M = 3.82$, $SE = .08$, CI [3.66, 3.98]).

The two-way interactions of motive category and type of suffering ($F(2.93,629.52) = 0.85$; $p = .49$), and source of information with type of suffering ($F(2,430) = 0.79$; $p = .46$) were not significant. However, the two-way interaction between source and motive category was significant $F(6.27,1348.30) = 21.84$; $p < .001$; $\eta_p^2 = .10$. After Bonferroni correction ($\alpha_{cor} = \alpha/15$), pairwise comparisons (all ps $\leq .002$) showed that Knowledge was endorsed more for cultural expressions and online content than for real-life events; highest endorsement for Social Utility was observed for real-life events, followed by online content and followed by cultural expressions; highest endorsement for Positive Affect was observed for cultural expressions, followed by online content, and followed by real-life events; and Negative Affect was endorsed more for online content and cultural expressions than for real-life events (see Figure 2.3A). Finally, the three-way interaction of motive category, source and type of suffering was significant; $F(6.27,1348.30) = 3.74$; $p < .001$; $\eta_p^2 = .02$. After Bonferroni correction ($\alpha_{cor} = \alpha/15$), pairwise comparisons (all p's $\leq .003$) revealed that Social Utility was endorsed more for social situations than for individual situations but only for cultural expressions; Positive Affect was endorsed more for social situations than for individual situations but only in real-life events; and Negative Affect was endorsed more for social situations than for individual situations but only for real-life events. In the Supplementary Material we include further detail of the descriptives (Table SM6 for the Motives and Source interaction and Table SM7 for the three-way interaction) and plots for the three-way interaction (Figure SM2).

Discussion

The first goal of Study 2.2 was to test the robustness of the motives that emerged from the qualitative study using a quantitative approach. Based on a PCA we extracted 5 components, Knowledge, Personal Utility, Social Utility, Positive

Affect, and Negative Affect, which show considerable similarity with the results of Study 2.1. The most notable differences were that eudaimonic and epistemic items clustered together in a single component, self-relevant items clustered together in a single component, and affective items split in two separate components according to valence. When comparing endorsement between the different motives' components, we found that participants endorsed Knowledge, Personal Utility, and Social Utility significantly more than both affective components.

The second goal of Study 2.2 was to explore whether different motives were associated with different situations of suffering. Generally, the motives were endorsed more strongly for social suffering situations as compared to individual suffering situations and more strongly for online content and cultural expressions as compared to real-life events. When comparing specific motives within (combinations of) conditions we found, most notably, that Social Utility motives (e.g., helping, moral duty) were most strongly endorsed for real-life events, whereas Knowledge motives (e.g., learning, understanding) were endorsed more for cultural expressions and online content than for real-life events.

General Discussion

We investigated why people engage with the suffering of strangers. In Study 2.1, we employed a qualitative design to develop a typology of the situations of suffering that people generally engage with and to generate insight into the motives that explain this behavior. Our thematic analysis demonstrated that participants engaged with different types of suffering strangers, ranging from completely anonymous to fully identifiable individuals (e.g., emblematic cases). Participants described a vast range of situations of suffering, varying from accidents and health problems to human rights violations and war. Participants informed themselves about the suffering of strangers through different sources, including online content, real-life events, cultural expressions, conversations, and a sequential search of different sources (i.e., case follow up). The motives participants described were organized into a taxonomy that included four overarching themes: epistemic, eudaimonic, social, and affective motives. In Study 2.2, using a quantitative method, we examined the robustness of our qualitative findings by asking participants for their endorsement of these motives across different contexts of suffering and different sources of information. Five motive categories emerged from these data. Knowledge, Personal Utility, and Social Utility motives were endorsed significantly more than Positive- and Negative Affect.

A significant interaction of motives and source of information showed that Social Utility motives, such as helping and moral duty, were highly applicable to real-life situations. In contrast, Knowledge motives, including learning and understanding, were more frequently endorsed for cultural expressions and online content compared to real-life events. Below, we discuss these results in light of the existing literature, reflect on the strengths and limitations of our approach, and consider future directions.

What Kind of Suffering Do People Engage With?

Participants generated detailed accounts of situations in which they engaged with the suffering of complete strangers, in which they allocated cognitive and emotional resources to further understanding, exploring, or getting involved.

Regarding the characterization of the stranger (i.e., the *who*), our results generally suggest that even in the absence of a personal relationship, and in the presence of a large physical- or temporal distance, the suffering of strangers can be salient. The finding that people are willing to put in resources to inform themselves about the suffering of strangers connects with work on people's moral circle (e.g., a representation of beliefs about who in one's environment matters (Waytz et al., 2019). Research on moral circles has shown that strangers are usually not central to people's moral circle, but that a more inclusive moral circle has important societal and ethical implications (Anthis & Paez, 2021). The current findings suggest that complete strangers can become part of people's moral circles, at least temporarily. Future work could examine to what extent deliberate engagement with stories about suffering results in the expansion of one's moral circle, and impact awareness of injustice or prosocial action.

In some cases, participants described situations in which the suffering stranger was a famous person. This is reminiscent of the notion of parasocial relationships, in which people feel connected to media personalities and their personal lives (Dibble et al., 2016). Recently, it has been suggested that parasocial relationships can raise awareness about health issues, and even impact wellbeing by increasing social connectedness and promoting coping strategies and personal growth (Hoffner & Bond, 2022). For example, with regards to the "MeToo" movement, celebrities played an important role in creating awareness about the prevalence of sexual harassment (Cohen et al., 2021). Thus, seeking information about the hardship of celebrities may not only be driven by entertainment, but may also have an informative function.

Participants often referred to social group membership when characterizing

the stranger (e.g., children, black people). According to the Social Identity Model of Identity Change (SIMIC; Haslam et al., 2021), social group membership becomes more salient when people face life-changing events (e.g., (forced) migration, natural disasters, human rights violations; Ballentyne et al., 2021; Greenaway et al., 2015). Research has shown that people going through life changes often develop (new) social group memberships (e.g., survivors' groups, patients' associations) that help them to face and cope with the situation through a sense of community and shared experience (Greenaway et al., 2016). Although existing research in the realm of the SIMIC has exclusively focused on the first-person experience, there may be a relatively understudied role of observers or third parties in the recognition of changed identities. Indeed, the present results suggest that social identities are important aspects of the characterizations of suffering strangers.

Regarding the characterization of the situation of suffering (i.e., the *what*), people described an incredibly diverse set of situations of hardship. These varied in terms of severity, urgency, and irreversibility, but generally, and consistent with existing literature on morbid curiosity, often involved death, violence, or harm (Oosterwijk, 2017). One aspect that emerged from the data is that participants often described situations of collective or systemic suffering (e.g., war, human rights violations, race discrimination). A relevant perspective from social psychology to contextualize this finding is work on collective victimhood, or the acknowledgement of structural and/or organized violence as a result of power abuse in intergroup contexts (Vollhardt, 2020). An initial step in the recognition of collective victimhood, called factual acknowledgment, involves the recognition of the targeted group, the events, and the context. A second step, called empathic acknowledgment, entails recognizing the events as collective suffering, including the emotional consequences for the victims (Twali et al., 2020). These two initial stages of acknowledgement are processes that do not exclusively involve the perpetrators, but can also apply to society at large (e.g., in official narratives, through public memorials and commemorations, and restorative justice policies, see Twali et al., 2020). Our study prompts new questions about the role of the general public in learning and informing themselves about collective victimization, including how engaging with stories of suffering can lead to both factual and empathic acknowledgement.

Regarding the characterization of the source of the information (i.e., the *how*), our results showed a variety of ways through which people accessed the strangers' suffering. First of all, participants often described real-life events as

a way to engage with the suffering of other people (e.g., helping someone in the street, talking to other bystanders about an incident). Furthermore, online media and cultural expressions were salient sources, which resonates with work on (negative) news (Hoffner et al., 2009; Robertson et al., 2023), horror films (Andersen et al., 2020; Scrivner et al., 2022), true crime (Harrison & Frederick, 2022), sad novels (Koopman, 2015; Rozin et al., 2013), negative art (Hanich et al., 2014; Menninghaus et al., 2017), and even dark tourism (Magano et al., 2022). Our findings further indicate that some individuals exhibit a behavior we labelled "case follow-up," where they actively tracked a specific instance of suffering (e.g., an emblematic case) by gathering additional information from various sources. Previous research has identified two different information-seeking profiles that are relevant to this finding (Lydon-Staley et al., 2020). So-called hunters are characterized by targeting thematically related information, whereas so-called busybodies are characterized by a more exploratory, unstructured strategy, seeking very diverse content. Our case follow-up theme seems very similar to the hunters' profile. Further research could explore individual differences in information-seeking styles, especially in the context of engaging with situations of suffering, using methods like momentary experience sampling to uncover motives, antecedents, and outcomes in the decision-making process.

Why Do People Engage with Strangers' Suffering?

With regard to people's motives for engaging with the suffering of strangers (i.e., the *why*), the current research offers a number of insights that align with and expand existing knowledge. First, in line with accounts of curiosity and information seeking (FitzGibbon et al., 2020; Murayama, 2022), participants both spontaneously mentioned (Study 2.1) and endorsed (Study 2.2) epistemic motives for engaging with a stranger's suffering. In Study 2.2, knowledge acquisition motives were endorsed in particular for online media and cultural expressions as compared to real-life events. These findings suggest that stories about the suffering of others can offer a relevant source of information or knowledge to build (or fine-tune) a realistic model of the world (Niehoff & Oosterwijk, 2020). Moreover, many participants referenced (Study 2.1) or endorsed (Study 2.2) personal utility as a salient motive for engaging with other people's suffering. Interestingly, people both mentioned (and endorsed) that they engaged with suffering because it related to events that happened in their past or because it could provide useful information that could help them to prepare for similar negative events in the future (for a similar result see Niehoff et al., 2024). Note that the informational

value of negative content could lie in generating fine-grained predictions about how to handle future negative events (Hoemann et al., 2017), but possibly also in learning how to support or react to others experiencing negative events. In this sense, our results connect with Emotions as Social Information (EASI) theory (van Kleef, 2009), which proposes that people use the emotional expressions and experiences of others as sources of information to streamline social interactions and to inform their decisions and actions. Our results suggest that people may also inform themselves about strangers who are temporally or physically distant (or even fictional) in order to better navigate the social world.

Second, and consistent with work from media psychology (Bartsch et al., 2014), our data showed that people find eudaimonic value in engaging with the suffering of strangers. In Study 2.1 participants reflected on the deeper meaning of engaging with the suffering of other people, the insights that it could bring, or the inspiration they found in stories of resilience. Although we initially separated epistemic and eudaimonic motives based on the qualitative data, the quantitative approach in Study 2.2 suggested that motives oriented around knowledge acquisition and eudaimonia are related. This may be due to the items that we used in Study 2.2, which were primarily focused on the cognitive component of eudaimonia (e.g., meaning-making, cognitive elaboration; Raney et al., 2020), possibly blurring the lines with epistemic motives. Future work could examine how emotions associated with eudaimonia, such as hope, awe, and elevation, relate to the deliberate engagement with the suffering of strangers.

Third, in addition to self-oriented and personally beneficial motives, participants reflected on other-oriented or social motives such as helping desire, seeking social connectedness, and empathy. These social utility motives were more strongly endorsed for real-life incidents as compared to online content or cultural expressions. With regards to motives oriented around helping, examples of helping strangers were abundant in our data, aligning with recent work that the norm is that bystanders assist strangers in situations of threat (Philpot et al., 2020). Moreover, people often mentioned engaging with the suffering of strangers to feel (or because they felt) empathy (Cameron et al., 2022). Interestingly, recent research has demonstrated that people often avoid empathy in laboratory contexts, presumably because it is mentally and emotionally costly (Cameron et al., 2019). Our findings, however, suggest that in daily life, people do seek out situations that evoke empathy, and perceive empathy as a valued outcome. Moreover, our results are relevant to a long-lasting discussion in the field of empathy (Batson et al., 1981; Cialdini & Kenrick, 1976), which revolves around the question

of whether selfless altruism exists, or whether there are always traces of personal benefit when engaging with the suffering of others. According to our findings, these motives may co-exist, and people may engage with other people's suffering for both other-oriented and self-oriented reasons. It is currently an open question whether people's interest in the stories of strangers can make a difference for the people going through this hardship.

Fourth, across both studies participants referred to positive and negative affective states as reasons to engage with the suffering of other people, although this motive category was endorsed less in comparison to Knowledge, Personal Utility, and Social Utility motives in Study 2.2. Although approaching suffering may seem a counterintuitive decision, research has shown that some people seek out negative emotions for meta-emotional or hedonic purposes (e.g., feeling good about feeling bad Andrade & Cohen, 2007; Koopman, 2015; Rozin et al., 2013). Moreover, other perspectives have suggested that negative experiences can be helpful to train emotion regulation skills from a safe distance (Menninghaus et al., 2017; Scrivner et al., 2022). Interestingly, sensation-seeking, entertainment, or schadenfreude were rarely mentioned in Study 2.1 and received relatively low endorsement in Study 2.2, even though research has suggested that such concepts play a role in negative information seeking (Ouwerkerk et al., 2018; Zuckerman & Litle, 1986). One possible reason for this finding is that entertainment media related to suffering (e.g., horror movies) were not that often mentioned, so that our data may reflect an underestimation of the prevalence of entertainment-oriented motives.

Strengths, Limitations, and Future Directions

First, the evidence we collected is built upon idiosyncratic situations that participants recalled from their daily lives. This was a deliberate decision, aligned with the exploratory goal of the project to generate a rich and ecologically valid corpus of situations of suffering. Nevertheless, it is possible that people recalled events that stood out to them or were relevant to remember for reasons other than the person's suffering. Although many of the examples people gave concerned day-to-day experiences, some examples were more extreme cases or rare anecdotes of incidents. Thus, based on our data it is difficult to draw conclusions about the frequency with which people engage with the suffering of others in their daily lives. Experience-sampling methods may shed new light on this question (for an example see Grühn et al., 2008).

Second, we targeted people's own insights into their motives to engage with

situations of suffering. However, what people *think* was important for their decision may not fully cover the psychological mechanisms that drove their behavior in the moment. For example, it is possible that some motives known to drive curiosity, such as the reduction of uncertainty (Van Lieshout et al., 2020), may be more salient within the moment of decision-making as when recalling a situation sometime later. Moreover, some people may engage with suffering habitually, for example as in doomscrolling, defined as the persistent consumption of negative news (Shabahang et al., 2023). Research shows that doomscrolling can be conceptualized as a habit (Sharma et al., 2022) and may even have addictive properties (Shabahang et al., 2023). In these cases, more higher-order goals, such as eudaimonic or social motives, may be less important. Furthermore, it is possible that people were hesitant to share motives that they thought were socially undesirable. This could explain the relatively low endorsement of motives related to positive affect, including sensation-seeking motives. Taking these limitations into account, the present study derives a taxonomy of motives that captures people's perceptions of the benefits of engaging with specific situations of suffering. This taxonomy can inform hypothesis generation and methodological decisions in future research. A next step is to test how the current motives predict actual decisions to engage with material that portrays the suffering of other people (e.g., stories, movies, images) when presented in a controlled research paradigm (see Niehoff et al., 2024 for such an approach).

Third, although this research provides relevant insights into the motives that relate to decisions to *engage* with the suffering of others, our findings do not provide direct insight in the motives that people may have to ignore, avoid, or disengage with other people's suffering. Nevertheless, just as decisions to engage, these decisions may be based on the weighing of (perceived) costs and benefits (Niehoff & Oosterwijk, 2020). In relation to ignoring situations of suffering, we speculate that if people do not perceive any value or benefit of engaging with the situation, they may respond with indifference. In relation to avoiding situations of suffering, insights may be gleaned from the motivated empathy perspective which states that such avoidance occurs when the costs of engaging surpass the benefits (Cameron et al., 2018; Zaki, 2014). Similarly, people may avoid suffering when they anticipate that the emotional costs will be too high, although this relationship may not be linear. For example, recent research on negative news consumption demonstrated an inverted-U shape relationship between anticipated feelings and the likelihood of choosing to read negative COVID-19 news (Niehoff et al., 2024). In other words, both the anticipation of strong feelings, and the ab-

sence of feelings, could be related to avoidance. Finally, it is an open question to what extent a buildup of costly experiences (e.g., effort, negative emotions, empathy) may predict a switch from engagement to disengagement with the suffering of others.

Fourth, it is important to reflect on possible constrains on the generalizability of our findings to other contexts and populations. The situations of suffering shared by participants were highly idiosyncratic and tied to their specific time, place, and reality. Considering the rather large number of events that went into our analyses and the wide variation we observed in the types of events, it is reasonable to assume that the current corpus of situations and typology of motives paints a relatively comprehensive picture of (reasons to engage with) suffering situations, suggesting that the results we obtained will generalize to other contexts. Nevertheless, in Study 2.2 we found some support for the idea that the relative importance of motives can be moderated by the source of information (e.g., social motives were endorsed more for real-life events). Moreover, Study 2.1 suggested that some motives are tied to certain contexts. For example, some participants reported that they engaged with suffering to become aware of social injustice. It is an open question whether endorsement of justice-oriented motives significantly increases for particular situations of suffering (e.g., stories of police brutality; human rights violations). Furthermore, we acknowledge that although Prolific provides good-quality data (Eyal et al., 2021), it is biased toward WEIRD populations (Western, Educated, Industrialized, Rich, and Democratic; Henrich et al., 2010). More research is needed to establish the generalizability of the current findings to non-WEIRD populations.

Finally, based on our data we cannot distinguish between expected outcomes of engaging with other people's suffering and actual outcomes. For example, people might say that they engaged with a situation to learn or show social support, but it is yet unclear whether people indeed found the knowledge they sought or were able to provide social support. Future research that manipulates people's engagement with a stranger's suffering could investigate the extent to which such content indeed meets the expected goals.

Conclusion

Stories of suffering can be disturbing, distressing, or heartbreaking. Nevertheless, the present studies demonstrate that people deliberately engage with stories about a wide variety of suffering, including death, war, discrimination,

physical and mental health problems, interpersonal conflicts, and many more. When asked about their reasons, people both spontaneously mentioned and endorsed motives to learn about the world and other people's lives, to fulfill their values and moral standards, to empathize and help others, to prepare for future events, and to experience positive and negative emotions. These insights provide a stepping stone toward a better understanding of a pervasive human behavior that may be key to sustaining humane relations in our current hyper-connected world.

CHAPTER 3



Scenes of Suffering: Why Do People Choose to Engage with Emotionally Evocative Images and Stories?

This chapter is under revision as:

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Abstract

Content available in the media (i.e., social media posts, news outlets) frequently portrays emotionally evocative situations. Previous work has shown that engaging with someone else's suffering can hold epistemic, personal, social, or affective value. However, facing other people's hardship can also be cognitively and emotionally taxing. Why do people decide to view and read stories of suffering? Drawing on models of curiosity and information seeking, motivated empathy, social norms, and hedonic goals, we examined how various motives predict choices to engage with positive and negative images and stories. Using a cross-validation approach, we conducted two exploratory studies and two preregistered confirmatory studies. The exploratory studies allowed us to select and finetune a set of motives that significantly predicted engaging with emotionally evocative content, and the results from these studies informed our hypotheses for the confirmatory studies. The results robustly showed that knowledge acquisition, self-relevance, and a sense of thrill positively predicted choice for emotionally evocative content regardless of stimuli valence. Furthermore, the expectation of experiencing positive and negative emotions predicted choices to engage with and avoid emotionally evocative content, respectively, although some studies suggested interactions with valence. Crucially, the four studies consistently demonstrated a stronger relationship between uncertainty reduction and choosing negative content as compared to choosing positive content. We discuss theoretical and applied implications of the results and how they reflect the epistemic, personal, and affective value that drives the exploration of suffering.

Keywords: suffering; negative information seeking; uncertainty reduction

Scenes of Suffering: Why Do People Choose to Engage with Emotionally Evocative Images and Stories?

If you scroll on a streaming platform, a news website, or a social media feed, it is likely that you encounter emotionally evocative content. For example, you may see images or read stories that detail how other people experience adversity, injustice, or harm. Engaging with such content can be emotionally and cognitively taxing, however, these costs might be surpassed by the benefits of engaging with it (Niehoff & Oosterwijk, 2020). Interestingly, even though the media are populated with such information, our current understanding of how people value and pursue emotionally evocative content is minimal in light of its massive accessibility and consumption (Rosas & Serrano-Puche, 2018; Scheerder et al., 2017). In this research, we aim to understand people's decision-making process while choosing to engage with emotionally evocative content. Specifically, we are interested in the anticipated impact of choosing to view an image or read a story, knowing that it portrays or describes a situation in which someone is suffering.

According to the hierarchical model of approach-avoidance motivation, negative content (e.g., objects, events, or outcomes) is generally avoided as it is experienced as emotionally taxing, harmful, and undesirable (Elliot, 2006). Nevertheless, in the last 10 years, evidence has accumulated indicating that people often approach negative content (e.g., horror movies, Scrivner et al., 2023; negative news, Robertson et al., 2023; negative images, Oosterwijk, 2017; negative art, Ozbay et al., 2025). Based on these empirical findings, scholars have suggested that engaging with negative content has benefits, such as an opportunity to learn (Miller et al., 2024). More specifically, a decision to approach negative content may be the result of a cost-benefit analysis, in which people weigh perceived costs (i.e., experience negative emotions) against perceived benefits (i.e., acquire knowledge; Niehoff & Oosterwijk, 2020). The central objective of the present research is to illuminate these perceived benefits (i.e., value) by examining a set of theoretically derived motives for engaging with emotionally evocative content.

Motives for Engaging with Suffering

To inform our analysis of the value of viewing emotionally evocative content, we build on recent research on motives for engaging with the suffering of strangers. Using a combination of qualitative and quantitative methods,

this research developed a taxonomy of the perceived benefits of engaging with stranger's suffering (Vivanco Carlevari et al., 2024). This typology includes four motive' categories that reflect the value of engaging with the suffering of strangers: epistemic motives (e.g., knowledge acquisition), self-relevant motives (e.g., personal utility), social motives (e.g., anticipated compassion), and affective motives (e.g., anticipated positive and negative emotions). These motives have theoretical grounding in three different and partially interrelated fields of inquiry, namely curiosity and information seeking, motivated empathy, and hedonic goals. In the present research, we draw from and seek to contribute to each of these areas, as detailed below.

Epistemic value

Research in curiosity and information seeking, with different emphasis, highlight epistemic value as a central value of engaging with information. For example, Murayama (2022) proposed that knowledge acquisition is an intrinsically rewarding process. From a different angle, Sharot and Sunstein's (2020) model proposes that cognitive utility is a driver of information seeking, reflecting how information updates an individual's internal mental model by providing conceptual representations of the world. Other models emphasize how information seeking reduces uncertainty, thereby updating a person's internal model and adjusting prediction errors (van Lieshout et al, 2020). The reduction of uncertainty is also central to Loewenstein's (1994) information gap theory. Here curiosity is conceptualized as an information deprivation state, which arises when people become aware of unknown or missing information and seek to reduce or close the gap between what is known and not known.

Importantly, epistemic value may both capture motives associated with a momentary reduction of uncertainty evoked by a specific stimulus (i.e., what will this image look like) and motives associated with more general knowledge gain (i.e., how will this image expand my knowledge about the world). A similar distinction has been made between deprivation motives (i.e., drive to close an information gap) and discovery motives (i.e., seeking novel information; Noordewier & Van Dijk, 2020), and between the detection of an information gap and the detection of a novel context (Gruber & Ranganath, 2019). Moreover, epistemic value may also reflect an eudaimonic search for meaning, where the value of the information relies on its possibility of providing growth, virtue, and purpose (Huta & Waterman, 2014). For example, media and entertainment research indicates that negative content can promote thoughtful reflection and insight (Bartsch et al., 2014).

In the present study we aim to disentangle these theoretically relevant aspects of epistemic value (e.g., knowledge, meaning, novelty, and uncertainty reduction) and their relationship with choices to engage with emotionally evocative content. Moreover, we examine epistemic value in parallel with personal, social, and affective value that have so far received little empirical and theoretical attention.

Personal value

Several models have highlighted the role of personal value in driving information seeking. Multiple authors propose a role for instrumental value in seeking information (i.e., how information improves performance and informs personally relevant action; Abir et al., 2022; Sharot & Sunstein, 2020). For example, Dubey and collaborators (2022) demonstrated that curiosity increased when information is presented as personally useful. Similar arguments have been made for negative entertainment specifically, such as horror movies and true crime podcasts, highlighting how negative content may boost vigilance or preparedness (Hanich et al., 2014; Miller et al., 2024; Perchtold-Stefan et al., 2025). In addition to utility, self-relevance could also reflect a more general connection to people's interests, values, and concerns, similar to how personal relevance is conceptualized in appraisal models of emotion (Erdemli et al., 2024).

In the present research, we operationalize these two aspects of personal value separately – i.e., the extent to which information is useful for future action and the extent to which the information is self-relevant – to expand our understanding of how motives reflecting personal value predict choices to engage with emotionally evocative social content.

Social value

Third, in addition to epistemic value and personal value, information may have social value – social content may allow an individual to connect to others, align with norms and ideals, and navigate the social world (van Kleef, 2009). So far, this type of value has not received much attention in models of curiosity and information seeking. However, researchers in the fields of social psychology and affective science have highlighted the social benefits of engaging with emotionally evocative situations. For instance, from a motivated empathy perspective, Cameron and collaborators (2022) demonstrated that people may seek to experience empathy in certain situations because they see it as valuable, or to avoid empathy because they perceive it as effortful and costly. The value of empathy could lie in enhancing interpersonal connection, strengthening of (in)

group bonds, reaffirming moral beliefs, and securing acceptance by engaging in socially desirable behavior (Zaki, 2014). Social desirability as a motive to engage with emotionally evocative content overlaps with research on social norms, in particular how norms sustain expected ways of feeling, thinking, and acting when confronted with another person's emotions and suffering (Kossowska et al., 2023; Zheng et al., 2021).

As our research question centers on understanding why people decide to engage with emotionally evocative information, we include motives that reflect the anticipated experience of compassion (as a proxy for empathy), the fulfillment of a moral goal, compliance with a social norm, and social support intentions, to capture different aspects of social value. In this way, we expand current models of motivated information seeking by examining the potential social value of engaging with other people's emotional hardship (Ferguson et al., 2021).

Affective value

The broader notion of affective value also appears to play a role in decisions to approach or avoid emotionally evocative content. Models focusing on hedonic goals usually propose a straightforward relationship between approach behavior and positive content and avoidance behavior and negative content (Elliot, 2006). Sharot and Sunstein (2020) propose that information seeking is motivated by affective value, arguing that people seek information that evokes positive emotions, is enjoyable, and makes them feel better, and avoid information that evokes costly negative emotions or is unpleasant. Interestingly, however, other scholars have proposed that people seek out emotionally evocative content – particularly negative content – to pursue the experience of high arousal ((e.g., sensation seeking; Scrivner et al., 2023) or to experience negative emotions (e.g., benign masochism; Rozin et al., 2013). Furthermore, other theoretical work emphasizes contra-hedonic motives in seeking out negative emotions, as a way to promote or restore hedonic balance (Tamir, 2016) or to enjoy physical and emotional discomfort in a safe and controlled environment (Rozin et al., 2013).

Taken together, this work suggests that engaging with emotionally evocative information may provide affective value, but can also be experienced as costly, in the sense that it can evoke distress or negative emotions experienced as taxing (Niehoff & Oosterwijk, 2020). We operationalize different aspects of affective experience to capture both; affective value (i.e., feeling better, positive emotions, thrill) and affective costs (i.e., negative emotions), to investigate how they predict choices to engage with emotionally evocative social information.

The Current Research

The goal of the current research is to identify which motives predict choices to engage with emotionally evocative content, a question we believe is of both theoretical and practical relevance due to the prevalence of such decisions in daily life. In investigating this question, we draw on a recent typology of motives that are theoretically grounded in different literatures (Vivanco Carlevari et al., 2024). As discussed above, these motives reflect the epistemic, personal, social and affective value of engaging with emotionally evocative content generally, and suffering of strangers specifically. Importantly, this taxonomy was based on the recall of past experiences of engaging with stranger's suffering, so it remains an open question whether these motives can *predict* decisions to engage with content that portrays other people's suffering. Thus, a first contribution of the current research is to establish which of the previously identified motives predict momentary choices to engage with negative content (i.e., suffering), in comparison with engaging with positive content.

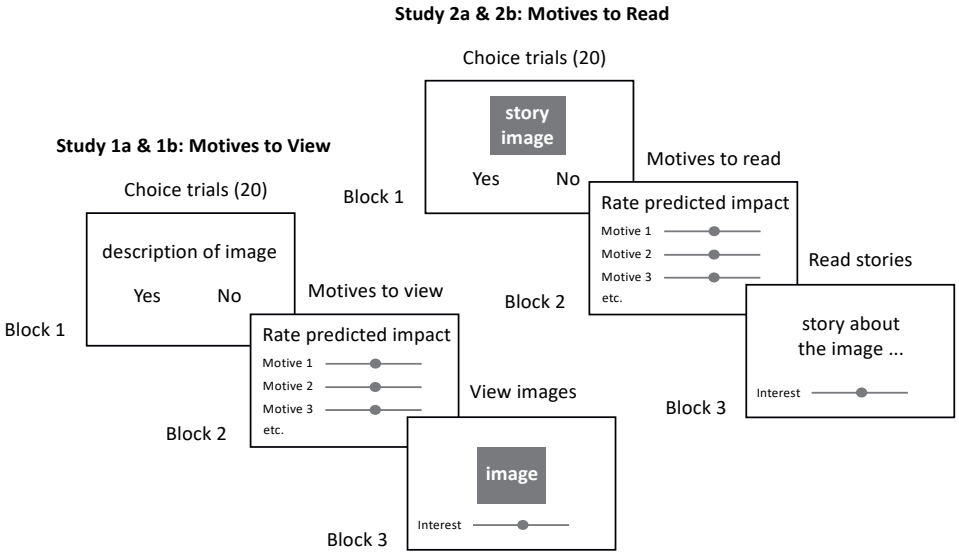
So far, motives that tap into the value of information have mostly been explored with a relatively narrow set of stimulus material. Curiosity and information seeking paradigms predominantly present participants with neutral or slightly positive stimuli (e.g., trivia questions) or stimuli representing a personal (monetary) reward or loss (Gruber & Ranganath, 2019; Kobayashi et al., 2019; Sharot & Sunstein, 2020). Although some recent work has explored how the motives forwarded by standing models of curiosity and information seeking explain negative news consumption (Niehoff et al., 2024), or information about losses (van Lieshout et al., 2021), it is unknown whether these findings can be generalized to choosing images and stories that portray emotionally evocative social situations. In the current research, we deliberately include both positive and negative emotionally evocative social stimuli to examine whether information seeking decisions with regards to these stimuli are predicted by the same or different motives. By implementing this comparison, the present work contributes to a theoretical discussion in the field of curiosity and information seeking. Can the mechanisms proposed for "general" information seeking be generalized to negative information seeking (Erdemli et al., 2024; Oosterwijk et al., 2020; van Lieshout et al., 2020), or does seeking negative *social* information involve different or additional motives (e.g., sensation seeking, Murayama, 2022) due to its specific characteristics?

In two sets of experiments with two studies each, we asked participants to

rate the anticipated impact of viewing images (Studies 3.1a & 3.1b) or reading stories (Studies 3.2a & 3.2b) that convey emotionally evocative social situations (for a similar approach see Niehoff et al., 2024). The items targeting anticipated impact are an operationalization of the above discussed motives, for example, "seeing this image/reading this story will expand my knowledge of the world" or "seeing this image/reading this story will evoke negative emotions". This set of motives was used to predict people's choices to view an image or read a story. By implementing both positive and negative evocative social information, and two different formats (i.e., stories and images), our design allows us to evaluate the consistency and robustness of the motives' predictive value across different information seeking contexts. See Figure 3.1 for a visual representation of the studies design.

The current project follows a cross-validation approach. Cross-validation refers to a family of methodological strategies that aim to enhance conceptual and methodological validity to favor prediction over explanation of statistical models (Yarkoni & Westfall, 2017). As we aim to test which theoretically informed motives predict engaging with emotionally evocative social content, we conducted two exploratory studies (Studies 3.1a & 3.2a) and two confirmatory studies (Studies 3.1b & 3.2b), one for each experimental design. Following cross-validation standards (Browne, 2000), the goal of the exploratory phase was to optimize the number and interpretability of the predictors and to generate specific hypotheses to test in the confirmatory phase. The confirmatory phase was a direct replication of the exploratory phase in which we doubled the sample size to increase statistical power (Yarkoni & Westfall, 2017).

Figure 3.1
Visual representation design.



Transparency and Openness

For each study, we report how we determined our sample sizes, explain and justify data exclusions, and describe all manipulations and measures. The studies' materials are available in the Supplementary Material. The data and analysis code will be made available at the Open Science Framework. The designs and analyses of the confirmatory studies (Studies 3.1b & 3.2b) were pre-registered.

Study 3.1a: Motives to View – Exploratory Phase

The aim of exploratory Study 3.1a was to test and optimize a model to find a reliable set of motives that predict choices to view emotionally evocative images. We measured 15 theoretically relevant motives to engage with positive and negative images in order to test both main effects and interactions with content valence. These motives reflected the epistemic, personal, social, and affective value of engaging with the image. We explored different models to reduce the number of predictors, avoid overfitting, and foster model parsimony (see Yarkoni & Westfall, 2017). We followed a combination of data driven and theory driven

reduction criteria. In the main text, we report the model chosen for the confirmatory phase (Study 3.1b); alternative models that were explored are reported in the Supplementary Material.

Method

Participants

207 participants took part in this online study, invited through Prolific. 99 identified as women, 103 as men, and 5 as non-binary/other. The mean age was 28.87 years, with a standard deviation of 8.61 years and a range of 19 to 75 years old. In terms of race/ethnicity, 10 participants identified as Asian, 56 as Black, 19 as Mix/Other, and 121 as White. The sample included people from 30 different countries (including South Africa, Portugal, Poland, among others), and 37.20% of them were students. English fluency was selected as inclusion criterion. Participants were rewarded with the equivalent of £9.83 per hour of participation and average completion time was 33 minutes. 7 participants did not pass the attention check question and were excluded from further analysis, so the final sample contained 200 participants. The local Ethics Review Board approved the protocol before data collection (project code FMG-3399). The study was run between May 30th and June 4th, 2023.

Stimuli

The study had a within subjects' design, in which participants decided if they wanted to see various positively and negatively valenced images based on a text description (i.e., cue). We selected 10 positive and 10 negative images from the People and Faces category of the Nencki Affective Picture System (NAPS; Marchewka et al., 2014) and paired them with a description. This validated set of images is widely used in affective science research (Redies et al., 2020). All of the images portrayed one or multiple individuals performing an action or expressing an emotion (e.g., a boy riding a bike for the positive condition; a girl crying for the negative condition). The range of scenes portrayed in the negative condition was inspired by the results of previous work characterizing situations of suffering (Vivanco Carlevari et al., 2024). For instance, in the negative condition we included images that presented interpersonal conflict, mental health issues, accidents, violence against LGBTQ people, human rights violations, war and natural disasters. Table SM2 in the Supplementary Material contains the NAPS codes of the images included, the corresponding descriptions used, and further details on the represented situations. The range of scenes portrayed in the positive condition was similar to the negative condition in terms of the diversity of characters

presented. For example, both conditions included scenes where the subject was an elderly person, a child, a sport's team, a family, a professional.

The stimulus set was validated through a Pilot Study. Based on the results of this pilot we selected a set of 10 positive and 10 negative image-description pairs, such that the positive and negative set differed significantly in terms of valence, and were as closely matched as possible in terms of valence intensity, arousal, and the match between the image and the description (item: "to what extent is this image more positive, more negative or equally positive/negative than what you would expect based on the description?"). A detailed report of the Pilot Study is available in the Supplementary Material.

Measures

The dependent variable of the study was choice to view, measured in a binary format (yes/no). Participants were presented with the image's description and were asked: "Do you want to see this image?".

To measure the motives, we presented 15 statements with state-like expectations about the impact of seeing the image (for a similar paradigm see Niehoff et al., 2024). These items were operationalized based on the results of previous work (Vivanco Carlevari et al., 2024). Table 3.1 presents the items and the motive category they represent. A scale was provided to rate the extent to which each item was applicable from 0- "not at all" to 100- "extremely".

Table 3.1

Motives to View Measures

Value	Motive	Item
Epistemic	Curiosity	Seeing this image will satisfy my curiosity
	Knowledge	Seeing this image will expand my knowledge about the world
	Meaning	Seeing this image will give me meaningful insight into the human condition
	Novelty	Seeing this image will show me something I have rarely seen before
	Reduce Uncertainty	Seeing this image will stop me from wondering what it may look like
Personal	Utility	Seeing this image will be useful to handle similar situations in the future
	Self-Relevance	Seeing this image will be relevant to my personal life

Social	Social Norms	Seeing this image is considered as the right thing to do
	Moral Duty	Seeing this image is my moral duty
	Social Support	Seeing this image is a way to show social support
	Compassion	Seeing this image will make me feel compassion for the people involved
Affective	Thrill	Seeing this image will be a thrill
	Feeling better	Seeing this image will make me feel better about my own situation
	Positive Emotions	Seeing this image will evoke positive emotions
	Negative Emotions	Seeing this image will evoke negative emotions

Procedure

Participants were informed that the study was about deciding whether they wanted to view images based on short descriptions. In addition, the recruitment announcement explained that the study asked participants to rate statements about these descriptions and images. A content warning was included in the announcement and the informed consent, specifying that some of the images displayed explicit negative content, such as wounds, fights, or accidents. Importantly, participants were informed that they would only see the images that they chose to see.

The study contained three blocks. In the first block, participants were presented with 20 descriptions of images. These were presented in random order, one at a time, and participants were asked if they wanted to see the described image or not. There was no time constraint to make the decision. Participants were told that they were going to see the images that they chose at a later time. In the second block, participants were presented again with the 20 descriptions one by one. For each description they were asked to rate the 15 motives items. The descriptions and items were presented in randomized order. In the third block, participants were presented with the images they chose to see and were asked to rate their experienced interest (see Supplementary Material for results regarding this measure).

Item Selection Process

The item selection process combined bottom-up (i.e., data-driven) and top-down (i.e., theory-driven) criteria including three different steps to inform our decision. Firstly, we ran a model including all the items measured and their interaction with stimuli valence (for results see Table SM5). Note that due to issues

with multicollinearity, the Curiosity item was excluded from all analyses. Secondly, we ran an Exploratory Factor Analysis to reduce the number of items (see Table SM4) and proceeded to running a second model to evaluate the consistency of the significant results with the model including all items. Thirdly, in terms of theory-driven criteria, we considered previous work proposing 5 motivational dimensions on why people engage with the suffering of strangers, namely; Epistemic, Personal Utility, Social Utility, Positive Affect and Negative Affect (Vivanco Carlevari et al., 2024). To capture the full spectrum of theoretically relevant motives we decided that the set of items in the final model needed to consider each of these dimensions. Finally, we selected the best representative items considering these two criteria. The final set of items, presented in the results section below and replicated in confirmatory Study 3.1b, included the items Knowledge and Reduce Uncertainty to measure epistemic value; the item Self-Relevance to measure personal value; the items Compassion and Social Norm to measure social value; and the items Thrill, Positive Emotions and Negative Emotions to measure affective value. For a detailed overview of the different evaluated models, please see the Supplementary Materials.

Data Analysis

To evaluate the predictive value of the motives on choice, we ran a multilevel logistic regression using the lme4 package in RStudio (Bates et al., 2015). Considering the repeated measures character and the nested structure of the data, we entered participants and image descriptions as random effects. Choice was entered as the binary dependent variable (No = 0, Yes = 1). Valence was contrast coded to target the negative condition as our domain of interest (Positive = -1, Negative = 1). The motives were standardized and grand mean centered (Yaremych et al., 2023). The model included stimuli valence and its interaction with the motives as fixed effects.

Assumptions for multilevel logistic regression were met. In terms of multicollinearity, the Variance Inflation Factor showed good levels for all predictors (VIF > 10, Myers, 1990). Two observations were excluded due to multivariate outliers (standardized residuals > 3, Dave & Varma, 2014). Finally, the relationship between the predictors and the log odds did not deviate importantly from linearity.

Results

Descriptive Statistics

On average, participants chose to view 87.4% of the positive images (M = 8.74, SD = 1.97) and 51.7% of the negative images (M = 5.17, SD = 2.85). Mean

ratings per motive item, per condition are available in the Supplementary Material (Table SM3).

Predicting Choice

The model including the selected set of items showed a significant main effect for Valence and five motives (for estimate details see Table 3.2). The main effect of Valence indicates that participants more often chose to see an image if it described a positive emotionally evocative social scene as compared to a negative one. Furthermore, Choice, irrespective of the valence of the images, was predicted by the motives Knowledge, Reduce Uncertainty, Self-Relevance, Thrill, Positive Emotions and Negative Emotions. All but one of these motives were positive predictors of Choice, such that the more people anticipated that seeing the image would provide knowledge, reduce uncertainty, be self-relevant, be thrilling, and evoke positive emotions, the higher the probability that they chose to view the image. Note that the item Knowledge showed a significant effect just below threshold ($p = .0459$), which made us less confident that this result would replicate in the confirmatory study. Negative Emotions was the only significant negative predictor, showing that the more participants anticipated that the image would evoke negative emotions, the lower the probability that they chose to view the image.

Two items showed a significant interaction effect with stimuli Valence: Reduce Uncertainty (positive images, $B = 0.51$, $SE = 0.15$, $z = 3.39$, $p < .001$; negative images, $B = 0.70$, $SE = 0.09$, $z = 7.76$, $p < .001$) and Positive Emotions (positive images, $B = 1.12$, $SE = 0.16$, $z = 7.19$, $p < .001$; negative images, $B = 0.19$, $SE = 0.17$, $z = 1.10$, $p = .27$). Specifically, there was a stronger relationship between the item Reduce Uncertainty and Choice for negative images than Choice for positive images. For the negative images, if participants scored relatively low on the expectation that viewing the image would stop them from wondering what it would look like (i.e., -1 SD below the mean score), then the probability of choosing to see the image was 37%. If participants scored relatively high on the need to see what the negative image would look like (i.e., 1 SD above the mean score) then the chances of choosing to see the image was 71%. For positive images, this range varied from 98% of probability of choosing to view the image when there is low uncertainty reduction to 99% of probability of choosing when there is high uncertainty reduction.

Table 3.2

Exploratory Study – Motives to View

Fixed Effects:	Estimate	SE	CI	z value	P(>|z|)	
(Intercept)	1.48	0.19	1.11; 1.84	7.98	< .001	*
Valence	-0.41[1]	0.14	-0.69; 0.13	-2.86	.004	*
Knowledge	0.17	0.09	0; 0.35	1.96	.050	*
Reduce Uncertainty	0.56	0.08	0.40; 0.71	7.04	< .001	*
Self-Relevance	0.22	0.08	0.06; 0.38	2.70	.007	*
Social Norm	0.17	0.09	-0.01; 0.35	1.90	.057	
Compassion	0.05	0.09	-0.12; 0.22	0.60	.551	
Thrill	0.43	0.09	0.26; 0.60	5.00	< .001	*
Positive Emotions	0.54	0.10	0.34; 0.74	5.40	< .001	*
Negative Emotions	-0.89	0.11	-1.10; -0.68	-8.35	< .001	*
Valence*Knowledge	-0.01	0.08	-0.17; 0.15	-0.11	.911	
Valence*Reduce Uncertainty	0.20	0.07	0.07; 0.33	2.93	.003	*
Valence*Self-Relevance	-0.01	0.08	-0.16; 0.14	-0.14	.893	
Valence*Social Norm	0.04	0.08	-0.12; 0.21	0.53	.596	
Valence*Compassion	0.11	0.08	-0.05; 0.28	1.33	.182	
Valence*Thrill	-0.02	0.09	-0.19; 0.15	-0.20	.842	
Valence*Positive Emotions	-0.32	0.10	-0.52; -0.11	-3.07	.002	*
Valence*Negative Emotions	-0.09	0.10	-0.29; 0.11	-0.87	.387	
Random effects:	Variance	SD				
Participant (Intercept)	2.235	1.50				
Image Description (Intercept)	0.227	0.48				

Note. SE = Standard Error. CI = Confidence Intervals. SD = Standard Deviation. * = Significant Effects.

The item Positive Emotions was only a significant predictor for positive images; there was no relationship with choosing to view negative images. The log-odds results for positive images demonstrated that the probability of choosing ranged from 91% (-1 SD) up to 99% (+ 1SD). Overall, the results of Study 3.1a

1 Note that we contrast coded condition (Negative = 1, Positive = -1). Therefore the negative estimate of this predictor shows that participants had the tendency to choose positive over negative images.

informed the hypotheses of the confirmatory stage, where we expected to replicate the findings.

Study 3.1b: Motives to View – Confirmatory Phase

Based on the exploratory phase of the project, and the theoretical insights discussed in the introduction, we formulated the following hypotheses and registered them on the website AsPredicted.org. Regarding main effects, we expected that choice to view an image would be positively predicted by positively valenced images. Furthermore, we expected that choice to view an image would be positively predicted by the extent to which viewing the image would *reduce uncertainty*; be *relevant* to one's personal life; be a *thrill*; and evoke *positive emotions*. We further expected that choice to view an image would be negatively predicted by the extent to which the image would evoke *negative emotions*. Regarding interaction effects, we expected that the positive relationship between *reducing uncertainty* and choice to view would be stronger for negative images compared to positive images. And lastly, we expected that the positive relationship between *positive emotions* and choice to view would be stronger for positive images compared to negative images.

Method

Participants

For Study 3.1b we doubled the sample size to ensure statistical power. 405 participants took part in the study and were recruited via Prolific. 204 identified as females, 193 as males and 8 as non-binary or other. Regarding age, the sample included people aged 18 to 72 years old with a mean age of 29.95 and standard deviation of 9.07 years. In terms of race/ethnicity, 9 people identified as Asian, 52 Mixed/Other, 102 Black, and 242 White. People from 41 different nationalities participated, including from South Africa, United Kingdom and Poland. 33.08% of the sample were students. We used English fluency as an inclusion criterion. Participants were paid the equivalent of £9.33 per hour and the median time of study completion was 32 minutes. Data was collected between 5th and 10th of June 2024. 22 participants (5% of the sample) did not pass the attention check question and were excluded from further analysis so the final sample contained 383 participants.

Procedure and Data Analysis

As a direct replication of Study 3.1a, the instructions and measures were iden-

tical to the original study. We ran a multilevel logistic regression with the same characteristics as for the previous study. We used Bonferroni-Holms correction to correct for multiple comparisons when evaluating the significance of the predictors (k = 8). In the Supplementary Material we report an exploratory analysis including all the motives measured (see Table SM8).

Assumptions for multilevel logistic regression were met. This included checking the correlations between the motives (all $r < 0.7$), multivariate outliers and the linearity of the relationships between the predictors and Choice. Variance Inflation Factor (VIF > 10, Myers, 1990) showed good levels for all predictors. Six observations were excluded due to multivariate outliers (standardized residuals > 3, Dave & Varma, 2014). Finally, the relationship between predictors and the outcome variable did not deviate from linearity.

Results

Descriptive Statistics

On average, participants chose to view 80.6% of positive images ($M = 8.06$, $SD = 2.51$) and 50.4% of the negative images ($M = 5.04$, $SD = 2.94$). Mean ratings per motive, per condition are available in the Supplementary Material (Table SM7).

Confirmatory Analyses

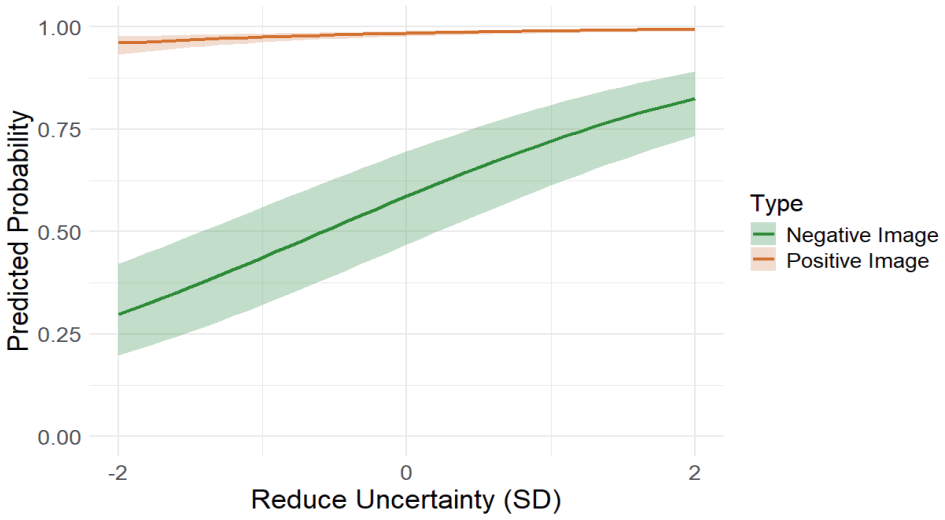
The confirmatory study yielded evidence for 8 out of 8 preregistered hypotheses derived from the theoretical arguments in the introduction and the exploratory phase of Study 3.1 (see Table 3.3 for the results). As expected, choice to view emotionally evocative images was positively predicted by Valence. Thus, participants chose to see an image more often if it described a positive scene as compared to a negative one. Secondly, as expected, choice was predicted by the items Reduce Uncertainty, Self-Relevance, Thrill, Positive Emotions, and Negative Emotions (main effects). Regarding the Uncertainty Reduction motive, the results show that the more participants believed that viewing the image would make them stop wondering what it would look like, the higher the probability of choosing to view the image. Regarding the Self Relevance motive, the results show that probability of choice increased when participants expected the image to be relevant to their personal life. Three affective motives were significant predictors of choice (e.g., Thrill, Positive Emotion & Negative Emotion). Thus, the more participants expected that the image would evoke positive emotions or a sense of thrill, the higher the probability of choosing to view. Finally, the probability of choice decreased when participants expected the image would evoke negative emotions. Importantly, these results reflect main effects, and thus, these

predictors are independent of the valence of the stimuli (i.e., across positive and negative scenes).

Furthermore, as expected, the results demonstrated two significant interactions between stimuli Valence; Reduce Uncertainty and Positive Emotions. For Reduce Uncertainty, simple effects demonstrated that the positive relationship between reducing uncertainty and choice was stronger for negative images (B = 0.60, SE = 0.07, z = 8.84, p < .001) than for positive images (B = 0.47, SE = 0.11, z = 4.31, p < .001). For the case of negative images, if participants scored relatively low on the expectation that viewing the image would stop them from wondering what it would look like (i.e., -1 SD below the mean score), then the probability of choosing to see the image was 44%. If participants strongly experienced the need to see what the negative image would look like (1 SD above the mean score) then the chances of choosing to see the image was 72%. For the case of positive images, this range varied from 97% of probability of choosing to view the image when there is low uncertainty reduction to 99% of probability of choosing when there is high uncertainty reduction. See Figure 3.2 for visual representation of this interaction.

Figure 3.2

Probability of Viewing an Image Predicted by Reduce Uncertainty and Valence



Note. Lines represent model-predicted probabilities. Shaded bands represent 95% confidence intervals based on the model's standard errors.

As expected, for the Positive Emotions item, simple effects demonstrated a significant positive relationship between positive emotions and choice to view positive images (B = 1.02, SE = 0.12, z = 8.43, p < .001) whereas this relationship was not significant when predicting choice to view negative images (B = 0.20, SE = 0.13, z = 1.69, p = .09).

Table 3.3

Confirmatory Results – Motives to View

Fixed effects:	Estimate	SE	CI	z value	P(>|z|)	
(Intercept)	1.54	0.15	1.24; 1.84	10.04	< .001	
Valence	-0.41	0.12	-0.66; -0.17	-3.33	.001	*
Knowledge	0.22	0.07	0.09; 0.35	3.36	.001	†
Reduce Uncertainty	0.51	0.06	0.40; 0.63	9.04	< .001	*
Self-Relevance	0.14	0.06	0.02; 0.26	2.26	.024	*
Social Norm	0.14	0.06	0.02; 0.26	2.21	.027	†
Compassion	0.03	0.06	-0.08; 0.15	0.57	.566	
Thrill	0.56	0.06	0.44; 0.68	8.98	< .001	*
Positive Emotions	0.53	0.07	0.38; 0.67	7.13	< .001	*
Negative Emotions	-0.78	0.08	-0.94; -0.63	-9.91	< .001	*
Valence*Knowledge	0.11	0.06	-0.01; 0.23	1.75	.080	
Valence*Reduce Uncertainty	0.17	0.05	0.07; 0.26	3.48	< .001	*
Valence*Self-Relevance	-0.10	0.06	-0.21; 0.02	-1.65	.099	
Valence*Social Norm	0.05	0.06	-0.07; 0.16	0.81	.419	
Valence*Compassion	0.01	0.06	-0.10; 0.13	0.25	.803	
Valence*Thrill	-0.12	0.06	-0.24; 0.01	-1.83	.067	
Valence*Positive Emotions	-0.34	0.07	-0.48; -0.20	-4.69	< .001	*
Valence*Negative Emotions	-0.06	0.08	-0.21; 0.09	-0.82	.412	
Random effects:	Variance	SD				
Participant (Intercept)	2.59	1.61				
Image Description (Intercept)	0.212	0.46				

Note. SE = Standard Error. CI = Confidence Intervals. SD = Standard Deviation. * = Significant effects after Bonferroni Holms correction (α/8). † = Exploratory significant effects

Exploratory Analyses

In contrast to our expectations, the motives Knowledge and Social Norm showed a significant main effect. These two predictors were not (or only just) significant in the exploratory phase of the project and therefore they were not included as hypothesized relationships in our preregistration. These two exploratory findings suggest that the more participants expected that viewing the image would expand their knowledge of the world and the more they perceived that seeing the image was considered the right thing to do, the higher the probability of choosing to view the image.

Discussion

Study 3.1b corroborated the expected relationships between motives, stimuli valence, and choice to view emotionally evocative images. Firstly, in line with the proposed idea of a cost-benefit analysis (Niehoff & Oosterwijk, 2020) and hedonic motives (Becker & Bernecker, 2023), the main effect of Valence shows that people predominantly said yes to viewing images portraying positive scenes whereas they were more selective in choosing negative scenes. Secondly, there is consistent evidence that the probability of choosing to view an image increased when it is considered self-relevant and when participants anticipate experiencing thrill. The probability of viewing an image decreased when participants anticipated experiencing negative emotions. Thirdly, the motives positive emotions and reduce uncertainty showed an interaction with stimuli valence.

Interestingly, the presence of main effects above interaction effects suggests that the motives predicting choice to view emotionally evocative social content are largely independent of valence. This finding forwards an empirical argument that curiosity for negative content (for example, violence, death or suffering) is driven by similar mechanisms as those that drive curiosity in general (Niehoff & Oosterwijk, 2020). Nevertheless, we do observe a main effect for stimuli valence, demonstrating that behaviorally, people chose to engage more often with positively valenced images than negatively valenced images.

In terms of significant interactions, the results showed that the valence of the stimuli interacted with the motives Reduce Uncertainty and Positive Emotions. In relation to the first interaction, the stronger relationship between choice and the anticipation that viewing would stop one from wondering what the image would look like may suggest that there is more uncertainty to reduce in negative stimuli compared to positive ones. It should be noted, however, that we observed a ceiling effect with regards to choice for positive images, which may have limited the

amount of variance that could be captured for positive images. In relation to the second interaction, we observed that the extent to which individuals anticipated positive emotions was a stronger predictor of choosing positive images compared to negative ones. The extent to which these results are specific to images, or transferable to other stimulus formats (i.e., stories) was tested in the next two studies.

Study 3.2a: Motives to Read – Exploratory Phase

Study 3.1 focused on the motivational dimensions that predicted decisions to view emotionally evocative images. In Study 3.2, we flipped the order of the verbal and visual stimulus as presented in Study 3.1 and asked participants if they wanted to read the story behind an image (see Figure 3.1). Text is a medium that is well-suited to convey information about other people's suffering, as is often done in literature and other textual narratives (Koopman, 2015). Moreover, choosing to read a story or text based on a visual cue mimics online content on social media platforms and various news outlets (Stöckl et al., 2020), and thus implementing this particular order may improve the ecological validity of our findings (Holleman et al., 2020). Finally, following the suggestion that the cognitive processes underlying image and text processing are qualitatively different (Zhao et al., 2020), it is important to test the robustness and generalizability of the motives predictive value when people choose to engage with emotionally evocative content in a different stimulus format.

Method

Participants

272 participants were recruited for this study through Prolific. 135 identified as female, 135 as male and 2 as non-binary/other. Sample age ranged between 18 and 68 years old, with a mean of 29.58 and standard deviation of 9.10 years. Three participants identified as Asian, 69 as Black, 155 as White and 45 as Mixed/Other. The sample included people from 31 different countries (including Portugal, Poland, United Kingdom, among others), and 25.74% of them were students. Participants were reimbursed with £8.71 per hour of participation and the mean time of study completion was 34 minutes. The Ethics Review Board approved the study design before data was collected (#FMG_7548). The study was run between February 29th and March 14th, 2024. 73 participants did not pass the attention check question and were excluded from further analysis, leaving a final sample of 199.

Stimuli

We used the same selection of images as Study 3.1 from the People and Faces category of the NAPS. We expanded the text description used in the previous study into a brief story explaining the context of the image (Story Length M = 55.65, SD = 2.64 characters). Table SM9 in the Supplementary Material contains all stories included in the study. Note that the crucial difference between the design of Study 3.1 and 3.2 is that in Study 3.1a and 3.1b participants made decisions to view an image based on a verbal cue, whereas in Study 3.2a and 3.2b, participants decided to read a story based on a visual cue.

Measures and Procedure

The block structure of Study 3.2 was identical to Study 3.1. The motive measures were adapted to be applicable to the anticipated impact of reading a story instead of viewing image (e.g., "Reading this story will expand my knowledge about the world", "Reading this story will be relevant to my personal life"; see Table SM10 in the Supplementary Material for the full list of items). Other than this change, the measures were identical to Study 3.1.

Item Selection Process

As for Study 3.1a, the main goal of the exploratory phase was to formulate a set of hypotheses to test in confirmatory Study 3.2b. In the main text we present the results of a model with the same selection of items as in Study 3.1a and 3.1b. In the Supplementary Material we report the results of analyses including all measured items and a set of items following a data-reduction process.

Data Analysis

As in Study 3.1, we ran a multilevel logistic regression model, entering stimuli valence and motives as fixed effects using lmer4 package in RStudio (Bates et al., 2015). Random effects for participant and image were entered to account for the nested character of the data. Choice to read was entered as the binary dependent variable (No = 0, Yes = 1). Valence was contrast coded to target the negative condition as our domain of interest (Positive = -1, Negative = 1). The motives were standardized and grand mean centered (Yaremych et al., 2023).

We ran assumptions test for multilevel logistic regression. These showed that Variance Inflation Factor (VIF > 10, Myers, 1990) had good levels for all predictors. The relationship between predictors and the outcome variable did not deviate importantly from linearity.

Results

Descriptive Statistics

In terms of choice patterns, participants chose to read 34.7% of the positive stories (M = 3.47, SD = 2.32), and 51.6% of the negative stories (M = 5.16, SD = 2.28). Mean ratings of motives per stimuli valence are available in the Supplementary Material (Table SM11).

Predicting Choice

The results showed a significant main effect of Valence, demonstrating a higher probability of choosing to read negatively valenced stories than positive ones (see Table 3.4 for estimate details). Interestingly, this pattern is the opposite of what we observed in Study 3.1a & 3.1b, as in those studies the probability of choice increased if the image portrayed a positive scene (we return to this in the General Discussion). Furthermore, 7 motives showed a significant main effect: Knowledge, Reduce Uncertainty, Self-Relevance, Compassion, Thrill, Positive Emotions, and Negative Emotions. Aligned with Study 3.1a and 3.1b, most of these items were positive predictors of Choice, with the exception of Negative Emotions. Thus, to the degree that the anticipation of experiencing negative emotions by reading the story was higher, the probability of choosing to read the story was lower.

Table 3.4

Exploratory Study – Motives to Read

Fixed effects:	Estimate	SE	CI	z value	P(>|z|)	
(Intercept)	-0.42	0.18	-0.77; -0.07	-2.36	.018	*
Valence	0.67	0.16	0.36; 0.97	4.22	< .001	*
Knowledge	0.20	0.06	0.07; 0.32	3.13	.002	*
Reduce Uncertainty	0.96	0.07	0.83; 1.09	14.17	< .001	*
Self-Relevance	0.15	0.06	0.04; 0.27	2.66	.008	*
Social Norm	-0.12	0.07	-0.25; 0.01	-1.75	.081	
Compassion	0.30	0.07	0.17; 0.43	4.52	< .001	*
Thrill	0.60	0.06	0.48; 0.72	9.88	< .001	*
Positive Emotions	0.54	0.08	0.39; 0.69	6.94	< .001	*
Negative Emotions	-0.35	0.08	-0.51; -0.19	-4.19	< .001	*
Valence*Knowledge	-0.07	0.06	-0.18; 0.04	-1.30	.194	
Valence *Reduce Uncertainty	0.22	0.05	0.12; 0.32	4.17	< .001	*
Valence *Self-Relevance	-0.04	0.05	-0.14; 0.07	-0.69	.490	

Valence *Social Norm	0.16	0.06	0.04; 0.27	2.71	.007	*
Valence *Compassion	0.07	0.06	-0.06; 0.19	1.04	.299	
Valence *Thrill	-0.07	0.06	-0.18; 0.05	-1.13	.259	
Valence *Positive Emotions	0.04	0.08	-0.10; 0.19	0.58	.560	
Valence *Negative Emotions	-0.05	0.08	-0.21; 0.11	-0.60	.551	
Random effects:	Variance	SD				
Participant (Intercept)	1.301	1.14				
Image Description (Intercept)	0.386	0.62				

Note. SE = Standard Error. CI = Confidence Intervals. SD = Standard Deviation.
* = Significant effects.

In terms of the interaction effects, this model showed a significant interaction between the stimuli valence and two items; Reduce Uncertainty and Social Norms. Reduce Uncertainty was a stronger predictor for choosing negative stories compared to positive stories (negative stories, $B = 1.10$, $SE = 0.10$, $z = 10.79$, $p < .001$; positive stories, $B = 0.68$, $SE = 0.09$, $z = 7.18$, $p < .001$). This interaction effect indicates that reduce uncertainty is significant predictor for choosing to read positive and negative stories but the relationship between choice is stronger for negative stories compared to positive. Social Norms was a negative significant predictor for choosing to read positive stories but not negative stories (positive stories, $B = -0.26$, $SE = 0.11$, $z = -2.32$, $p = .020$; negative stories, $B = -0.01$, $SE = 0.09$, $z = -0.12$, $p = .903$). This result demonstrates that if reading the story is considered the right thing to do, this decreased the likelihood of choice for positive stories but not for negative stories.

Study 3.2b: Motives to Read – Confirmatory Phase

The goal of Study 3.2a was to explore which of the selected motives (informed by Study 3.1a and 3.1b) predicted choices to read emotionally evocative social stories. These results subsequently informed the hypotheses of the confirmatory Study 3.2b, in which we aimed to replicate the relationships found in Study 3.2a. Based on the previous phase we formulated the following hypotheses and preregistered them on AsPredicted.org. In terms of main effects, we expected that choice to read a story would be positively predicted by the valence of the story, such that the probability of choosing to read a story was higher for negative stories than for positive stories. We expected the choice to read would be positively

predicted by the extent to which reading a story would expand *knowledge*; *reduce uncertainty*; be *relevant* to one's personal life; evoke *compassion*; be a *thrill*; and evoke *positive emotions*. We expected that choice to read a story would be negatively predicted by the extent to which the image would evoke *negative emotions*. Regarding interaction effects, we expected that the positive relationship between *reduce uncertainty* and choice would be stronger for negative stories as compared to positive stories. And lastly, we expected that the negative relationship between *social norms* and choice to read would be stronger for positive stories compared to negative stories.

Method

Participants

402 participants from Prolific took part in the study (age $M = 29.87$, $SD = 9.35$, range 18-69 years). 200 identified as females, 196 as males and 6 as non-binary/other. In terms of race/ethnicity, 19 people identified as Asian, 48 Mixed/Other, 150 Black, and 185 White. People from 53 different nationalities participated, including people from South Africa, Poland and Portugal. 38.6% of the sample were students. We also had English language fluency as inclusion criterion. Participants were paid with the equivalent of £8.86 per hour of participation and the median completion time was 36 minutes. Data was collected between July 10th – 22nd, 2024. 53 participants (13.18%) did not pass the attention check question and were excluded from further analysis. Thus, the final sample contained 349 participants. The study protocol was reviewed and approved by the Ethics Review Board prior to data collection (#FMG-7548).

Procedure and Data Analysis

The study instructions and measures were identical to Study 3.2a. In the Supplementary Material we include the results of Interest ratings and an exploratory analysis including all the motives measured.

We ran assumptions test for multilevel logistic regression. These showed that Variance Inflation Factor (VIF > 10, Myers, 1990) had good levels for all predictors. The relationship between predictors and the outcome variable did not deviate importantly from linearity. Three observations were excluded due to multivariate outliers (standardized residuals > 3, Dave & Varma, 2014).

Results

Descriptive Statistics

Participants chose to read negative stories more often than positive stories. On

average, participants chose to read 38.7% of positive stories (M = 3.87, SD = 2.82) and 55.7% of negative stories (M = 5.57, SD = 2.45). Descriptives of motives ratings per condition (See Table SM15) are available in the Supplementary Material.

Confirmatory Analyses

The confirmatory study yielded evidence for 7 out of 10 preregistered hypotheses. As expected, choice to read emotionally evocative stories was positively predicted by Valence. In contrast to Study 3.1, but consistent with Study 3.2a, participants chose negative stories more frequently as compared to positive stories. Furthermore, choice was positively predicted by the items Knowledge, Reduce Uncertainty, Self-Relevance, Thrill and Positive Emotions. Interestingly, and contrary to our predictions, the items Compassion and Negative Emotions did not reach statistical significance according to the Bonferroni-Holms correction. Table 3.5 shows the multilevel logistic regression details.

Table 3.5

Confirmatory Results – Motives to Read

Fixed effects:	Estimate	SE	CI	z value	P(>|z|)	
(Intercept)	-0.20	0.166	-0.50; 0.11	-1.26	.209	*
Valence	0.36	0.14	0.09; 0.64	2.63	.009	*
Knowledge	0.16	0.05	0.06; 0.26	3.05	.002	*
Reduce Uncertainty	0.87	0.05	0.77; 0.97	17.59	< .001	*
Self-Relevance	0.21	0.05	0.12; 0.31	4.42	< .001	*
Social Norm	0.16	0.05	0.06; 0.27	3.04	.002	†
Compassion	0.10	0.05	0.01; 0.20	2.08	.037	
Thrill	0.66	0.05	0.56; 0.75	13.72	< .001	*
Positive Emotions	0.19	0.06	0.08; 0.30	3.26	.001	*
Negative Emotions	-0.13	0.06	-0.25; 0	-1.99	.047	
Valence*Knowledge	0.05	0.05	-0.04; 0.14	0.10	.320	
Valence*Reduce Uncertainty	0.12	0.04	0.04; 0.20	2.99	.003	*
Valence*Self-Relevance	-0.06	0.04	-0.15; 0.03	-1.31	.191	
Valence*Social Norm	0.10	0.05	0.01; 0.19	2.23	.026	
Valence*Compassion	0.13	0.05	0.04; 0.23	2.75	.006	†
Valence*Thrill	-0.00	0.05	-0.10; 0.09	-0.09	.930	
Valence*Positive Emotions	-0.23	0.06	-0.33; -0.12	-4.03	< .001	†

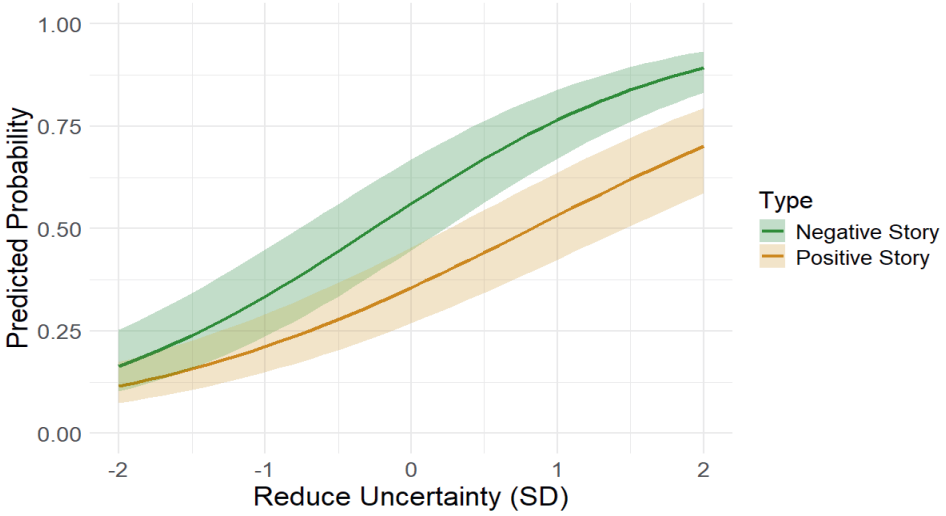
Valence *Negative Emotions	-0.17	0.06	-0.29; -0.05	-2.80	.005	†
Random effects:	Variance	SD				
Participant (Intercept)	1.68	1.30				
Image (Intercept)	0.33	0.57				

Note. SE = Standard Error. CI = Confidence Intervals. SD = Standard Deviation. * = significant effects after Bonferroni Holms correction (α/10). † = exploratory significant effects

In terms of the significant interaction, as expected and consistent with the previous studies, the item Reduce Uncertainty had a significant relationship in the expected direction (see Figure 3.3). As expected, the relationship between Reduce Uncertainty and choosing to read negative stories was stronger (B = 0.94, SE = 0.07, z = 12.79, p < .001) as compared to the relationship for positive stories (B = 0.72, SE = 0.07, z = 9.86, p < .001). Although Reduce Uncertainty is a significant predictor for choosing to read positive and negative stories, it increased the probability of choosing negative stories from 33% (-1 SD) to 76% (1 SD). Whereas for positive stories this relationships is weaker, increasing the probability of choosing from 21% (-1 SD) to 53% (1 SD). Finally, the expected interaction with Social Norm did not reach the significance threshold after Bonferroni-Holms correction.

Figure 3.3

Probability of Reading a Story Predicted by Reduce Uncertainty and Valence



Note. Lines represent model-predicted probabilities. Shaded bands represent 95% confidence intervals based on the model's standard errors.

Exploratory Analyses

In addition to relationships that were tested in confirmatory fashion, we also found several relationships that were not hypothesized beforehand. A main effect for Social Norm indicated a positive relationship with choice for emotionally evocative content, irrespective of valence. That is, if participants believed that reading a story was considered the right thing to do, the probability of choosing to read the story increased. This finding replicates the same exploratory result for Social Norm in Study 3.1b, suggesting that is a significant predictor in highly powered studies.

Although not hypothesized, the results further revealed an interaction between Positive Emotions and Valence (B = -0.23, SE = 0.06, z = -4.03, p < .001). Positive emotions positively predicted choices to read positive stories (B = 0.48, SE = 0.07, z = 6.15, p < .001) but not negative stories (B = - 0.08, SE = 0.10, z = - 0.82, p = .41). Although this interaction was not expected based on the results of Study 3.2a, this result does align with the results from Study 3.1a and 3.1b. Furthermore, a significant interaction between Negative Emotions and Valence showed that although Negative Emotions are negatively related to choice for negative stories (B = - 0.30, SE = 0.07, z = - 4.63, p < .001) there was no significant relationship with choice for positive stories (B = - 0.11, SE = 0.12, z = - 0.85, p = .40). Lastly, the interaction of Valence and Compassion showed that this was a significant predictor for negative stories (B = 0.26, SE = 0.07, z = 3.58, p < .001) and not for positive stories (B = -0.003, SE = 0.08, z = - 0.03, p = .97).

General Discussion

We investigated motives that predict choosing to view emotionally evocative social images or read emotionally evocative social stories. Through an exploratory and confirmatory phase, we tested a set of motives that reflect the epistemic, personal, social, and affective value of engaging with images and stories. In terms of the predictive value of the motives, we observed consistent main effects across the four studies. Specifically, the probability of choosing to engage with emotionally evocative images or stories increased to the degree that participants anticipated that (a) engaging with the stimulus would reduce their uncertainty about what it would be like, (b) the content would be personally relevant, (c) the stimulus would evoke positive emotions, and (d) the stimulus would evoke a thrill. Furthermore, we aimed to understand the specificities of engaging with negative compared to positive content. Across the studies we observed interaction effects

between reduce uncertainty and stimuli valence. Specifically, the expectation that engaging would reduce the uncertainty about that stimulus was a stronger predictor for choosing negative images and stories as compared to positive images and stories. Overall, the consistency of these effects across the studies points to a set of robust predictors of engaging with emotionally evocative content and underlines the relevance of epistemic, personal, and affective value in guiding these decisions.

In addition to the confirmatory findings discussed above, the four studies also demonstrated several interesting exploratory findings. First of all, knowledge acquisition –the expectation that reading the story or viewing the image would expand one's knowledge about the world – was a significant predictor of choice for all four studies, but as the *p*-value was just below threshold for Study 3.1a, we did not preregister this relationship as a hypothesis for confirmatory Study 3.1b. Second, Study 3.1a, 3.1b and 3.2a demonstrated that the probability of choosing to view an image/read a story decreased if participants anticipated that it would evoke negative emotions. This relationship did not reach significance following the Bonferroni-Holms correction for multiple comparisons in Study 3.2b, but the pattern was the same as in the other studies. Finally, the interaction between Positive Emotions and Valence was significant for three out of four studies. As it did not show significant effects in Study 3.2a, we did not include it as a hypothesis for Study 3.2b. Since these exploratory findings showed consistency across studies and are meaningful in light of the theoretical considerations discussed in the introduction, we will discuss them in more detail in the sections below.

In terms of the differences between engaging with images and stories, we found that participants chose to view positive images more often than negative images, whereas participants chose to read negative stories more often than positive stories. This pattern seemed to be driven by different choice rates for positive content, varying from 81% to 88% for images vs. 35% to 39% for stories, whereas negative content was chosen consistently between 50% to 56% across studies. The higher choice rate for positive images compared to negative images is consistent with a cost-benefit perspective of engaging with emotionally evocative content (Cameron et al., 2019; Niehoff & Oosterwijk, 2020). In the case of images, choosing to view a positive image may be relatively safe and cost-free in comparison to choosing to view a negative image (see Oosterwijk et al., 2020 for a similar argument). In the case of stories, however, participants may anticipate different costs, in particular with regards to the time-investment and mental effort (Inzlicht et al., 2018) associated with reading a story. Here, reading negative *and*

positive stories are associated with costs, which may (for some choices) outweigh the anticipated benefits and result in a refusal to read the (positive) story. These findings suggest a nuanced understanding of decisions to engage with emotionally evocative content, in which emotional and cognitive costs differ depending on the medium in which the content is presented (see also Ozbay et al., 2025).

Epistemic, Personal, Social, and Affective Value of Emotionally Evocative Content

Our findings are consistent with the idea that engaging with emotionally evocative social content provides epistemic value (Niehoff & Oosterwijk, 2020). People may decide to engage with emotionally evocative content due to the learning potential of the information acquired. Our results emphasize two separate aspects of epistemic value; how engaging with the content may close a specific information gap about the image or story and how the content may expand people's knowledge of the world.

Epistemic value may reside in the extent to which people anticipate a reduction of uncertainty when engaging with specific content. Anticipated uncertainty reduction was a significant predictor of choice across all four studies. This finding is consistent with previous empirical and theoretical work that emphasizes the role of resolving uncertainty in curiosity and information seeking in general (Hsee & Ruan, 2016; Kobayashi et al., 2019; van Lieshout et al., 2020) and curiosity for aversive content in particular (Miller et al., 2024). Interestingly, the results robustly demonstrated that this predictor has a stronger relationship with negative stimuli compared to positive ones. A possible theoretical explanation for this finding is offered by Unkelbach and collaborators (2019), who argue in their information ecology model that negative information is less frequent and more diverse than positive information. Following this notion, it is not unlikely that there is more uncertainty to resolve for negative information, because negative information is less predictable and more deviant from the default state of life. To our knowledge, this is the first empirical evidence showing that uncertainty reduction is a stronger predictor for choosing to explore negative as compared to positive stimuli.

Epistemic value may also reside in the extent to which people anticipate that they will expand their knowledge of the world when engaging with specific content. This motive may tap into what other scholars have called a discovery motive (Noordewier & van Dijk, 2020), in which people are open to explore novel content without a predefined end point (Silvia & Kashdan, 2009). Importantly, the present

work contributes to the theoretical distinction between discovery and deprivation motives for information seeking, in that expanding one's knowledge about the world and reducing uncertainty were independent predictors of seeking out emotionally evocative social content.

In addition to epistemic value, our findings demonstrate that engaging with emotionally evocative social content may have personal value. We measured two aspects of personal value: self-relevance and personal utility. Aligning with previous work (Dubey et al., 2022; Perchtold-Stefan et al., 2025; Scrivner et al., 2023) our findings showed that Self-Relevance in particular was a significant predictor of choice across the four studies. This finding resonates with classic constructivist ideas (Bruner, 1997; for a review see Rannikmäe et al., 2020); as it highlights personal experience in knowledge acquisition, learning, and meaning making processes. Personal utility, however, did not show a significant relationship with choice (see Supplementary Materials). Note, however, that we did not select our stimuli to hold actionable knowledge that can be used directly. Personal utility might predominantly show a relationship with choice when emotionally evocative content is acutely relevant to people's lives (e.g., negative COVID news during the COVID pandemic; Niehoff et al., 2024) or to people's worries or concerns (e.g., podcasts about serial killers; Perchtold-Stefan et al., 2025).

In the introduction, we proposed that engaging with emotionally evocative social content may provide social value, specifically in terms of compliance with social norms and to experience compassion. In the present work, these motives demonstrated inconsistent relationships with choice. An important methodological consideration that could explain these inconsistent findings is that social motives are more salient in real-life contexts, as previous work has demonstrated (Vivanco Carlevari et al., 2024). Perhaps the stories and images used in the present work were too disconnected from social action or affiliation, or removed from current issues in society. For example, a study performed during the COVID-19 pandemic did find that a stronger sense of moral duty was associated with an increased probability to engage with negative news about the pandemic (Niehoff et al., 2024). Future work could explore how current social and political events or other contextual specificities (e.g., a museum setting; an activism campaign) may affect the relationship between perceived social value and engagement with narratives or images of suffering. In light of the abundance of social information present in our day-to-day environment, it seems inevitable to consider whether social value should be implemented in models of curiosity and information seeking.

Finally, we found a relationship between anticipated affective value and engaging with emotionally evocative social content, specifically in terms of the anticipated experience of positive emotions and thrill. These results align with classical models where people's choices are explained by sensation seeking and arousal (Kohn et al., 1982; Zuckerman, 1990). Importantly, the presented results show that thrill is not exclusively associated with negatively valenced content, but also predict choices to view positive images and read positive stories. Experiencing positive emotions as a predictor of engaging with content aligns with perspectives that emphasize hedonic goals (Becker & Bernecker, 2023; Elliot, 2006) or maximizing the benefits and pleasantness of positive affect (van Lieshout et al., 2020). Further, our results demonstrated that the anticipated experience of negative emotions was a negative predictor of choice. That is, the probability of viewing an image or reading a story consistently decreased when participants expected it would evoke negative emotions. This result may be interpreted as one the costs of engaging with emotionally evocative content. It is an open question to what extent coping potential plays a role in the negative emotions that are evoked by emotionally evocative information that is actively sought out (Erdemli et al., 2024). A current model of curiosity explicitly incorporates coping potential, by proposing that high coping potential stimulates exploration, whereas low coping potential inhibits exploration, resulting in information avoidance (Gruber & Ranganath, 2019). Integrating these ideas with the idea of a cost-benefit analysis, people may evaluate whether they can handle the costly consequences of engaging with emotionally evocative content and choose not to view an image or read a story if they anticipate that the negative emotions are too intense to handle.

Strengths, Limitations and Future Directions

First, the stimuli used for these studies were carefully curated and pilot tested on relevant characteristics (e.g., valence, valence intensity, arousal, alignment between images and descriptions). Furthermore, the selection of negative images and stories was inspired by what participants reported in previous work on engaging with the suffering of strangers (Vivanco Carlevari et al., 2024). Moreover, with regards to both negative and positive stimuli, we aimed for a diversity of characters and actions, in terms of age, gender, and social affiliation, to create a representative selection of situations involving emotionally evocative social content. Future research could explore whether relationships between motives and choice changes with different types of situations of suffering (e.g., compare scenes of personal suffering such as accidents and health issues with societal issues

such as war and climate change), or whether the interaction between valence and uncertainty reduction is reduced when people are presented with rare or unusual positive events (e.g., winning a lottery).

Second, the current project provides insight in the extent to which epistemic, personal, and affective value increase the probability of engaging with emotionally evocative social content, including negative content, aligning with a cost-benefit perspective (Niehoff & Oosterwijk, 2020). Arguably, the results illustrate how the presence (or absence) of a perceived benefit guides people's decisions to engage with an image or story. Nevertheless, besides general affective costs (i.e., Negative Emotions) we did not measure other types of affective costs, such as anticipated discrete emotions (e.g., sadness, anxiety). Future research should address and measure these and other specific costs of engaging with emotionally evocative social content, including epistemic costs (e.g., mental effort; Inzlicht et al., 2018), personal costs (e.g., increased risk perception, Hertwig & Engel, 2016) and social costs (e.g., perceived inappropriateness, Niehoff et al., 2024).

Finally, we reflect on the constraints for generalizability of our findings, including the format and decontextualized presentation of the stimuli, and the sample. Although the significant motives were fairly consistent across the four studies, which included both viewing images and reading stories, future research could evaluate how these results generalize to dynamic stimuli (e.g., videos), sources explicitly taken from social media (e.g., Instagram), or real-life interactions (e.g., personal conversations). Moreover, the stimuli presented in the current study required an engagement of relatively short duration and did not represent a larger narrative. More extensive engagement with negative content (e.g., doomscrolling, Shabahang et al., 2023), could involve other mechanisms (e.g., habit forming) not captured by our paradigm. Moreover, decisions to engage with content sequentially may involve additional motives and/or costs. Finally, in terms of the sample, although Prolific provides valuable diversity (Eyal et al., 2021), it is biased toward WEIRD populations (Henrich et al., 2010). Therefore, it is relevant to present the current paradigm to non-WEIRD populations to examine the generalizability of our findings.

Conclusion

The aim of the work presented here was to understand why people engage with scenes of suffering. Through a series of studies, we identified a set of motives that robustly predict people's choices to engage with emotionally evocative

images and stories. Across four studies, we consistently found that people choose to view emotionally evocative images or read emotionally evocative stories when they anticipate epistemic, personal, and affective value. These findings are relevant for understanding how people select which information to attend to when they are presented with a continuous influx of stories and images about hardship. We hope the current work will provide a basis for further theory development and research that will illuminate when and why people decide to engage with other people's suffering.

CHAPTER 4



More Knowledge, More Reflection, More Uncertainty: Unpacking the Value of Viewing Images of Suffering

This chapter is in preparation as:

Vivanco Carlevari, A., Jalsovec, E., Oosterwijk, S., & van Kleef, G. A., (2026). More Knowledge, More Reflection, More Uncertainty: Unpacking the Value of Viewing Images of Suffering

Abstract

In today's hyperconnected world, information about other's suffering is omnipresent. Consuming such information is emotionally taxing and can be harmful to mental health. Still, people seek out stories and images of suffering, and internet algorithms foster exposure to such content. Why do people engage with distant others' suffering despite the emotional costs? Previous work has shown that motives to engage with negative content reflect the anticipated epistemic, social, affective, or personal value of engaging with the suffering of strangers. However, the consequences of engaging with other's suffering remain unclear. In this research, we focus on the epistemic outcomes of viewing scenes of suffering (i.e., negative social images) compared to positive and neutral social images. Across three studies, results demonstrate that although people report higher levels of negative emotions, images of suffering also provide higher levels of knowledge, meaning, and moral reflection. Whether people chose or were exposed to the images did not affect these relations. Interestingly, participants reported a higher level of reduced uncertainty for positive images, whereas participants reported more remaining uncertainty for negative images. This pattern suggests that negative social scenes leave people with a stronger lingering feeling of uncertainty (i.e., what happened in this situation?) than positive and neutral social scenes. We discuss the implications of remaining uncertainty, in particular with regards to excessive engagement with negative content (e.g., doomscrolling). These findings, while acknowledging emotional costs, highlight different aspects of the epistemic value of engaging with the suffering of strangers.

Keywords: suffering, epistemic value, meaning, moral reflection, uncertainty.

More Knowledge, More Reflection, More Uncertainty: Unpacking the Value of Viewing Images of Suffering

Engaging with suffering is costly. For example, professionals exposed to clients' or patients' pain are under a greater risk of burnout (Costakis et al., 2021). Managing other's negative emotions (e.g., emotional labor; Taube et al., 2024) can be considered a threat to mental health. From a different angle, research on doomscrolling – defined as the repetitive consumption of negative news (Rodrigues, 2022) – has demonstrated that excessive engagement with negative content online can be harmful to mental health and general wellbeing (Shabahang et al., 2023). Given the negative impact that negative content can have on wellbeing, it might be reasonable to conclude that people should stay away from it. Nevertheless, people frequently engage with negative content (Oosterwijk, 2017). In fact, people anticipate that it is valuable to engage with the suffering of other people (Vivanco Carlevari et al., 2024, 2025), for example in terms of understanding suffering or acquiring meaningful insight. It is currently an open question whether these anticipated benefits translate into actual experienced outcomes, and if so, what those outcomes signal about the value of engaging with the suffering of others. In the present work, we address this question by investigating the experienced epistemic value of engaging with the suffering of strangers.

In light of the risks and costs of engaging with information portraying suffering, one could argue that negative content is most likely avoided (Hertwig & Engel, 2016). In fact, approach-avoidance motivation models suggest a rigid link between approach tendencies towards positively valenced information, and avoidance tendencies towards negatively valenced information (Elliot, 2006). There is abundant evidence, however, against such a rigid relationship – people often deliberately choose to engage with negative content (e.g., Oosterwijk, 2017; see for an overview Niehoff & Oosterwijk, 2020). For example, people consume news (Robertson et al., 2023), videos (Redmond et al., 2019), art (Karinen et al., 2024; Ozbay et al., 2025), literature (Koopman, 2015), movies (Hanich et al., 2014), and podcasts and TV series (Perchtold-Stefan et al., 2025) that explicitly portray negative events. In line with other approaches aimed at understanding psychological phenomena in terms of motivation (Sharot & Sunstein, 2020; Tamir et al., 2020; Zaki, 2014), we propose that deliberate engagement with negative content can be understood by considering the value of engaging with such content.

Building on previous work (Niehoff & Oosterwijk, 2020; Sharot & Sunstein, 2020), we propose that the decision to engage with information (or not) involves

a cost-benefit analysis. Specifically in the case of suffering, people choose to approach if the expected benefits or value of engaging with the content surpasses the expected costs (Niehoff & Oosterwijk, 2020). Most work that has targeted people's motivations for approaching situations of suffering, in particular, has focused on the *anticipated value* of engaging with negative content (Niehoff et al., 2024; Vivanco Carlevari et al., 2025). For example, in the context of engaging with the suffering of strangers, people reflected on the epistemic, personal, social, and affective value of engaging (Vivanco Carlevari et al., 2024). This work, however, does not specify whether people also experience valuable *outcomes* when engaging with suffering. In other words, do people report experiencing epistemic, personal, social, and/or affective gains? The present study aims to fill this gap by investigating experienced outcomes of engaging with suffering as compared to neutral and positive social situations, focusing particularly on epistemic outcomes.

Experienced Outcomes of Engaging with Negative Social Information

Different lines of research have revealed that engaging with negative content can be costly, for example in terms of emotional distress or cognitive effort (Cameron et al., 2019). Other work, however, has suggested that negative content can (also) provide meaningful insight or stimulate reflective thought (Raney et al., 2020), evoke desired emotional states (Rozin et al., 2013), or have social value (Ferguson et al., 2021; Van Kleef et al., 2008). In these cases the perceived costs of engaging with negative content might be outweighed by the perceived value (Niehoff & Oosterwijk, 2020). In the current section, we provide an overview of the value of negative content. Specifically, we delve into different types of epistemic value, informed by a previously developed taxonomy (Vivanco Carlevari et al., 2024).

Epistemic outcomes reflect the knowledge and informational value that can be acquired by engaging with certain content (Murayama et al., 2019). This knowledge gain can occur at different levels of abstraction (Reed, 2016). On a concrete level, people may aim to close a specific and momentary information gap, in order to resolve the uncertainty that emerges when a missing piece of information is detected (Loewenstein, 1994). Indeed, in the context of engaging with negative content, uncertainty reduction is a strong predictor of choosing negative content (Vivanco Carlevari et al., 2025). On a more abstract level, people may seek to expand their general knowledge of the world (Murayama et al., 2019). This type

of knowledge gain would be consistent with a drive to explore and discover novel content, a drive that has been distinguished in the literature from a drive to close a concrete knowledge gap (Noordewier & Van Dijk, 2020). We argue that this type of knowledge gain is more abstract, since it reflects a generalization of knowledge to other contexts. Furthermore, this abstract knowledge gain may also include an active processing of the information by promoting insight and reflective thought (Bartsch et al., 2014). Stories of suffering may allow for a deeper reflection on the human condition, involving meaning making processes, cognitive challenge (Raney et al., 2020), and reflection on personal values and moral principles (Cameron, Conway, et al., 2022).

Why would negative content hold distinctive epistemic value, compared to positive or neutral social content? The Evaluative Information Ecology Model (Unkelbach et al., 2019) provides an explanation for why negative situations, in particular, hold epistemic value. According to this model, negative information is less frequent and more diverse than positive information. As a result negative events are less similar to each other –as they are more unique—, which could explain why people are interested in learning about negative events or experience engaging with negative content as insightful. Consistent with this idea, previous research has shown that information describing situations of suffering increased people's understanding of negative situations (Vivanco Carlevari et al., 2024). Furthermore, research on the anticipated impact of engaging with negative (and positive) content demonstrated that choices to engage were predicted by an expected reduction of uncertainty and an expansion of one's knowledge about the world (Vivanco Carlevari et al., 2025). However, it remains undetermined whether and how the expectation of reducing uncertainty translates into actual uncertainty reduction.

Besides our primary goal of examining possible epistemic outcomes of engaging with suffering, a secondary goal of the present paper is to investigate how the *type* of engagement with others' suffering impacts experienced outcomes (Vivanco Carlevari et al., 2024). Exposure to negative content can happen deliberately (i.e., when people actively seek exposure) or non-deliberately (i.e., when people passively undergo exposure). It is conceivable that actively choosing to engage with certain content (as opposed to being passively exposed to it) amplifies the impact of that content on consumers (Sharot et al., 2009). For instance, research has found that choice can boost curiosity for the outcomes of a lottery, as compared to being passively assigned to a lottery number (Romero Verdugo et al., 2023). Given the motivated nature of approaching information, we explored

whether experienced outcomes change depending on whether engagement stemmed from an active decision as opposed to passive exposure.

Current Research

The current research aims to investigate different epistemic outcomes of engaging with emotionally evocative images portraying other people's suffering. We investigated this question by comparing experienced outcomes of viewing images of suffering with images portraying positive and neutral social situations. In Study 4.1, we measured outcomes while exposing participants to negative, positive, and neutral social images (i.e., passive engagement). In Study 4.2, we sought to replicate and extend our findings by including two items tapping uncertainty-related experiences. In Study 4.3, we investigated if these outcomes were similarly affected when differentiating between passive and active forms (i.e., choice) of engagement.

Study 4.1: Outcomes of Exposure to Suffering

In Study 4.1 we conducted an initial test of the epistemic consequences of engaging with the suffering of others. Specifically, we hypothesized that negative images result in greater experienced knowledge acquisition, meaningful insight, and moral reflection as compared to positive and neutral images. We did not specify a hypothesis for uncertainty reduction; this outcome was examined exploratorily. The hypotheses, study design, and data analysis strategy were preregistered and published in AsPredicted.org before data collection.

In addition to our primary dependent variables tapping epistemic outcomes, we also included a set of secondary variables that tapped social, personal, and affective outcomes. These outcomes were included for reasons of consistency with previous research (Vivanco Carlevari et al., 2024, 2025). Given the focus on epistemic outcomes for the current research, the hypotheses, measures, and results regarding secondary outcomes are extensively reported in the Supplementary Material.

Method

Participants

An a priori power analysis for an analysis of variance (ANOVA) using G*Power (Faul et al., 2007) demonstrated that the sample should at least have 163 partici-

pants to reach an effect size of $f = 0.1$, $p\text{-value} < .05$, and power of $(1 - \beta) = 0.80$. Participants were recruited online through Prolific and completed the survey in Qualtrics. A total sample of 211 people participated in this study. This included 105 women, 104 men, and 2 non-binary/other gender participants. The mean age was 32.63 years old ($SD = 11.31$, $min = 18$, $max = 69$). In terms of ethnicity, 8 participants identified as Asian, 109 as Black, 22 as Mix/Other, and 72 as White. The sample included people of 23 different countries, including South Africa, United Kingdom, and United States. Due to the study instructions, English fluency was selected as inclusion criterion. The median completion time of the study was 31 minutes, and participants were rewarded with the equivalent of £8.67 per hour of participation. 47 participants did not pass an attention check question and were excluded from further analyses. Therefore, the final sample consisted of 164 people. The Ethics Review Board approved the study design before data collection started (project code #FMG-12512). The study was run on February 21st, 2025.

Design

Study 4.1 had a within-subjects design in which participants rated positive, negative, and neutral images (i.e., Valence condition) on self-report measures tapping experienced outcomes of viewing the images. Four items measured epistemic outcomes, reported in the main text; five items measured secondary outcomes, reported in the Supplementary Material.

Stimuli

The images used for this project were a selection from the People and Faces category of the Nencki Affective Picture System (Marchewka et al., 2014a). We paired each of the images with a short text description for the following reasons. Firstly, the descriptions made the interpersonal context of the images explicit (Greenaway et al., 2018). Secondly, the descriptions allowed participants to think about the situation *before* seeing the image. This enabled them to report on their experience of reduced uncertainty (i.e., Seeing this image satisfies my urge to know what it looks like) which depended on the creation of a knowledge gap (Loewenstein, 1994). Thirdly, this protocol is consistent with previous work on the anticipated impact of viewing emotionally evocative images (Vivanco Carlevari et al,. 2025) and allowed us to manipulate passive and active engagement in Study 4.3.

The positive and negative images and the image's corresponding text descriptions used for this study were piloted in previous work (Vivanco Carlevari et al., 2025). For the current design, we also included 10 images portraying neutral

social situations and paired them with neutral verbal descriptions (e.g., "A couple search for their hotel after the taxi left"). The negative, positive, and neutral groups of selected images significantly differed in terms of Valence ($F(2,27) = 199.8$, $p < .001$), such that positive images scored towards the positive pole (from a scale 1- very negative, to 9- very positive, $M = 7.03$, $SD = 0.13$), neutral in the middle ($M = 5.32$, $SD = 0.37$), and negative towards the negative pole ($M = 3.32$, $SD = 0.61$) of the scale. A detailed report on ratings of the images and descriptions in terms of Valence, Intensity, and Description Length, together with the image identification codes and the verbal descriptions used in this project are available in the Supplementary Material (see Table SM1).

Measures

The study included four outcome measures tapping self-reported epistemic experiences when seeing the image. The phrasing of the items was informed by previous work on epistemic motives to engage with emotionally evocative content (Vivanco Carlevari et al., 2025), cognitive components of eudaimonia (Raney et al., 2020), and moral reflection for situations of suffering (Cameron, Conway, et al., 2022). These four epistemic items were the main dependent variables of the study (for the complete item phrasing, see Table 4.1). Participants rated each of the items using a slider with a scale labelled from 0-"not at all" to 100-"extremely".

Table 4.1

Items tapping the experienced epistemic value of viewing emotionally evocative images

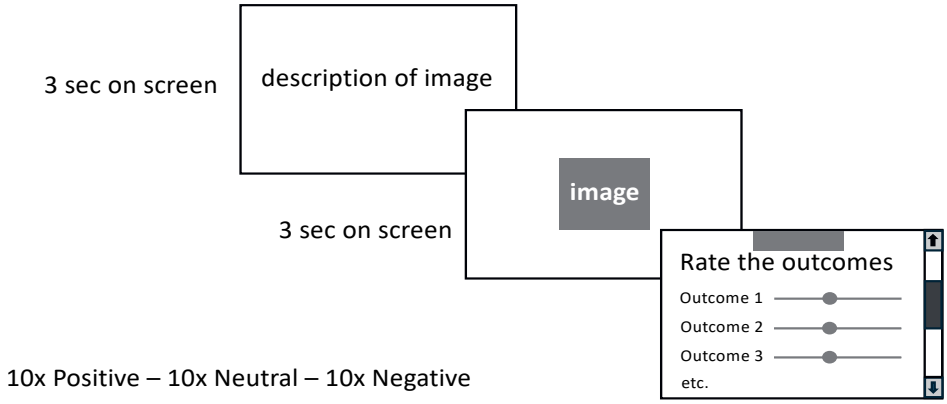
Outcome	Item
Reduced Uncertainty	Seeing this image satisfies my urge to know what it looks like
Knowledge	Seeing this image expands my knowledge about the world
Meaning	Seeing this image gives me a meaningful insight into the human condition
Moral Reflection	Seeing this image makes me reflect on my moral values

Procedure

The study recruitment text stated that participants would answer questions about their experience when viewing images. A content warning informed participants that some of the images contained emotionally evocative content and invited participants to be part of the study only if they felt comfortable engaging with such material.

Figure 4.1

Study 4.1 Protocol Design: Trial Structure – Outcomes of Exposure to Images of Suffering



The study was set up as follows. First, an image's description was displayed on the screen for 3 seconds. Then, the corresponding image was displayed for 3 seconds, followed by the outcome items on the screen below the image. The image was kept on the screen while participants completed the items, and they did not have a time constraint to do so. The items were presented in random order. The study included 30 images, 10 for each Valence condition, and were presented in random order. We included a trial as attention check question, participants were asked to place the scale in the midpoint. See Figure 1 for a visual representation of the study.

Data Analysis

The analyses were performed in RStudio using the ANOVA function from the ez package (Lawrence, 2016). The data and analysis code will be made available on OSF once the manuscript has been reviewed and published. As stated in the preregistration, we ran a repeated-measures ANOVA for each outcome measure and included the Valence condition as within factor. When appropriate, we ran pairwise comparisons with a Bonferroni correction to test the significance of differences between the Valence conditions. Effect sizes are reported using generalized eta squared, which accounts for the repeated measures structure of the data.

Results

Confirmatory Results

For the epistemic outcomes, the results supported our hypotheses. A summary of the results is presented in Table 4.2. The analyses demonstrated that participants experienced significantly higher levels of Knowledge ($F(2,326) = 38.87$,

$p < .001$, $\eta 2g = 0.02$), Meaning ($F(2,326) = 50.98$, $p < .001$, $\eta 2g = 0.03$), and Moral Reflection ($F(2,326) = 48.93$, $p < .001$, $\eta 2g = 0.04$) for negative images compared to positive and neutral images.

Exploratory Results

For the item Reduced Uncertainty we did not have a specific hypothesis ($F(2,326) = 25.33$, $p < .001$, $\eta 2g = 0.02$). The results demonstrated that participants experienced a stronger reduction of uncertainty for positive images as compared to negative andw neutral images. Negative and neutral images did not significantly differ with regards to this outcome.

Table 4.2

Study 4.1 Pairwise Comparison and Descriptives for Image Valence

Outcome	Positive *M (SD)*	Neutral *M (SD)*	Negative *M (SD)*
Reduced Uncertainty	51.06^{a} (27.84)	43.46^{b} (27.47)	42.59^{b} (31.14)
Knowledge	41.01^{a} (24.78)	37.63^{b} (26.08)	46.23^{c} (29.77)
Meaning	47.61^{a} (25.57)	43.84^{b} (27.04)	54.76^{c} (30.06)
Moral Reflection	31.08^{a} (25.49)	31.25^{a} (25.10)	42.24^{b} (33.17)

Note. *M* = Mean; *SD* = Standard Deviation; $^{a, b, c}$ = pairwise comparison using Bonferroni correction. Different superscripts refer to significant differences ($p < .05$).

Discussion

As hypothesized, Study 4.1 demonstrated that as compared to positive and neutral social images, negative images resulted in significantly higher levels of experienced epistemic outcomes, specifically Knowledge, Meaning, and Moral Reflection. Moreover, Study 4.1 revealed an interesting exploratory finding with regards to participants' experienced reduction of uncertainty. Participants reported that their "urge to know what an image looked like" was satisfied more strongly for positive images as compared to negative and neutral images; neutral and negative images did not differ significantly on this item. Previous research on the motives for engaging with emotionally evocative content demonstrated that *anticipated* uncertainty reduction predicted choice for negative images and stories more strongly than choice for positive images and stories (Vivanco Carlevari et al., 2025). The present results, examining *experienced* reduction in uncertainty when viewing an image, demonstrate that positive images are associated with the highest level of reduced uncertainty. Applying information gap theory (Loewenstein, 1994) to this finding, this suggests that the gap created by the description

of positive social scenes is fulfilled to a greater extent by seeing the image, as compared to the gap created by the description of negative and neutral scenes.

Given that negative events are more diverse and occur more infrequently than positive events (Unkelbach et al., 2019), we propose that the neutral and negative scenes have lower levels of "solved" uncertainty due to different reasons. Neutral images might be rated lower on this outcome as there was not much uncertainty (i.e., "urge to know") to resolve to begin with. In contrast, the negative images might be rated lower on the item Reduced Uncertainty, because participants experienced limited satisfaction or resolution of the uncertainty raised by the description. In other words, participants may experience a relatively high level of remaining uncertainty (e.g., How does this situation continue? What happened to the people in the situation?) when viewing a negative image. In Study 4.2, we aimed to explore this explanation empirically by separating uncertainty in two different items, one targeting Reduced Uncertainty (as measured in Study 4.1) and one targeting Remaining Uncertainty.

Study 4.2: Outcomes of Exposure to Suffering – Remaining Uncertainty

In Study 4.2, we measured the same set of outcomes as in Study 4.1, plus an item tapping remaining uncertainty. Regarding the outcomes measured in the previous study, we expected to replicate our findings. Regarding the Remaining Uncertainty item we hypothesized that participants would experience higher remaining uncertainty for negative social images, as compared to positive and neutral ones. We preregistered the hypotheses on AsPredicted before data collection.

Method

Participants

To determine the sample size, we followed the guidelines of the power analysis performed for Study 4.1. Based on this, 213 participants were recruited through Prolific and completed the online survey in Qualtrics. The sample consisted of 106 women, 102 men, and 5 non-binary/other gender participants. The sample's mean age was 30.11 years old (SD = 9.29, min = 18, max = 72 years). In terms of ethnicity, 4 participants identified as Asian, 139 as Black, 10 as Mix/Other, and 51 as White. The sample included people of 21 different countries, including South Africa, United Kingdom and United States. Due to the study instructions, English fluency was selected as inclusion criterion. The median completion time of the

study was of 37 minutes, and participants were rewarded with the equivalent of £6.37 per hour of participation. 8 participants did not pass an attention check question and were excluded from further analyses. Therefore, the final sample consisted of 205 people. The local Ethics Review Board approved the study (project code #FMG-12512). The study was run on April 14st, 2025.

Stimuli and Measures

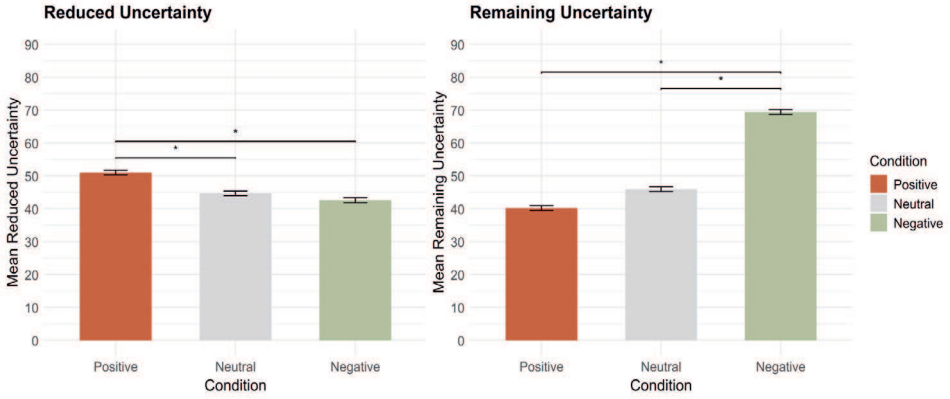
We used the same stimulus set as for Study 4.1. The outcome measures had a slight change in the phrasing to make the statements shorter. For example, the item Knowledge changed from "Seeing this image expands my knowledge about the world" as used in Study 4.1, to "This image expands my knowledge about the world". Importantly, we included a new item to measure Remaining Uncertainty. This new item stated: "This image leaves me wondering what happened in the situation". Participants rated the extent to which the statements applied to them using a slider with a scale labelled form 0-"not at all" to 100-"extremely". For the full list of items please see Table SM3 in the Supplementary Material. The procedure and data analysis was identical to Study 4.1.

Results

The results of this study consistently replicated the results from Study 4.1 and supported our hypotheses. Remaining Uncertainty ($F(2,408) = 256.46$, $p < .001$, $\eta 2g = 0.22$), was rated significantly higher for negative images compared to positive and neutral images. For the item Reduced Uncertainty ($F(2,408) = 26.59$, $p < .001$, $\eta 2g = 0.02$), the results of Study 4.1 were replicated, such that positive images were rated higher on reduced uncertainty than negative and neutral images. Figure 4.2 presents the plots of these results.

Figure 4.2

Study 4.2 Uncertainty Outcomes as a Function of Image Valence



Note. Bars represent mean levels of reduced uncertainty (left panel) and remaining uncertainty (right panel) by condition. Error bars represent ±1 standard error. Asterisks indicate statistically significant pairwise differences ($p < .05$).

Corroborating our hypotheses, negative images were rated significantly higher than positive and neutral images on Knowledge ($F(2,408) = 32.29$, $p < .001$, $\eta 2g = 0.01$), Meaning ($F(2,408) = 27.58$, $p < .001$, $\eta 2g = 0.02$), and Moral Reflection ($F(2,408) = 27.59$, $p < .001$, $\eta 2g = 0.02$). Table 4.3 presents the pairwise comparisons between images with different valence.

Table 4.3

Study 4.2 Pairwise Comparison and Descriptives for Image Valence

Outcome	Positive *M (SD)*	Neutral *M (SD)*	Negative *M (SD)*
Reduced Uncertainty	51.01^{a} (31.89)	44.67^{b} (31.30)	42.60^{c} (33.64)
Remaining Uncertainty	40.21^{a} (33.14)	45.95^{b} (33.02)	69.43^{c} (32.95)
Knowledge	42.71^{a} (27.53)	39.07^{b} (26.67)	46.42^{c} (31.41)
Meaning	48.74^{a} (29.22)	46.45^{b} (28.40)	54.90^{c} (33.00)
Moral Reflection	35.66^{a} (28.48)	35.32^{a} (26.67)	42.67^{b} (34.05)

Note. *M* = Mean; *SD* = Standard Deviation; $^{a, b, c}$ = pairwise comparison using Bonferroni correction. Different superscripts refer to significant differences ($p < .05$).

Discussion

The first goal of Study 4.2 was to replicate the findings of Study 4.1. Indeed, as predicted, we found that participants reported more experienced epistemic outcomes – specifically, knowledge acquisition, meaningful insight, and moral reflection – for negative images than for positive and neutral images. The second goal of Study 4.2 was to clarify the relationship between viewing valenced images and uncertainty. As hypothesized, participants reported that positive images satisfied their urge to reduce uncertainty more than did negative and neutral images. Furthermore, participants experienced more remaining uncertainty for negative as compared to neutral and positive social images. These results suggest that negative scenes, possibly given their less frequent and more diverse character (Unkelbach et al., 2019), leave participants wondering about the situation more than positive and neutral scenes.

Study 4.3: The Role of Choice and Exposure in the Outcomes of Engaging with Suffering

The outcomes of viewing negative social images may be different depending on how exposure occurs, with self-selected exposure potentially having a stronger influences on the outcomes than passive exposure. In Studies 4.1 and 4.2 we exposed participants to the images; that is, they could not decide which images they would see. In Study 4.3, we compared engagement through exposure with self-initiated engagement for three reasons. First of all, by implementing exposure vs. choice this work can be applied to daily life situations in which people often decide which content to engage with, for example by clicking on a headline, starting a video, or opening a comment. Second, previous research addressing the motives for engaging with suffering (e.g., Oosterwijk, 2017; Niehoff et al., 2024; Vivanco Carlevari et al., 2024, 2025), which laid the groundwork for the present project, explicitly targeted self-initiated engagement with suffering (e.g., choice). Thus, in order to draw connections between motives and outcomes, it is important to move beyond an exposure paradigm. Third, there is empirical evidence suggesting that choice can moderate experiences towards emotional material (Thuillard & Dan-Glauser, 2017) and curiosity for non-emotional content (Romero Verdugo et al., 2023). Thus, to fully understand how engaging with suffering impacts epistemic outcomes it is important to verify that the differences in outcomes between negative and positive images found in Study 4.1 and Study 4.2 hold when people deliberately choose to engage with suffering.

In Study 4.3 we used a yoked design (see also Oosterwijk et al., 2020), in which half of the participants actively chose the images that they wanted to see (choice condition), whereas the other half of the participants were exposed to a set of images chosen by a participant in the choice condition (exposure condition). In this way, we evaluated differences in the outcomes depending on active or passive engagement, while keeping the other factors (e.g., number of images seen) constant. In terms of our hypotheses, we expected to replicate the main effects of Valence with regards to the different outcomes as previously found in Study 4.1 and 4.2. The impact of choice vs. exposure on the outcome variables was examined exploratory. Nevertheless, following previous work on choice and curiosity (Romero Verdugo et al., 2023), we anticipated the possibility that choice, by boosting agency and salience, could result in higher ratings on the outcome variables. The hypotheses, study design, and analyses were preregistered and published in AsPredicted before data collection.

Method

Participants

The sample size was determined a priori through a power analysis aiming to detect a small effect size in ANOVA ($f = 0.1$; $p < .05$; $(1 - \beta) = 0.80$; G*Power calculator, Faul et al., 2007). The minimum sample size resulting from this analysis was 200, and we preregistered a sample of 250 participants. A total of 303 participants were recruited to ensure a sample of 250 eligible participants after applying our preregistered exclusion criteria. The sample was recruited through Prolific, completed the study in Qualtrics, and included 150 females, 150 males, and 3 non-binary/other gender participants. The mean age was of 38.67 years old (SD = 13.17, min = 83, max = 18). In terms of ethnicity, 9 participants identified as Asian, 101 as Black, 20 as Mix/Other, and 173 as White. The sample included people of 8 different countries, mainly from the United States (n = 215). The study median completion time was of 25 minutes and participants received a reward equivalent to £6.36 per hour of participation. 18 participants did not pass an attention check question and were excluded from further analyses (final sample n = 285). The Ethics Review Board approved the study design (project code #FMG-8142). Data was collected between May 13th and June 26th, 2025.

Design

Study 4.3 had Valence as within-subjects and Type of Engagement as between-subjects design. For the former, participants rated positive and negative images on nine self-report measures, five epistemic outcomes and five secondary

outcomes. For the latter, half of the sample was assigned to the Choice Condition and the other half to the Exposure Condition.

Stimuli and Measures

Study 4.3 only included positive and negative images. We decided to drop the neutral images to reduce the study length and simplify the study protocol. We used the same set of images and descriptions as in the Positive and Negative conditions in Studies 4.1 and 4.2. The outcomes were measured with the same set of items as in Study 4.2 (see Table SM3 for the full list of items). The results of the secondary outcomes are reported in the Supplementary Material. Participants rated each of the items using a slider from 0-"not at all" to 100-"extremely".

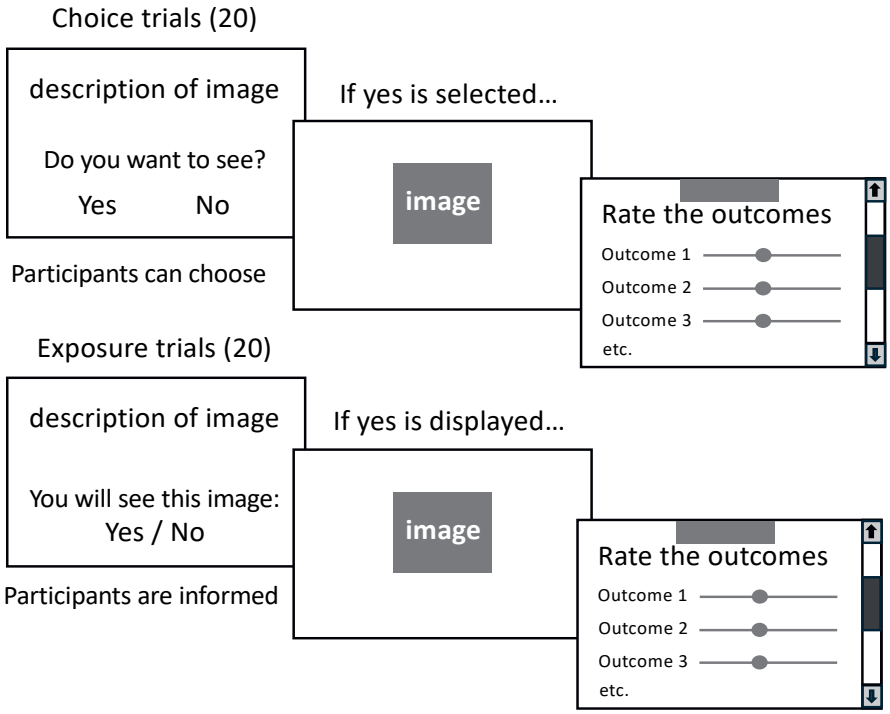
Procedure

This study manipulated choice and exposure as a between subjects condition (for the paradigm design, see Figure 4). In the choice condition participants could decide if they wanted to see an image or not. The structure of the trial for the choice condition was the following. First, the image description was presented on the screen together with the question "do you want to see this image?" and the options "Yes" and "No" below it. If participants chose yes, the next screen would present the image for 3 seconds, followed by the appearance of the outcome items below the image. Participants could rate the outcomes without a time limit. The image was kept on display while participants responded to the items. If participants chose not to see the image, the screen would present the phrase "No image" for two seconds before continuing to the next trial.

In the exposure condition participants could not choose which images to see. As this study followed a yoked design, the set of images selected by one of the participants in the choice condition was presented to a participant in the exposure condition. In this way, both groups viewed the same set of images, and the difference between conditions lies exclusively in the type of engagement. The structure of the trials for the exposure group was the following: First, the image's description was presented on the screen with the text below stating: "You will see this image:" followed by a "Yes" or a "No" (depending on the yoked pattern). Then, if assigned to view the image, the next screen would present the image for three seconds, followed by the appearance of the outcome items below the image. If participants were not assigned to see the image, the screen would present the phrase "No image" for two seconds before continuing to the next trial. For both conditions, the study consisted of 20 trials presented in random order; 10 for positive images and 10 for negative images.

Figure 4.3

Study 4.3: Between Subjects condition – Trial Structure



Data Analysis

As for the previous studies, we ran the analyses in RStudio using the base ANOVA function (aov; R Core Team, 2025). To evaluate the effect of Condition (choice/exposure) and stimuli Valence (positive/negative) we ran a separate repeated measure ANOVA for each outcome, including Condition as between factor and Valence as within factor. The analysis strategy was included in the preregistration of the study.

Results

The findings of this study supported our hypotheses. Firstly, in terms of the Valence main effect, we replicated the findings of the previous studies. Specifically, participants reported significantly higher levels of epistemic outcomes, with Knowledge ($F(1, 275) = 14.92$, $p < .001$), Meaning ($F(1, 275) = 10.99$, $p < .001$), Moral Reflection ($F(1, 275) = 38.54$, $p < .001$), and Remaining Uncertainty ($F(1, 275) = 486.91$, $p < .001$) rated higher after seeing negative social images compared

to positive. As in the previous studies, the outcome of Reduced Uncertainty ($F(1, 275) = 20.47$, $p < .001$) was rated higher for positive images compared to negative. Table 4.4 presents the descriptives per condition.

As an exploratory result, we found that two epistemic outcomes were rated significantly higher in de Choice as compared to the Exposure condition, namely Knowledge ($F(1, 283) = 5.59$, $p = .019$) and Reduced Uncertainty ($F(1, 283) = 9.02$, $p = .003$). No interactions between Valence and Condition were significant (Fs < 1.27, ps > .260).

Table 4.4

Outcomes descriptives

	Valence		Engagement type	
Outcome	Positive *M (SD)*	Negative *M (SD)*	Choice *M (SD)*	Exposure *M (SD)*
Reduced Uncertainty	59.70 (33.60)	53.70 (35.44)	61.25 (33.01)	52.62 (35.58)
Remaining Uncertainty	39.58 (34.03)	71.84 (29.75)	56.20 (36.02)	53.52 (35.72)
Knowledge	43.73 (34.41)	48.02 (33.73)	49.36 (33.92)	42.28 (34.02)
Meaning	51.74 (33.26)	55.70 (32.28)	55.85 (32.58)	51.44 (32.98)
Moral Reflection	35.55 (34.73)	43.22 (34.76)	40.41 (34.80)	37.98 (35.06)

Note. *M* = Mean, *SD* = Standard Deviation

Finally, we explored a main effect of type of engagement by aggregating the outcomes. We ran a MANOVA in R Studio for the epistemic outcomes measured and Condition as between subjects factor (e.g., Condition = Choice vs. Exposure). The results showed a significant main effect of Engagement Type ($F(5, 4595) = 19.65$, $p < 0.001$, $\eta^2 p = 0.02$). Overall, the outcomes ratings were higher in the Choice Condition ($M = 51.2$, $SE = 0.50$) compared to in the Exposure Condition ($M = 46.9$, $SE = 0.53$).

Discussion

Study 4.3 replicated the valence effects of Study 4.1 and 4.2. As predicted, the differences between negative and positive images with regards to the epistemic outcomes of Reduced Uncertainty, Remaining Uncertainty, Knowledge, Meaning, and Moral Reflection were stable across different types of engagement (i.e., exposure vs. choice). Moreover, we found some initial support for the idea that choice can boost outcomes, in particular for Knowledge and Reduced Uncertainty.

General Discussion

The present set of studies aimed to investigate differences in experienced outcomes of engaging with images of suffering as compared to neutral and positive social situations. Across three studies we found that people experienced more epistemic value when viewing negative social images. Thus, participants reported experiencing higher levels of knowledge expansion, meaningful insight, and moral reflection. As shown in Study 4.3, these findings were stable across different types of engagement (e.g., choice vs. exposure), suggesting that the higher experienced value of viewing images of suffering is consistent regardless of whether an image was chosen by the participants or just presented to them. An important novel insight forwarded by the present studies is how valenced social images impact the experience of uncertainty. Critically, we robustly demonstrated that positive social images resulted in a stronger experience of reduced uncertainty, whereas negative social images resulted in a stronger experience of remaining uncertainty. We discuss the implications of these findings in terms on how they contribute to the understanding of the value of negative content and outline the relevance of a cost-benefit analysis underlying decisions to engage with the suffering of others.

Images of Suffering and Experienced Epistemic Value

Theoretical accounts of information seeking and curiosity have highlighted the importance of uncertainty in deciding what is worth knowing (Erdemli et al., 2024; Murayama, 2022). Uncertainty in this context can be defined as the affective experience associated with the presence of an information gap (e.g., knowing that there is something that you do not know, Loewenstein, 1994). In previous research, it was observed that across different forms of content (stories and images) the desire to reduce uncertainty (e.g., know what an image would look like) was a stronger predictor for choosing negatively valenced social content compared to positively valenced social content (Vivanco Carlevari et al., 2025). In the present research, we show that reduced uncertainty measured as an outcome (e.g., whether the urge to know what the image looked like was satisfied), was reported higher for positive social images compared to negative and neutral social images. In contrast, remaining uncertainty (e.g., how the image left participants wondering what happened in the situation) was reported higher for negative social images compared to positive and neutral ones. These findings point to a paradoxical process, in which an anticipated reduction in uncertainty predicts people's decision

to engage with negative social content, but engagement does not fully satisfy this desire and leaves people with a remaining experience of uncertainty to resolve.

These results can be understood through the lens of the Evaluative Information Ecology Model (Unkelbach et al., 2019), which states that negative events are by nature different from positive events in that they are more rare and diverse. Applying this model, we propose that positively valenced social images portray situations that are common and familiar (e.g., the image of a young man excited for his first day at university) and by consequence, align more closely with people's expectations as compared to negatively valenced social images (e.g., the image of a journalist attacked while covering a protest). Negative images, by contrast, given their diversity, are more likely to evoke a "prediction error" in which the situation viewed is not in line with expectations or has such complexity that people are left wondering about the situation (e.g., What was the protest about? Who attacked the journalist? How did other people reacted? For a similar claim see (Marvin & Shohamy, 2016). This effect of heightened remaining uncertainty may help explain people's continued engagement with negative content. For example, previous work suggested that people engage with stories of suffering on different media in order to grasp the circumstances and context (referred to as "case follow up" in Vivanco Carlevari et al., 2024) or seek out information until they feel satiated (Lydon-Staley et al., 2020). Moreover, the experience of remaining uncertainty for negative information could increase the likelihood of further engagement with such content. This loop could be the mechanism that explains why people engage with such content (e.g., negative news) excessively (Shabahang et al., 2023) and potentially be exploited by platform's algorithms to incentivize engagement.

Besides the uncertainty outcomes, the results demonstrated that negative social images led to higher levels of knowledge expansion, although the difference with positive social images was not large. These results align with the idea that negative events form a stronger and more lasting impression than positive events (Baumeister et al., 2001; Ito et al., 1998) and may offer information that is relevant to avoid threats and foster survival (Scrivner et al., 2021). In this sense, viewing an image of a journalist attacked while covering a protest could update relevant knowledge, potentially applicable to different contexts. Thus, the information gained from a negative image might extend to other similar situations and expand people's internal model of the world (Van Lieshout et al., 2020).

Moreover, we found that negative social images evoked more meaningful insight than positive and neutral social images. This result supports perspectives

in media psychology that emphasize the importance of moving beyond hedonic experiences and also consider eudaimonic experience when understanding people's decisions to engage with negative media content (Oliver & Raney, 2011; Raney et al., 2020). In the example of the journalist being attacked while working in a protest, the image could evoke reflections on journalists bravery, or the threat associated to standing up against status quo, denouncing power structures, and the likelihood of acting in a similar way. Our findings point to a specific aspect of eudaimonic experience, namely insight into the human condition, generally seen as a cognitive aspect of eudaimonic experience, together with concepts such as cognitive challenge and mental elaboration (Oliver, 2022; Oliver & Raney, 2011). Altogether, content portraying suffering might evoke self-transcendent processes, stimulating meaningful reflections on what it means to be human.

In line with the idea that negative content can lead to meaningful insight is the finding that negative images evoked higher levels of moral reflection. The negative social images in our stimulus set portrayed different types of negative events, so it is an open question what participants reflected on specifically. Applying the Theory of Dyadic Morality, which posits that moral judgement is causally and bi-directionally linked to the perception of harm (Schein & Gray, 2018), seeing an image with a concrete moral violation (e.g., someone being attacked due to their sexual orientation) would evoke moral reflection by the identification of a harm agent (e.g., who is the violent attacker) and a victim. If there is not an explicit harm agent (e.g., the suffering is caused by a flood) then the image might evoke moral reflection for the overarching environmental context (e.g., climate change) or the reactions of others to the event (e.g., responses from politicians or the community to flood). In the case of the journalist image, this scene could evoke reflections on freedom of press and speech, the rights to protests, the importance of protecting these values, among others reflections. Specifying the exact content of people's moral reflection may be an important avenue for further research since moral reflection could be a precursor to prosocial outcomes (Lim & DeSteno, 2016) such as moral expansion (Cameron, Conway, et al., 2022).

Strengths, Limitations, and Future Directions

Our work offers a novel approach, unpacking different aspects of epistemic value. We propose that epistemic value can be experienced as 1) an immediate outcome, tied to reducing uncertainty about specific content; 2) an outcome at a higher level of abstraction, tied to expanding generalizable knowledge beyond the specifics of the content; and 3) an outcome involved with the active proces-

sing and reflections evoked by the informational value, tied to meaning making processes and moral reflections evoked by the content. These three different aspects of epistemic value can serve as a bridge to integrate largely separate areas of research from the field of curiosity and information seeking (Murayama, 2022; Niehoff & Oosterwijk, 2020), media psychology (Bartsch et al., 2014; Oliver, 2022), and existential and positive psychology (Loeffler et al., 2018; Peltomäki, 2023).

In terms of limitations, questions remain regarding the generalizability of our results, considering the study design and the samples used. Although we carefully selected and pre-tested our stimulus material, our results are specific to a relatively brief presentation of static images. Future research could explore how epistemic value is affected by dynamic or verbal stimuli (e.g., videos or social media posts) or by stimuli that are highly personally relevant or related to a salient societal event or issue (e.g., war, police brutality). Considering that our studies are computer-mediated, another question is whether in-person interactions would produce similar or different outcomes of engagement with suffering (e.g., in the context of a community going through hardship or wider national events that are not (entirely) mediated by online interactions (Vine & Greenwood, 2022)). In terms of the sample, although Prolific offers valuable diversity (Eyal et al., 2021), it is skewed towards WEIRD populations (Henrich et al., 2010). Thus, it is important to present the current paradigm to non-WEIRD populations to assess the generalizability of our findings. Moreover, future research could follow existing calls from affective science to examine how different levels of context (e.g., individual differences, situational factors, cultural factors) and their interaction impact the experience, expression, and function of emotions (Greenaway et al., 2018). For example, by evaluating the interaction of the viewer's identity and the individual suffering (individual level); by testing differences in experienced outcomes according to the sources of information of the stimuli (situational factors); and by evaluating potential cultural differences on how images of suffering impact the experienced outcomes (cultural factors).

Our design included measures of experienced outcomes following a brief presentation of narratively disconnected stimuli. This leaves interesting directions for future research. One question is how temporal dynamics affect the experience of these outcomes. For instance, prolonged engagement with negative content (e.g., doomscrolling, Shabahang et al., 2023) could be investigated through experience sampling. Furthermore, future research could investigate how experienced outcomes inform, change, or update motives for engaging with subsequent content (either narratively connected or disconnected), serving as input in a de-

cision-making cycle. Another emerging question is how experienced outcomes translate into more objective outcomes. For example, is self-reported knowledge gain reflected in memory performance or knowledge use in a new context? Does experienced moral reflection translate into altruistic behavior, moral expansion, or other prosocial effects that go beyond intention (Dablander et al., 2025)? These future lines of inquiry may yield a better understanding of the positive consequences of engaging with the suffering of others, sustained in time, and with concrete implications for social interactions.

Conclusion

By unpacking the value of engaging with suffering, we aimed to add nuance to the link between approach-avoidance motivation and stimulus valence (Elliot, 2006), aligning with examples in daily life that demonstrate that people voluntarily approach negative content. Through a series of studies, we consistently demonstrated that negative social images foster higher levels of experienced knowledge acquisition about the world, insight into the human condition, and reflection on moral values, as compared to positive and neutral social images. At the same time, however, negative social images leave people wondering about the negative situation portrayed. This suggests that engaging with negative content may not only be costly, but also feeds knowledge, thoughts and reflections, while concurrently raising new questions. In the current times, where information is omnipresent and often entwined with social life (Khanna, 2025) these insights may be important to find a balance between promoting and discouraging engagement with suffering depending on needs and resources.

CHAPTER 5



General Discussion

Engaging with the suffering of others is emotionally and cognitively costly (Cameron et al., 2019; Niehoff & Oosterwijk, 2020). In line with this notion, traditional motivation theories have proposed that humans would generally avoid negative content (Elliot, 2006). But real life shows otherwise, as people actively seek out, through different modalities, content portraying suffering (Oosterwijk, 2017). The present dissertation aimed to investigate why people engage with the suffering of strangers. We unpacked this question in three sub-questions: What value do people see in engaging with others' suffering? What motives predict engaging with others' suffering? And what are the outcomes of engaging with others' suffering? These questions allowed us to investigate deliberate engagement with suffering as a motivated decision that carries both costs and benefits. In this chapter, I summarize the main findings, followed by a reflection on the theoretical and practical implications of the results, and ending with a discussion of the strengths and limitations of this work.

Overview of Main Findings

The first sub-question, addressed in Chapter 2, aimed to reveal people's personal reflections on the value of engaging with the suffering of strangers. Through a mixed methods design, we developed a taxonomy of motives for why people engaged with situations of suffering. According to this taxonomy people engage with stranger's suffering because they seek informational value (e.g., to learn, to know, or to understand), anticipate personal utility (e.g., to prepare themselves, to protect their loved ones, or because they experienced a similar situation), anticipate social utility (e.g., to feel empathy and compassion, to help, or because it was the right thing to do), or to seek a positive or negative emotional experience (e.g., to feel better about themselves, to relieve boredom, or because they were angry). In addition, this work gave insight into the different types of situations of suffering that people deliberately engaged with. The situations of suffering included a wide range of events, from simple, mundane and ordinary misfortunes (e.g., someone's pet passing away or a crying child in a playground) to unusual, irreversible, and severe instances (e.g., someone's unexpected death or the consequences of a rare disease). Regarding this diversity of situations of suffering, we conceptualize a continuum that ranges from individual suffering (e.g., instances that primarily affect an individual, such as an accident or an interpersonal conflict) to social suffering (e.g., instances that reflect systematic violence with political, economic, cultural connotations, including war, terror attacks, and human

rights violations. For a detail conceptualization of social suffering see Renault, 2010; Wilkinson & Kleinman, 2020). The data further revealed that people differed in their characterizations of the stranger, varying from completely anonymous (e.g., someone suffering), to specifying demographic information such as gender (e.g., a woman), age (e.g., a child), ethnic background (e.g., a black person), or social group membership (e.g., a homeless person), to fully identified emblematic cases (e.g., George Floyd). Furthermore, the sources of information included multiple modalities by which people accessed stories of suffering, such as online content, witnessing real-life events, and cultural expressions (e.g., the arts, movies, books, among others). This first empirical approach to the research question enriched our understanding of the different types of situations of suffering people engaged with and their reasons to do so, and informed the methodological decisions regarding the relevant contexts of suffering for the following chapters.

The second sub-question, addressed in Chapter 3, had as primary goal to test which motives –derived from the taxonomy—, predict choices to engage with negative content (e.g., images and stories of suffering). For this set of studies we included scenes of suffering as well as positive social scenes, to evaluate how motives predict engagement with emotionally evocative content. We tested the motives by framing them as the anticipated impact of viewing an image or reading a story. For example, we asked participants to rate "seeing this image will expand my knowledge of the world" or "reading this story will be relevant to my personal life". Through an initial exploratory phase, we selected a set of motives that predicted the probability of engaging with emotionally evocative content. The subsequent confirmatory phase, sought to replicate and evaluate the robustness of these findings. The confirmatory results demonstrated that, regardless of the valence of the content, the likelihood of choosing to engage increased if participants perceived that seeing an image or reading a story would reduce their uncertainty about the content or expand their knowledge about the world (e.g., epistemic motives). Furthermore, the likelihood of seeing an image or reading a story increased if the image or story was perceived as self-relevant (e.g., personal motive), and if the content would evoke positive emotions or a sense of thrill (e.g., affective motives). The probability of choosing an image or story decreased when people anticipated that it would evoke negative emotions. Note that the data suggested that the choice to engage increased if it was considered the right thing to do (e.g., social motive) but this was an exploratory result in the highly powered studies (e.g., Studies 3.1b & 3.2b). Interestingly, all of these results reflect main effects, in that they predicted engagement with images and stories, irrespective

of valence. This suggests that similar anticipated benefits drive choices to engage with positive and negative emotionally evocative content. One predictor consistently interacted with stimulus valence across the four studies of this Chapter: uncertainty reduction2. This interaction effect indicated that uncertainty reduction was a stronger predictor for engaging with negative emotionally evocative content compared to positive emotionally evocative content. Crucially, this interaction was consistent across the exploratory and confirmatory phase and across different stimulus modalities (e.g., images and stories).

Regarding the third sub-question, addressed in Chapter 4, we sought to investigate the experienced outcomes of engaging with suffering (e.g., images of suffering) and compared them to positive and neutral social images. The outcomes measured in this project were derived from the taxonomy elaborated in Chapter 2, focusing the report on the epistemic outcomes. The results of this project demonstrated that people experienced higher levels of knowledge, meaning, moral reflection, compassion, and negative emotions when viewing negative social images compared to viewing positive and neutral social images. Interestingly, participants experienced higher levels of uncertainty reduction (e.g., "This image satisfies my urge to know what it looks like") for positive social images compared to negative and neutral images. This finding is particularly interesting in light of the results from Chapter 3, which demonstrated that *anticipated* uncertainty reduction was a stronger predictor for negative images than positive ones. But in Chapter 4, from the angle of experienced outcomes, we observed that once people view an image, the *experienced* reduction of uncertainty is higher for positive images than negative ones. Furthermore, participants reported experiencing higher levels of *remaining* uncertainty for negative social images compared to positive and neutral ones. This suggest a potentially paradoxical effect in which people are motivated to reduce uncertainty when they choose to engage with negative content, but possibly realize once engagement has occurred that the content raises more questions than it answers. The dynamics between motives to engage (anticipated impact) and experienced outcomes (actual impact), and how comparing these may drive subsequent engagement, is an important direction for future research. Finally, we observed that the effect of valence on experienced outcomes was not largely affected by type of engagement. We included two conditions, one in which participants could actively choose to engage with the content (e.g., choice) and one in which participants were passively exposed to

2 Note that Positive Emotions also interacted with image valence but only in the Image Studies (Studies 3.1a and 3.1b) but not in the Stories Studies (3.2a and 3.2b).

the content (e.g., exposure). Across the outcomes measured, the experience was slightly stronger for the choice condition compared to the exposure condition although this effect was an exploratory result with a small effect size.

Figure 5.1

Main Results Overviewvs of the Empirical Chapters

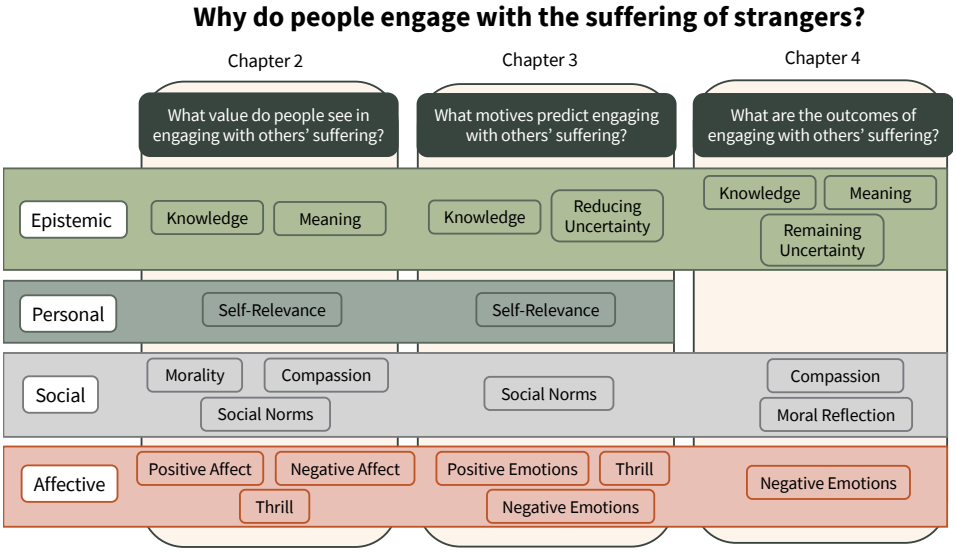


Figure 5.1 represents an overview of the sub-questions and a summary of the main findings of each chapter. Each chapter allowed us to investigate why people engage with the suffering of strangers from a different angle: by focusing on people's personal experiences and reflections; by examining how motives predict choices to view images and read stories in the moment; and by comparing valuable experiences when engaging with scenes of suffering as compared to positive and neutral social scenes. As represented in the figure, the findings of each chapter are largely consistent. Independent of methodology, engaging with the suffering of strangers is associated with epistemic, social, and affective impact. People see value in engaging with the suffering of distant others'. Engaging with suffering can give people an opportunity to understand an uncertain situation, learn about the world, or experience meaningful insight. Engaging with suffering can be experienced as personally relevant. Engaging with suffering can allow people to connect with others, experience compassion, confirm a social norm, or reflect on their moral values. Engaging with suffering stirs emotions, sometimes positive, sometimes unpleasant and costly. In the following section I will discuss

the theoretical implications of these main findings, reflecting on the strengths and limitations of this work, and outline future directions.

The Value of Engaging with Stranger's Suffering: Theoretical and Practical Implications

Curiosity for Suffering and Epistemic Value

Why do people engage with suffering? Because they are motivated to learn about the world. The epistemic value of engaging with suffering can refer to different aspects; such as a momentary and context-specific reduction of uncertainty, or a more abstract expansion of knowledge about the world. The findings of the present dissertation are consistent with current models of information seeking and curiosity (Murayama, 2022; Niehoff & Oosterwijk, 2020; Sharot & Sunstein, 2020) and suggests that the mechanisms proposed for regular curiosity and information seeking may also apply to curiosity for negative content.

First of all, content that portrays suffering may hold relevant and useful knowledge. In this sense, engaging with such situations could provide instrumental utility to understand the world and get prepared to future events (Sharot & Sunstein, 2020). Learning about life, including its negative aspects, could be an intrinsically rewarding experience. From a neuroscientific perspective, evidence has consistently shown that knowledge acquisition activates dopaminergic and reward systems in the brain (Gruber & Ranganath, 2019; Murayama, 2022; Oosterwijk et al., 2020). The results of this dissertation expand and complement these findings by showing that people do anticipate, seek, reflect on, and report epistemic value when engaging with the suffering of strangers. This investigation demonstrates that curiosity for suffering cannot be reduced to exploiting a morbid experience for sensation seeking (Zuckerman & Litle, 1986). The findings acknowledge that learning about suffering is valuable as learning about negative life events and understanding the world we live in is important, useful and therefore, rewarding.

Second, situations of suffering may evoke uncertainty that people are motivated to reduce. When seeing a headline that involves suffering (e.g., as often happens in the news or on social media) people may experience an information gap (Loewenstein, 1994) and wonder how severe the situation is, what it looks like, where it exactly happened, how it can be solved, and what the consequences are. Reducing uncertainty and seeking to close this information gap allows them

to update their world model in order to make better future predictions about the state of the world (van Lieshout et al., 2020). Interestingly, the findings of this dissertation demonstrate that engaging with suffering may leave people with more questions. This result aligns with Murayama's (2022) reward-learning knowledge acquisition framework which posits that acquiring knowledge by closing an information gap can raise new questions and make people aware of new information gaps. In other words, acquiring knowledge can establish new expected rewards from further information and therefore, reinforce information seeking behavior and sustain interest over time (Murayama et al., 2019).

In the case of this dissertation, when engaging with a situation of suffering, people report higher remaining uncertainty, which could imply that a new information gap is created. For example, reading a crime headline (e.g., "After school care worker in the Hague arrested for sexually abusing two children", NL Times, (2026, January 28th)) may evoke an information gap that stimulates people to read the associated article. Reading the article, however, may evoke more uncertainty and raise new questions which could stimulate people to seek additional coverage of the same event to fully understand what happened (e.g., how old were the children? How was the abuse discovered? Will there be justice? Note that a similar result was observed in the theme Case Follow Up from the qualitative study in Chapter 2). Interestingly, the results demonstrated that an experience of remaining uncertainty was less prominent for positive information. The Evaluative Information Ecology (Unkelbach et al., 2019) offers an explanation for this finding, by stating that negative events are less frequent and more diverse than positive events. This finding is important as it may explain why people engage in doomscrolling (Shabahang et al., 2023) or why people engage with true crime content repetitively (Perchtold-Stefan et al., 2025). The findings would suggest that people engage with negative content to reduce the uncertainty it evoked, presumably seeking to close the information gap that the newspaper headline, the post's image, or the true crime trailer established. Once this content is explored, new questions, new knowledge gaps inaugurate remaining uncertainty. Our results suggests that this cyclical process may occur more prominently for negative than for positive content, although this conclusion is based on the specific stimulus material used in our studies (e.g., positive and negative images). It is an empirical question whether particular positive content (e.g., erotica or humor) may similarly evoke remaining uncertainty and boost subsequent information processing. The interpretation that negative content may have a particular relationship with uncertainty is, however, consistent with the established idea that negati-

ve information is processed more thoroughly than positive information, which might be explained by an evolutionary function, as negative information would allow people to avoid threats promoting a successful adaptation to life's dangers (Baumeister et al., 2001). In other words, negative information could create a paradoxical cycle regarding uncertainty; given that it is a relevant predictor for engaging with such content, and subsequently inaugurating new uncertainties which could reinforce and sustain people's interest to further exploration. An exciting line for future studies could address this cycle, by measuring in a single paradigm pre and post measures of engaging with suffering, and empirically test the process of reducing, resolving and experiencing remaining uncertainty. These insights are particularly relevant in today's information age, where social media, news outlets and internet algorithms can exploit uncertainty mechanisms that could result in excessive engagement and 'click-bating' processes.

Third, people engage with suffering when it is relevant to themselves. In Chapter 2 we found that people report that they engage with situations of suffering because they are familiar with that type of hardship and want to continue reflecting on their own experiences, or because they aim to prepare for future suffering, either when it would happen to themselves or to their loved ones. Furthermore, self-relevance was a consistent predictor of engaging with emotionally evocative content, but not an outcome. This result leaves interesting questions about people's identification with other people's suffering. Specifically, following the Evaluative Information Ecology theory, it could be that identifying with positive events is more accessible than identifying with negative events (Unkelbach et al., 2019). Alternatively, lower levels of experienced self-relevance from negative compared to positive events might be a way of creating psychological distance between the negative content and the personal experience (Boothby et al., 2016). These possibilities are important avenues for future research, in order to understand how self-relevance of suffering and identification with suffering plays a role in making people aware of suffering, and stimulating prosocial behavior and collective action. Furthermore, understanding and learning from other's suffering could relate to how people process their own personal experiences of suffering. In clinical psychology, choosing to expose oneself to negative situations could be explained as a way of processing or mastering previous trauma, or to confirm an idea of the world and personal views build from past experiences (Visser & Arntz, 2023). An in-depth understanding of the relationship between self-relevance and engagement with other

people's suffering could be insightful to understand when such information-seeking is beneficial and when it is harmful to the recovery process.

Fourth, people engage with the suffering of strangers because they might find it meaningful. Some stories of suffering can be inspiring and moving, according to participants' reflections shared on Chapter 2. People reflected on what is life like for someone very different from themselves, for example, someone living with chronic pain, or who became permanently disabled by accident, or is suffering by the unexpected death of a loved one. In some cases, engaging with instances of suffering is not only moving but thought provoking, inviting someone to reflect on people's vulnerabilities, struggles and difficulties, and how dealing or overcoming such situations can provide insight into the human condition (i.e., resilience, strength, and endurance). This finding resonates with models from media psychology that emphasize eudaimonic outcomes of media consumption (Oliver, 2022). Research in media has shown that people seek poignant content to reflect on the purpose and meaning of life (Raney et al., 2020). In this dissertation, the findings contribute by highlighting particularly the cognitive component of eudaimonic value (e.g., insight into the human condition, for an eudaimonia conceptualization see Huta & Waterman, 2014) as an outcome of engaging with the suffering of others. Future research could explore how engaging with suffering due to eudaimonic motives could relate to distinctive outcomes, relevant to personal and social wellbeing. For example, by investigating the mechanisms by which stories of suffering inform, modify, or nurture a sense of meaning and purpose in life.

Affective Considerations on Motives to Engage with Suffering

People expect to experience emotions when they engage with suffering. These emotions can be perceived as costs, but potentially also as valuable. For example, as discussed in Chapter 2, people reflect on their anger as a drive for engagement (e.g., *" I wanted to engage with his suffering because I was angry and shocked",* by Case 116), especially when confronted with situations of injustice *("I am passionate about social justice and work in an industry where these values are paramount (social work). After George Floyd's death I was angry and engaging with his experience was necessary to confront the injustice of what happened to him.",* by Case 188). However, the affective motives were rated as less applicable to remembered situations as than epistemic and social motives (e.g., Study 2.2, Chapter 2). Importantly, the results discussed in Chapter 3 robustly demonstrated that the anticipation of experiencing negative emotions reduced the likelihood of engaging with emo-

tionally evocative content. This result signals that negative emotions can also be perceived as a cost of engaging with suffering and a reason to avoid it. In short, based on these results it is possible that negative emotional states can be experienced as costly, in which case they discourage engagement, but also as beneficial, in which case they may be sought out or upregulated (Tamir, 2016). How this motivated emotion regulation unfolds may depend on the situation in which the suffering is encountered or the coping potential of the individual is an important avenue for future research.

When predicting choices for positive and negative content thrill was a consistent positive predictor of engagement. This finding is consistent with accounts that emphasize sensation seeking (Zuckerman, 1990) and hedonic experiences (e.g., benign masochism, Rozin et al., 2013) when explaining engagement with negative content (Becker & Bernecker, 2023). Although experiencing thrill is a predictor of choices to engage with emotionally evocative content generally, (i.e., both for positive and negative images and stories), an experience of thrill was a less salient outcome for negative content compared to positive. Furthermore, our findings show a relative low endorsement of positive emotions for negative social content. Both when measuring anticipated positive emotions (Chapter 3) and when measuring positive emotions as an outcome (Chapter 4) the general patterns seems that people do not (seek to) experience positive emotions when engaging with negative images and stories. Negative emotions, however, was a negative predictor of choice and was strongly reported as an outcome of viewing negative images. These findings suggest that people in general *do not enjoy* engaging with the suffering of others.

Social implications of Engaging with Suffering

People see social value in engaging with suffering. This dissertation demonstrates that people engage with situations of suffering to empathize, to show solidarity, to help the stranger in need, and because they considered it the right thing to do. In Chapter 2, participants reported a variety of situations in which they engaged with the suffering of a stranger, including situations in which people encountered someone in need in real life (e.g., witnessing an accident, or someone getting unwell in the street), which offered a concrete possibility for helping behavior. In Chapter 3 and 4, however, we used a controlled paradigm presenting images and stories, in which motives to help or provide support are less applicable and salient. In this case, engaging with a stranger's suffering is not equivalent to directly helping strangers. Despite this, viewing an image, video, or story and

learning about instances of suffering can be seen as a moral responsibility, or a way to show sympathy or learn about other people's realities. The findings of this dissertation reflect that in some cases people's engagement ended in prosocial and helping behavior, but not always. Even if engaging does not include direct help it may foster compassion and perspective taking. Future research should investigate the conditions in which engaging due to social motives actually translate into prosocial behavior.

Engaging with a situation has been defined to have cognitive, emotional, and behavioral components (Martin, 2007). Some forms of engaging with suffering involve altruistic motives and prosocial outcomes. The findings of this dissertation demonstrate that different type of motives can co-occur and future research could explore how to promote prosocial outcomes from engaging with suffering. This question aligns with classical discussions on empathy and self-less altruism (Batson et al., 1981; Cialdini & Kenrick, 1976). This discussion highlights the question if personal benefit should be reduced to the minimum to be considered an altruistic behavior. Similarly, more recent discussions refer to the different conceptualizations of empathy components and compassion (Bloom, 2017; Zaki, 2017) in which the former is a self-oriented process and the latter is considered an essentially other-oriented process which would have a stronger impact in potential (prosocial) outcomes.

Our finding that social motives play a role in seeking information about suffering begets the question whether curiosity for a stranger's suffering can result in prosocial outcomes. For example, Zurn (2021), states that curiosity for other's experiences could result in political reimagination and challenging the status quo. Interestingly, as seen in our findings, complying with a social norm is a power-dependent predictor of choice to engage with emotionally evocative content, as the social norm motive emerged as significant in the bigger sample studies of Chapter 3. Furthermore, in Chapter 4 people reflect on their moral values when viewing images of suffering. It is an open question whether a mental state of moral reflection or moral responsibility has prosocial potential. If people are reflecting on their moral stance when observing suffering, how can this reflection be directed towards prosocial outcomes?

The intersection of curiosity, empathy, and prosocial outcomes could have impactful consequences for social movements, charities, and NGOs who aim to raise engagement and awareness. For an awareness conceptualization, involving different stages of acknowledgement of a social group suffering, has been offered by Twali and collegues (2020). These authors define factual and empathic

acknowledgment, as the former involves recognizing events that happened as collective suffering and the latter involves the factual events plus recognizing the emotional consequences for the victims (Twali et al., 2020b). These stages of acknowledgement are processes that do not exclusively involve a perpetrator-victim dyad, as the awareness and recognition of someone's suffering can involve the society at large (e.g., as in the case of human rights violations, or humanitarian crisis, see Twali et al., 2020). These findings prompts new questions about the role of the general public in learning and informing themselves about suffering and collective victimization, including how curiosity for stories of suffering can lead from acknowledgement, to attitude change, and involvement in collective action.

The intersection of these processes should be explored from an interdisciplinary approach to address the ways in which engaging with stranger's suffering fosters interest, reflections, expressions of solidarity, collective action and social change. This question has exciting and relevant applied potential, so further research could explore how to tailor interventions and advise civil organizations working on causes that involve suffering (e.g., nonprofit organizations, charities, or group activists) to harness the potential of curiosity as a gateway to prosocial outcomes.

Strengths and Limitations

This research project has several methodological strengths. Firstly, as a programmatic and sequentially built research program, we used a diversity of methodological approaches to investigate the phenomenon of interest from different angles by building on our previous findings. This diversity included qualitative, open-ended questions, and thematic analysis, as well as item development, and controlled paradigms. Ultimately, this methodological diversity allowed us to examine the value of engaging with the suffering of strangers from different angles, and triangulate the findings between different methodologies, stimulus materials, and measurements.

Secondly, a methodological strength of this dissertation is the careful stimuli curation. The stimulus set used in Chapters 3 and 4, consisting of emotionally evocative images, textual descriptions, and stories, was built based on the results of Chapter 2 which provided a rich characterization of situations of suffering and the people experiencing the suffering. Specifically, Chapter 2's results demonstrated that the strangers suffering were characterized by a diversity of identities, including different age groups, race and ethnic backgrounds, and interpersonal

affiliations. Similarly, people engaged with a wide variety of situations of suffering, ranging from mundane misfortunes (e.g., a minor injury of an athlete) to events portrayed in the news worldwide (e.g., a community affected by a natural disaster). Subsequently, in the studies using controlled paradigms, we selected images from a validated pool (Marchewka et al., 2014b) that represented a variety of situations of suffering based on Chapter 2. The set of images portrayed ordinary scenes of suffering (e.g., as accidents and interpersonal conflicts) together with events that could affect whole communities (e.g., gender violence, war, and human rights violations). In addition to the selection of images, the descriptions used were carefully crafted to provide context to the image. For instance, an image of a girl expressing sadness (e.g., crying, sitting on a public space) becomes a more layered, contextually richer social situation when it follows the description "A girl cries when she is being publicly scolded by her parents". All descriptions were pre-tested to ensure that the link between the image and the textual descriptions was consistent across the study conditions. Additionally, negative and positive images and their descriptions we pre-tested for emotional valence and carefully matched in terms of emotional intensity.

Thirdly, our research endorsed open science practices as much as possible. Concretely, we made our data publicly available (with the only exception the qualitative data of Chapter 2, due to privacy considerations) and we shared the analysis scripts for reproducibility. Similarly, we shared all materials in the supplementary sections of each chapter, including instructions, stimuli, and measures used. To safeguard the robustness of the findings, we preregistered the confirmatory studies of Chapter 3 and all the studies of Chapter 4. Furthermore, we conducted internal replications for the studies in Chapters 3 and 4 and conceptual replications for the studies in Chapter 3. These research practices align with existing calls that emphasize the importance of open science to increase the reliability and validity of psychological research (Hales et al., 2019).

Despite these strengths, this research program contains limitations that are important to consider. Firstly, a limitation of this research is the cross-sectional design for most of our studies. In particular, we measured the anticipated impact of engaging with suffering (Chapter 3) and its correlational relationship with choice, self-reported experienced outcomes after a controlled exposure (Chapter 4), and recalled value of engaging with the suffering of strangers (Chapter 2). Most of the studies did not test causal relationships between motives and engaging with stranger's suffering. Moreover, our designs did not allow for a direct comparison of anticipated value and experienced value. Importantly, longitudinal designs,

such as experience sampling methods, could explore the value of engaging with the suffering of strangers in daily life across longer periods of time. Finally, to unpack the causal role of motives in voluntary engagement with the suffering of strangers, future research should manipulate them in an experimental paradigm.

Secondly, all the chapters of this dissertation were conducted with Prolific participants in an online environment. It is possible that findings may not generalize to face-to-face interpersonal interactions or different populations. For example, most of Prolific participants come from Western countries (Henrich et al., 2010) and the motives' and outcomes' endorsement can be culturally sensitive. In addition to relative cultural homogeneity of the sample, all participants were adults. A developmental perspective on engaging with stranger's suffering would contribute to widen the understanding of processes such as empathy, moral reasoning, curiosity and emotions related to this phenomenon. For example, certain motives could be more prominent or salient in specific developmental stages, such as social norm motives in adolescence (Slagter et al., 2023) or eudaimonic motives in late adulthood (Bauer & Park, 2010). Further research from a developmental angle could contribute to harness the value of engaging with suffering and improve knowledge of the possible risks or costs associated to specific age populations.

Thirdly, the controlled studies of this dissertation hinder crucial contextual elements of real-life engagement with suffering. Specifically, aspects such as the observer's previous experience or personality, the form and framing of the engagement, and who is delivering the story of suffering, are domains that may shape people's engagement with and responses to suffering. In the controlled studies, suffering situations were presented as isolated and contextually disconnected instances. These paradigms allowed to reduce cofounding factors and rigorously isolate the psychological phenomena. However, in real-world contexts, engagement with suffering often unfolds through ongoing stories, where observers may follow the same individual story or type of situation over time. Such sequential engagement may influence the experienced value, perceived meaning, and motivation to engage. Future research could explore how the framing and source of suffering information may play an important role. For example, suffering may be encountered through news reports, NGOs campaigns, personal testimonies, or social media posts, each of which may convey different intentions, levels of credibility, and calls to action. These differences may shape how audiences interpret and engage with suffering. Furthermore, engagement may vary depending on whether suffering is perceived as individually experienced or collectively sha-

red, and whether it is connected to current events or perceived as personally or socially relevant. Finally, observer-related factors, such as psychological distance or cultural similarity to the target (Niehoff et al., 2025) may shape engagement and its perceived value.

Concluding Remarks

The goal of this dissertation was to investigate the value of engaging with the suffering of strangers. Understanding and learning about suffering can be costly and emotionally taxing, but often these costs are outweighed by the epistemic, social, and eudaimonic value of engaging with suffering. We demonstrate that engaging with suffering can expand our knowledge about the world we live in, make us reflect on human vulnerabilities, and give us insight into how suffering can illuminate a sense of fragility, meaning and purpose of life. At the same time, it may provoke questions in us, and raise uncertainty about how specific situations of suffering unfold. This dissertation started with Simon Weil's reflection on how giving one's attention is the purest form of generosity. Indeed, engaging with suffering might offer a possibility to connect to people very different from ourselves; experiencing interest and curiosity for others' hardship might allow us to experience sympathy, show solidarity with people's story and offer a meaningful pathway to foster kindness.

Supplementary Materials for Chapter 2



Supplementary Material Study 2.1

Study Materials & Instructions

Welcome to this study!

This study is about voluntary engagement with other people's suffering. This happens when people deliberately choose to inform themselves about the suffering of others, for instance by reading about it, watching videos, listening to podcasts, talking about it with others, or in any other way.

We are particularly interested in situations when people engage with the suffering of someone they do NOT know personally, whether face-to-face or online, involving a complete stranger, a real (famous) person currently alive, a historical figure, or a fictional character (e.g., in a book).

Our first step in this process is to map all the different ways in which people do this in their daily lives. We need your help to include and consider a wide range of situations and experiences. Help us brainstorm. We are looking for variation, so please do not hesitate to share your own experiences and thoughts with us in as much detail as possible.

For this study, it is very important that you are willing to elaborate and reflect on our questions. Your detailed responses will be very helpful. We would like to ask you to take at least 2 minutes per question so that you have the time to reflect on your answers. You will be able to continue to the next question after 2 minutes have passed.

Please press continue to start the study.

We are interested in situations in which you chose to inform yourself about an individual who was suffering who you did not know personally (e.g., a stranger). We ask you to share single situations or episodes as examples. Please feel free to share as many examples as you want. We ask you to describe each example in as much detail as possible, using a new text window.

For each example, we are particularly interested in the SOURCE of the suffering (e.g., what was the event or experience that made the stranger suffer?) and the specific WAY in which

you informed yourself about the stranger's suffering (e.g., type of media, real life situation).

Please try to work on this question for at least two minutes. You will be able to continue to the next question after 120 seconds have passed.

Please describe an example of a situation in which you informed yourself about a stranger's suffering in as much detail as you can.

_____
_____
_____
_____
_____
_____

Do you have another example that you would like to share? (x4)

_____
_____
_____
_____
_____
_____

Now, we are interested in the reasons WHY you voluntary engaged with the suffering of another individual who you did not know personally. In other words, WHY did you make this decision? Do you have any ideas about the value, function or outcome of this act?

You will be presented with each of the situations you described for the previous question. For each situation, please describe in detail the reasons why you engaged with this person's suffering. Feel free to share more than one reason.

Please try to work on this question for at least two minutes. You will be able to continue to the next question after 120 seconds have passed.

You described the following situation:

["Participant's response quoted"]

Please describe, in the window below, all the reasons that you can think of why you chose to engage with this person's suffering in this particular situation.

_____
_____
_____
_____
_____
_____

Table SM1

Study 2.1 Extracts

Participant's Response		Themes
Case 222	*Some time I learned about a murdered woman in my country (but in general every time I learn about murdered people in my country). I try to think about the suffering of their families but even though I'm empathetic and I do want the offenders to be punished, I also think about the offenders motives and what they went or would be going through.*	(Who) Woman; Family (How) No explicit source (What) Death; Crime
	Maybe because out of curiosity (curiosity for the bad things) but also because living in a country marked by insecurity makes me wonder about how I should protect myself or the kind of things I should avoid, so by learning about their suffering I also learn the things I should and shouldn't do	(Why) Curiosity; Self-Relevant; Understand
Case 110	*I still remember the feelings I felt when hearing the news about George Floyd in the US. I was shocked and I still am about police brutality, racism towards people of color. I watched the video of his death and I felt ashamed to being part of a world that mistreat people based on race*	(Who) Well-known Case (How) News (What) Death; Human Rights; Race Discrimination
	I am trying to be more proactive in my life and be part of a bigger community that does not end where the borders of my country do. I want to have a better future for myself and for others and I do not want to be part of this atrocity.	(Why) Seeking Meaning

Case 162	*The queen's husband the duke of Edinburgh died recently. As someone who experienced death quite recently I felt a great sadness for the queen. I was reading up to see what she would do after the funeral and if she would have people around her*	(Who) Famous Person (How) Case follow up; News (What) Death
	As mentioned I experienced recent death which was the loss of my dear mother. This was the first major loss I have experienced and now have great empathy with others who are dealing with grief and bereavement	(Why) Self-Relevant Event; Empathy
Case 22	*the wife of one of my parents coworkers had become a widow, I didn't know her, but I was told she was suffering with not only the death but also bills, I felt pretty powerless*	(Who) Widow (How) Conversation (What) Death
	I thought it was the right thing to do, what anyone else would have done I guess, at least what I hope people would do if I was in the same situation	(Why) Social Norm
Case 61	*Lesandro aka junior was brutally murdered by a gang of scum in a convenience store and everyone just stood by and watched as a 15 year old was stabbed and killed by a group of worthless oxygen thieves. I never felt so bad or angry in my life when I saw the footage*	(Who) Children; Well-known Case (How) No explicit source (What) Death; Crime
	I did not engage I just read the story and felt angry. I can't remember a time I have engaged someone in a negative way like that...	(Why) Negative Emotions

Supplementary Material Study 2.2

Pilot Study Motives Items

The Pilot Study included the following items to measure the motives to engage with the situation of suffering.

Please rate the extent to which each of the following statements applies to you:

I engaged with the situation to feel something

I engaged with the situation because I was looking for a thrill

I engaged with the situation because it was entertaining

I engaged with the situation to feel excitement

I engaged with the situation to feel more grateful for the life I lead

I engaged with the situation because it would allow me to value my own situation differently
I engaged with the situation to feel better about my own situation
I engaged with the situation because I felt upset
I engaged with the situation to feel anger
I engaged with the situation to feel sadness
I engaged with the situation to inform myself
I engaged with the situation to stop wondering about what happened
I engaged with the situation because I was curious
I engaged with the situation because it fascinated me
I engaged with the situation to expand my knowledge about the world
I engaged with the situation to learn something
I engaged with the situation to increase my understanding of similar situations
I engaged with the situation because it was something I have rarely seen before
I engaged with the situation because it was very extreme
I engaged with the situation because it was severely impactful
I engaged with the situation to learn how to handle similar situations in the future
I engaged with the situation because a similar situation could happen to me or my loved ones
I engaged with the situation because it is related to my own personal life
I engaged with the situation for social reasons
I engaged with the situation because others expected me to do so
I engaged with the situation because it was the right thing to do
I engaged with the situation because something like this should not be ignored
I engaged with the situation because it was a way of helping
I engaged with the situation to show social support
I engaged with the situation as an act of kindness
I engaged with the situation because I wanted to feel empathy for the people involved
I engaged with the situation in order to take the perspective of the people involved
I engaged with the situation to feel compassion for the people involved
I engaged with the situation to find meaning
I engaged with the situation to gain insight in the human condition
I engaged with the situation because it was thought-provoking
I engaged with the situation to become aware of injustice
I engaged with the situation because it is in line with my personal values
I engaged with the situation because it is my moral duty to do so
I engaged with the situation to become a wiser person

[for each statement a scale was provided labelled at the extremes with “Not at all – 1” and “Very Much – 7”]

Main Study Materials & Instructions

This study is about voluntary engagement with other people’s suffering. This happens when people deliberately choose to explore, look into, or inform oneself about the suffering of others, for instance by reading about it, watching videos, listening to podcasts, stopping to witness an incident, or in any other way.

We are interested in situations where you decided to explore or inform yourself about the hardship of people whom you did NOT know personally, such as complete strangers, famous people, or fictional characters (NOT friends, family, or work colleagues).

Our first step in this process is to map all the different ways in which people engage in their daily lives with the suffering of a stranger. We need your help to include and consider a wide range of situations and experiences. Help us brainstorm. We are looking for variation, so please do not hesitate to share your own experiences and thoughts with us in as much detail as possible. For this study, it is very important that you are willing to elaborate and reflect on our questions. Your detailed responses will be very helpful.

In this study you will be asked to share your experience engaging with the suffering of someone else. Who should the person suffering be?

a) Someone I don’t know personally
b) Someone of my own family
c) A colleague or peer from work/school
d) A friend

[In case the response to the question was b, c or d, the following message appeared on screen]

No, this study is about exploring the suffering of people that you do not personally know. Please keep this in mind when you answer the following questions.

[Individual Suffering Condition]
We are interested in situations in which you chose to **explore, look into, or inform yourself about** the suffering of an **individual** who you did not know personally, such as a complete stranger, famous person, or fictional character.

There are **different ways** of exploring a stranger's suffering. For example, you may have accessed a story about other people's suffering by going online (e.g., through social media or an online news source), through cultural expressions (e.g., by reading a book, watching a movie, soap opera, song lyrics, art expressions, going to a museum), or in a real-life incident (e.g., as a witness on the street).

We will ask you for each of these **three different sources** (cultural expression, online/social media, real-life encounter), to describe a situation in which you explored the suffering of **an individual who you did not know personally**. Please describe each situation in as much detail as possible. We are particularly interested in the CONTEXT of the suffering (e.g., what was the event or experience that made the stranger suffer?).

Then, you will be asked to think about the different **reasons** why you decided to engage with that situation of suffering. For each of the different examples you give, you will be presented with a list of statements that may describe WHY you engaged with the suffering. Please respond as honestly as possible. There are no right or wrong answers, we are interested in your personal experience.

Please describe an example of a situation in which you deliberately explored, looked into or informed yourself about the suffering of an i**ndividual *[within subjects condition]**

Please be reminded that we are interested in situations in which you chose to engage with the suffering of an individual who you did not know personally, such as a complete stranger, famous person, or fictional character.

Please try to work on this question for at least two minutes. You will be able to continue to the next question after 120 seconds have passed.

*[within subject condition showed one of the following at a time]
- **through an online source (e.g., social media, news)**
- **in a real-life incident (e.g., as a witness in the street)**

- through a cultural expression (e.g., through a book, magazine, movie, song, play, museum, etc.)

Social Suffering Condition]

We are interested in situations in which you chose to **explore, look into or inform yourself about** the suffering of a **member (or members) of a certain group in society** who(m) you did not know personally. We are particularly interested in situations of suffering that involve certain members of society, such as members of minority groups, or members of groups identified by certain characteristics, such as age or gender.

There are **different ways** of exploring a strangers' suffering. For example, you may have accessed a story about other people's suffering by going online (e.g., through social media or an online news source), through a cultural expression (e.g., by reading a book, watching a movie, soap opera, song lyrics, art expressions, going to a museum), or in a real-life incident (e.g., as a witness on the street).

We will ask you for each of these **three different sources** (cultural expression, online/social media, real-life encounter), to describe a situation in which you explored the suffering of a member or members of a societal group who(m) you did not know personally. Please describe each situation in as much detail as possible. We are particularly interested in the CONTEXT of the suffering (e.g., what was the event or experience that made the stranger(s) suffer?).

Then, you will be asked to think about the different **reasons** why you decided to engage with that situation of suffering. For each of the different examples you give, you will be presented with a list of statements that may describe WHY you engaged with the suffering. Please respond as honestly as possible. There are no right or wrong answers, we are interested in your personal experience.

Please describe an example of a situation in which you deliberately explored, looked into or informed yourself about the suffering of **a member or members of a societal group** **[within subjects condition]**

Please be reminded that we are interested in situations of suffering that involve certain members of society, such as members of minority groups, or members of groups identified by certain characteristics, such as age or gender, who(m) you do not know personally.

Please try to work on this question for at least two minutes. You will be able to continue to the next question after 120 seconds have passed.

*[within subject condition showed one of the following at a time]
- through an online source (e.g., social media, news)
- in a real-life incident (e.g., as a witness in the street)
- through a cultural expression (e.g., through a book, magazine, movie, song, play, museum, etc.)

[Same phrasing for both between subject conditions]
We are interested in some specific **characteristics of the situation** that you described. We will ask you to evaluate the situation in terms of impact, rarity and self-relevance.

For impact, we would like you to evaluate the impact of the situation for the individual(s) involved, society at large, and you personally. For example, you can consider how severe the consequences of the situation were for the people involved, how much this situation made an impression in society and how the situation emotionally or mentally affected you in the moment.

For self-relevance, we would like you to evaluate how much the situation relates to aspects of your past or future personal life.

For rarity, we would like you to evaluate whether the situation happens frequently, or whether it is uncommon.

How impactful was the situation that you just described for the individual(s) involved?
How impactful was the situation that you just described for society?
How impactful was the situation that you just described for you (in the moment)?
How personally relevant was the situation that you just described?
How rare was the situation that you just described?

[for each question a scale was provided labelled at the extremes with “Not at all – 1” and “Extremely – 7”]

Now, we are interested in the reasons WHY you voluntarily engaged with this situation ***[within subjects condition].** In other words, WHY did you make this decision?

Below, you will find different statements about the value, function or outcome of engaging with a stranger's suffering. Please think carefully about the extent to which each of these apply to your decision.

*[within subject condition showed one of the following at a time]
- through an online source
- in a real-life incident
- through a cultural expression

You described the following situation:

["Participant's response quoted"]

Please rate the extent to which each of the following statements applies to you:
I engaged with the situation because I was looking for a thrill
I engaged with the situation to feel excitement
I engaged with the situation to feel better about my own situation
I engaged with the situation to relieve boredom
I engaged with the situation to release stress
I engaged with the situation to feel moved
I engaged with the situation because I felt upset
I engaged with the situation because I wanted to be provoked
I engaged with the situation to feel anger
I engaged with the situation to feel sadness
I engaged with the situation to feel outrage
I engaged with the situation because I wanted to know what happened
I engaged with the situation because I was curious
I engaged with the situation to expand my knowledge about the world
I engaged with the situation to learn something
I engaged with the situation because it was something I have rarely seen before
I engaged with the situation because it was severely impactful
I engaged with the situation to be exposed to a reality very different from my own
I engaged with the situation to learn how to handle similar situations in the future
I engaged with the situation because a similar situation could happen to me or my loved ones
I engaged with the situation because other people did so as well

I engaged with the situation because it was the right thing to do
I engaged with the situation because something like this should not be ignored
I engaged with the situation because it is my moral duty to do so
I engaged with the situation because it was a way of helping
I engaged with the situation to show social support
I engaged with the situation to feel compassion for the people involved
I engaged with the situation to gain insight in the human condition
I engaged with the situation because it was thought-provoking
I engaged with the situation to become aware of injustice
I engaged with the situation to become a wiser person
I engaged with the situation because I believed it would be a meaningful experience

[for each statement a scale was provided labelled at the extremes with "Not at all – 1" and "Very Much – 7"]
Did you engage for a reason not listed above? Please describe it with as much detail as possible:

_____
_____
_____
_____
_____
_____

Sensitivity Analysis Study 2.2 Sample

To evaluate the statistical power of the sample and in the absence of an a-priori power calculation (i.e., due to lack of information about effect sizes), we performed a post-hoc sensitivity analysis for the main test performed in this study. Using G*Power Calculator, based on an alpha of 0.05 and statistical power of 0.95, our current sample size allows for detecting an effect size of $f = 0.14$ or higher (i.e., a small effect; Cohen, 1988).

Situations of Suffering – Qualitative Analysis Study 2.2

Based on the analysis of the qualitative data, we identified cases in which participants described situations of suffering experienced by close others or themselves and cases in which participants described a situation without the presence

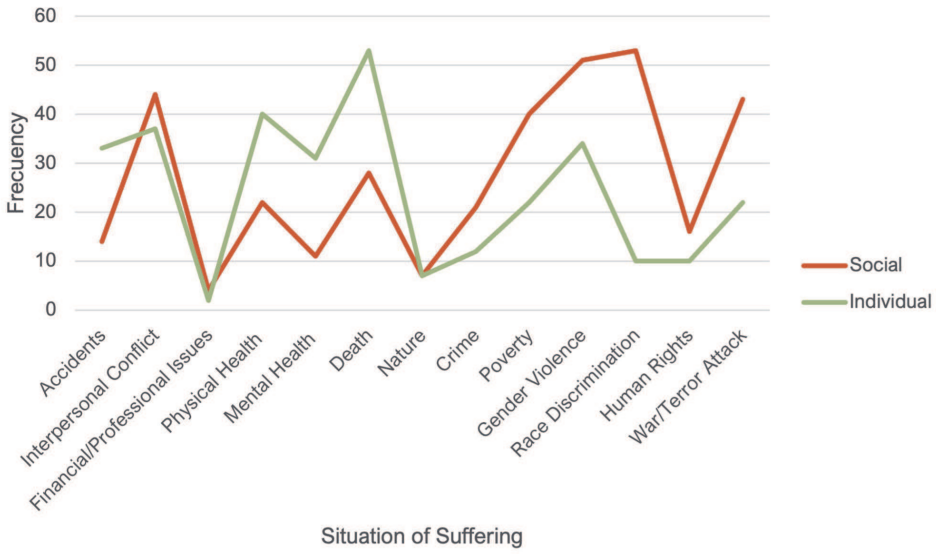
of suffering (e.g., *"I went to a museum to appreciate artwork",* Case 217). These cases were excluded from further analysis (n=44 instances out of 750 in total).

We performed a qualitative thematic analysis of the written content of participants' responses using the codebook developed in Study 2.1. The qualitative analysis was performed using Atlas.ti software. The codebook produced in Study 2.1 was applicable to the Study 2.2 data. From the 13 themes identified in Study 2.1, only one theme was redefined; Animal Suffering was named Nature in this study as here it also included situations like floods, earthquakes and other natural disasters.

We explored the frequency with which certain themes were mentioned according to the study conditions (e.g. social and individual suffering). Please note that the categorization between types of suffering is not a rigid distinction (e.g., gender violence cases were described in the Individual Suffering condition and mental health in the Social Suffering condition, see Figure SM1). Nevertheless, there is a general trend that themes such as war, race discrimination, gender violence and poverty were more often mentioned in the social suffering condition, whereas themes involving accidents, physical or mental health and death were more often mentioned in the individual suffering condition.

Figure SM1

Situations of Suffering Frequency across Study Conditions



Analysis of Situation Characteristics (Frequency, Self-Relevance, Impact)

Participants rated each recalled situation on five different aspects: personal relevance, frequency, impact for the suffering stranger, impact for the participant and impact on society. Due to their similarity, the three impact ratings were analyzed together in a 2 (context of suffering) by 3 (source of information) by 3 (type of impact rating) mixed repeated measures ANOVA. Self-relevance and frequency of the situation were analyzed in two separate 2 (context of suffering) by 3 (source of information) mixed repeated measures ANOVAs. When pertinent, post hoc differences were explored using Bonferroni correction.

First, neither source of information $F(2,430) = 1.95$; $p = .14$, context of suffering $F(1,215) = .55$; $p = .55$, nor their interaction $F(2,430) = .44$; $p = .64$, impacted how self-relevant participants rated the situation. Second, rated frequency of the situation of suffering did not differ according to the source $F(2,430) = 1.36$; $p = .26$, the context of suffering $F(1,215) = .52$; $p = .47$, or their interaction $F(2,430) = .11$; $p = .89$.

Third, a main effect of type of impact, $F(2,430) = 60.18$; $p < .001$; $\eta^2 = .38$, indicated that the perceived impact for the suffering stranger was rated as significantly higher ($p < .001$; $M = 6.17$, $SE = .07$, CI [6.05, 6.31]) as compared to the impact on society ($M = 5.37$, $SE = .08$, CI [5.22, 5.53]) and the impact for the participant ($M = 5.41$, $SE = .08$, CI [5.26, 5.57]). In other words, the suffering stranger was perceived as the most affected by the situation. Furthermore, a main effect was observed for the context of suffering ($F(1,215) = 5.09$; $p = .03$; $\eta^2 = .02$). Generally, impact ratings were higher for social contexts of suffering ($M = 5.78$, $SE = .08$, CI [5.63, 5.95]) as compared to individual contexts ($M = 5.52$, $SE = .08$, CI [5.36, 5.69]). There was no main effect for source of information ($F(2,430) = 2.76$; $p = .06$).

In addition, we found a significant interaction between impact ratings and context of suffering $F(2,430) = 5.73$; $p = .004$; $\eta^2 = .03$ (GG corrected). Pairwise comparison showed that societal impact was rated higher for social contexts ($p < .001$; $M = 5.67$, $SE = .11$, CI [5.44, 5.89]) as compared to individual contexts ($M = 5.08$, $SE = .11$, CI [4.86, 5.31], see Table SM2 for further detail). This result is in line with the instructions given to participants, and serves as a check that our manipulation was successful. Moreover, there was a significant interaction between the type of impact rating and the source of information, $F(3.78,812.04) = 7.85$; $p < .001$; $\eta^2 = .04$. Finally, the interaction between source and context of suffering ($F(2,430) = .998$; $p = .37$) and the three-way interaction ($F(3.78,812.04) = 1.34$; $p = .26$) were not significant.

Table SM2

Impact Rating Means – Social and Individual Condition

	Social Suffering				Individual Suffering			
Impact	Mean	Std. Error	95% Confidence Interval		Mean	Std. Error	95% Confidence Interval	
On the stranger	6.25	.09	6.07	6.43	6.11	.09	5.93	6.30
On society	5.67*	.11	5.44	5.89	5.08*	.11	4.86	5.31
On the participant	5.45	.11	5.23	5.66	5.38	.11	5.16	5.60

Note. *. The mean difference is significant at the .05 level.
Adjustment for multiple comparisons: Bonferroni.

Principal Component Analyses

Table SM3

Pattern Matrix[a] All items Included

	Component					
	1	2	3	4	5	6
to become a wiser person	,800	-,014	,088	-,012	,042	-,062
to learn something	,763	,054	-,083	-,002	-,083	,154
to expand my knowledge about the world	,732	,023	-,005	-,031	,116	,189
because I believed it would be a meaningful experience	,712	-,077	,176	,013	-,104	-,167
to gain insight in the human condition	,533	,006	,001	-,015	-,096	,323
because it was thought-provoking	**,325**	,002	-,083	-,291	,071	,295
to relieve boredom	,007	-,787	-,155	,069	-,003	,205
because I was looking for a thrill	-,034	-,768	-,011	-,064	,098	,016
to feel excitement	,039	-,763	-,020	-,065	,075	-,010
to release stress	,022	-,730	-,006	-,127	-,139	-,050
to feel better about my own situation	,117	-,647	,072	-,138	-,109	-,110
because other people did so as well	-,275	-,496	,318	-,040	,056	**,421**
because I wanted to be provoked	,164	-,459	,031	-,324	,241	-,125
because it was the right thing to do	,045	,070	,865	,002	-,034	-,080
because it is my moral duty to do so	,015	,043	,839	-,068	,111	-,046

because it was a way of helping	,001	-,153	,824	,170	-,111	-,163
to show social support	,081	,034	,680	-,044	-,128	,054
because something like this should not be ignored	,158	,384	,466	-,237	-,085	,114
because I felt upset	-,148	,115	,098	-,699	-,185	,042
to feel outrage	,057	-,248	,016	-,675	,190	-,040
to feel anger	-,041	-,303	-,028	-,671	,135	-,024
to feel sadness	,028	-,352	-,132	-,604	-,012	-,068
to feel moved	,304	-,263	-,066	-,470	-,016	-,075
because it was severely impactful	,129	,234	,164	**-,384**	-,181	,310
to become aware of injustice	,202	,110	,205	**-,344**	,091	,300
because a similar situation could happen to me or my loved ones	,036	-,078	,144	-,044	-,762	,138
to learn how to handle similar situations in the future	,389	-,232	,230	,095	-,494	,051
because it was something I have rarely seen before	,164	-,160	,164	,012	,445	,343
because I wanted to know what happened	,081	,037	-,160	-,074	-,052	,759
because I was curious	,309	-,153	-,232	,137	-,038	,605
to be exposed to a reality very different from my own	**,403**	,004	,119	,048	,252	,408
to feel compassion for the people involved	,105	,112	,221	-,288	-,241	**,323**

Note. Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. *a* Rotation converged in 19 iterations. Bold items were excluded for following analyses.

Table SM4

Principal Component Analysis Pattern Matrix Final Solution

	Component				
Knowledge α = .841	1	2	3	4	5
to learn something	-.026	-.026	**-.810**	.009	-.132
to expand my knowledge about the world	.019	.039	**-.796**	-.013	.046
because I was curious	.049	-.213	**-.738**	.066	.111

to gain insight in the human condition	-.046	.034	**-.729**	-.046	-.066
to become a wiser person	.080	.144	**-.677**	.013	-.070
because I wanted to know what happened	-.173	-.155	**-.653**	-.142	.147
because I believed it would be a meaningful experience	.153	.245	**-.510**	.056	-.200
Social Utility α = .848					
because it was the right thing to do	-.063	**.888**	.045	-.002	-.004
because it is my moral duty to do so	-.036	**.872**	.039	-.064	.164
because it was a way of helping	.155	**.813**	.163	.135	-.130
to show social support	-.051	**.689**	-.090	-.065	-.100
because something like this should not be ignored	-.391	**.509**	-.243	-.210	-.031
Personal Utility α = .600					
because a similar situation could happen to me or my loved ones	-.005	.134	-.140	-.081	**-.705**
to learn how to handle similar situations in the future	.187	.225	-.390	.047	**-.513**
Positive Affect α = .851					
because I was looking for a thrill	**.786**	-.013	.054	-.055	.100
to feel excitement	**.785**	-.007	.008	-.052	.079
to relieve boredom	**.773**	-.175	-.121	.062	.024
to release stress	**.758**	.018	.041	-.085	-.121
to feel better about my own situation	**.634**	.094	-.011	-.159	-.111
because I wanted to be provoked	**.498**	.083	-.051	-.287	.223
Negative Affect α = .781					
because I felt upset	-.229	.094	.048	**-.764**	-.174
to feel outrage	.223	.038	-.044	**-.689**	.150
to feel anger	.272	-.010	.035	**-.684**	.116
to feel sadness	.313	-.113	.001	**-.629**	-.031
to feel moved	.252	-.023	-.238	**-.472**	-.051

Note. Items factor loadings resulting from Principal Component Analysis with oblique rotation (direct oblimin). Main factor loadings values are bold. Component reliability is presented using Cronbach's alpha.

Table SM5

Motives Correlation

	Pearson Correlations				
	Knowledge	Personal Utility	Social Utility	Positive Affect	Negative Affect
Knowledge	1	.482*	.211*	.185*	.284*
Personal Utility	.482*	1	.414*	.187*	.236*
Social Utility	.211*	.414*	1	-.068	.142*
Positive Affect	.185*	.187*	-.068	1	.575*
Negative Affect	.284*	.236*	.142*	.575*	1

Note. *. Correlation is significant at the 0.01 level (2-tailed).

Supplementary Material for the main analysis of motive salience

Please find below descriptives and Figures for the 2 (type of suffering) x 3 (source of information) x 5 (motive category) repeated-measures ANOVA reported in the main text. This analysis examined the relative endorsement of the motives and whether motive endorsement differed across situations, sources and their interaction.

Table SM6

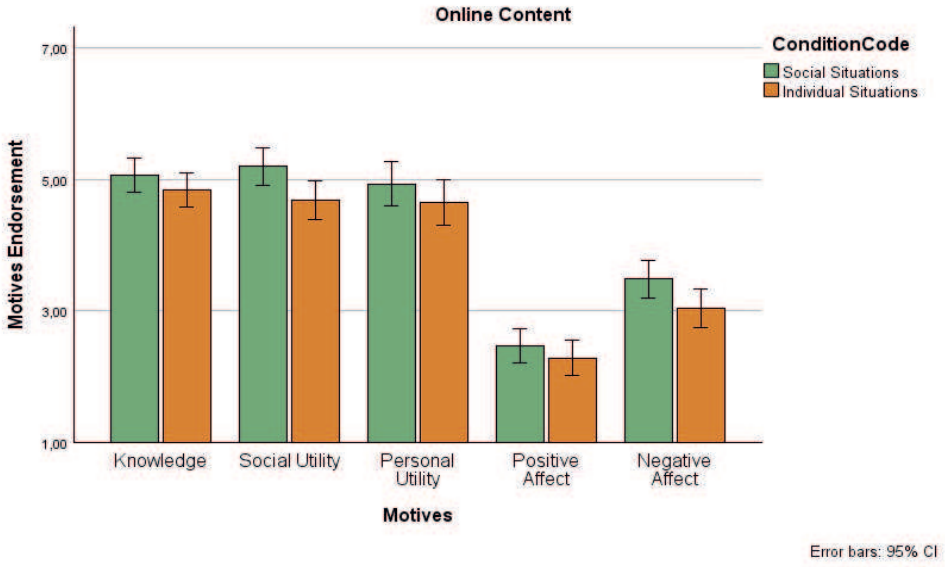
Descriptives two-way interaction Motive Category x Source

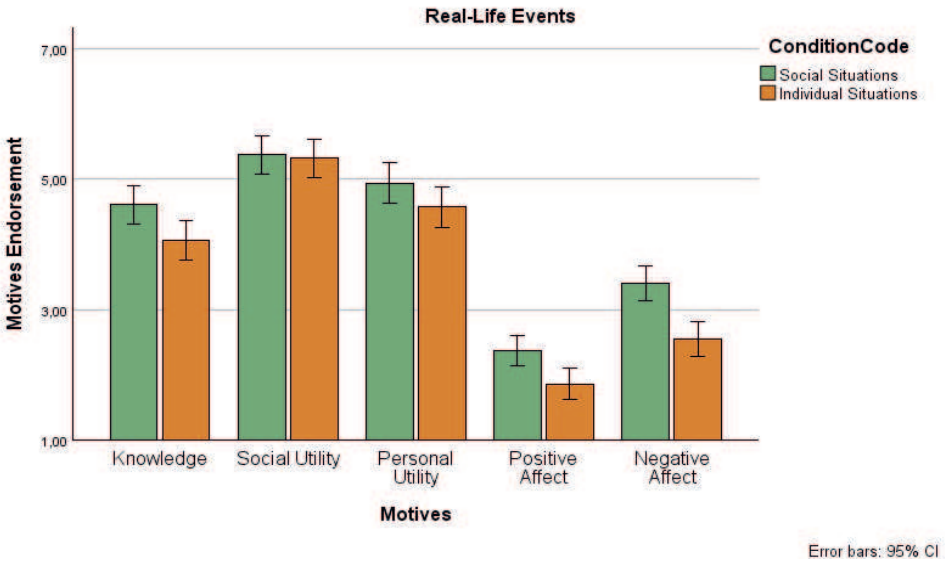
				95% Confidence Interval	
		Mean	Std. Error	Lower Bound	Upper Bound
Knowledge	Online	4.95	0.09	4.77	5.14
	Real-Life Event	4.34	0.11	4.13	4.55
	Cultural Expression	5.18	0.09	5.01	5.35
Social Utility	Online	4.94	0.10	4.73	5.14
	Real-Life Event	5.35	0.10	5.14	5.56
	Cultural Expression	4.59	0.11	4.38	4.80
Personal Utility	Online	4.79	0.12	4.55	5.03
	Real-Life Event	4.76	0.11	4.54	4.98
	Cultural Expression	4.56	0.12	4.31	4.80
Positive Affect	Online	2.38	0.09	2.20	2.57
	Real-Life Event	2.12	0.08	1.95	2.29

	Cultural Expression	2.65	0.10	2.46	2.85
Negative Affect	Online	3.27	0.11	3.06	3.47
	Real-Life Event	2.97	0.10	2.78	3.16
	Cultural Expression	3.43	0.10	3.24	3.63

Figure SM2

Three-way interaction Motive Category x Type of Suffering x Source





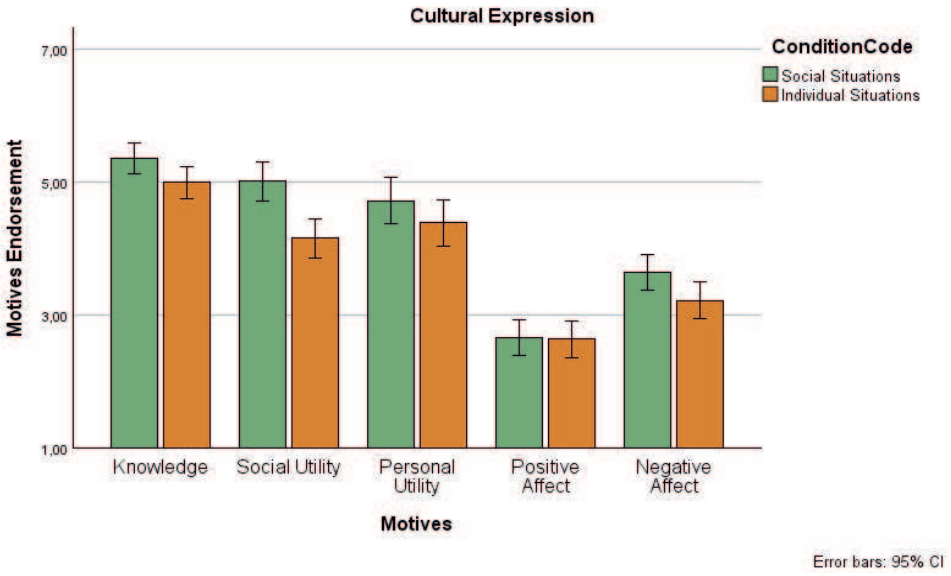


Table SM7

Descriptives three-way interaction Motive Category x Source x Type of Suffering

					95% Confidence Interval	
			Mean	Std. Error	Lower Bound	Upper Bound
Knowledge	Online	Social Situations	5.07	0.13	4.81	5.33
		Individual Situations	4.84	0.13	4.57	5.10
	Real-Life Event	Social Situations	4.61	0.15	4.32	4.91
		Individual Situations	4.06	0.15	3.76	4.36
	Cultural Expression	Social Situations	5.36	0.12	5.12	5.60
		Individual Situations	5.00	0.12	4.76	5.24
Social Utility	Online	Social Situations	5.20	0.15	4.91	5.49
		Individual Situations	4.68	0.15	4.39	4.97
	Real-Life Event	Social Situations	5.37	0.15	5.08	5.66
		Individual Situations	5.33	0.15	5.03	5.62

	Cultural Expression	Social Situations	5.02	0.15	4.72	5.31
		Individual Situations	4.16	0.15	3.86	4.45
Personal Utility	Online	Social Situations	4.93	0.17	4.59	5.27
		Individual Situations	4.65	0.17	4.31	4.99
	Real-Life Event	Social Situations	4.95	0.16	4.64	5.25
		Individual Situations	4.57	0.16	4.26	4.89
	Cultural Expression	Social Situations	4.72	0.17	4.38	5.07
		Individual Situations	4.39	0.18	4.04	4.74
Positive Affect	Online	Social Situations	2.48	0.13	2.22	2.74
		Individual Situations	2.29	0.13	2.03	2.55
	Real-Life Event	Social Situations	2.38	0.12	2.14	2.61
		Individual Situations	1.86	0.12	1.62	2.10
	Cultural Expression	Social Situations	2.67	0.14	2.39	2.94
		Individual Situations	2.64	0.14	2.37	2.92
Negative Affect	Online	Social Situations	3.48	0.15	3.19	3.78
		Individual Situations	3.05	0.15	2.75	3.34
	Real-Life Event	Social Situations	3.40	0.14	3.13	3.67
		Individual Situations	2.55	0.14	2.28	2.82
	Cultural Expression	Social Situations	3.64	0.14	3.37	3.91
		Individual Situations	3.22	0.14	2.95	3.50

Supplementary References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences, 2nd Ed.* Routledge. ISBN: 9780805802832

Supplementary Materials for Chapter 3



Pilot Study Stimuli

Research Goals

The goal of the pilot study was to select a final set of 10 positive and 10 negative image-description pairs to be used in the main study with significant differences in terms of valence and equivalence in terms of valence intensity, arousal and the degree to which the image matched the description.

Ratings NAPS images

We preselected 30 positive and 40 negative images from the People and Faces categories of the Nencki Affective Pictures System database (NAPS; Marchewka et al., 2014). The NAPS database holds valence and arousal ratings for all images on a scale from 1 (very negative/relaxed) to 9 (very positive/aroused). Valence Intensity was calculated by taking, for each image, the absolute value of the valence rating minus the midpoint of the rating scale (i.e., 5). This Valence Intensity variable reflects how intense each image is in terms of its positivity or negativity.

Pilot study descriptions

Participants

Since no preexisting ratings were available for the descriptions associated with the NAPS images, we performed a pilot study. 41 participants took part in this online study via the platform Prolific. 20 identified as women, 20 as men and 1 as non-binary. The mean age was 27.80 years, with a standard deviation of 11.24 years and a range of 19 to 73 years old. The sample included people from 15 different nationalities (including Portugal, Poland, South African, among others), and 48.78% of them were students. English fluency was selected as inclusion criterion due to the language of the study instructions. Participants were retributed with £4.00 per 30 minutes of participation. The local Ethics Review Board approved the protocol before data collection (project code FMG-2295). The study was run on March 23rd, 2023.

Procedure

For each image preselected from the NAPS database (see above) the research team developed a short description. We asked participants to rate these descriptions in terms of Valence ("how positive or negative is this description") with a scale from 1- very positive to 9- very negative and Arousal ("how arousing is this description") with a scale from 1- not arousing at all to 9- very arousing. The va-

lence rating was reverse coded to match the direction of the valence rating in the NAPS database. In addition, participants rated how well they thought the image matched the description ("to what extent is this image more positive, more negative or equally positive/negative than what you would expected based on the description") with a scale from 1-more positive to 9- more negative and 5- equally positive/negative in the middle of the scale. Based on this rating we computed a variable named Stimuli Match by taking the absolute value of the rating scale minus the midpoint of the scale (i.e., 5). The variable Stimuli Match reflects the extent to which each image matches the associated description.

The 70 descriptions were presented one at a time in random order. Below each description, participants were asked to rate valence and arousal. Then, participants were exposed to all 70 descriptions again paired with the corresponding NAPS image. For each pair, participants were asked to rate the matching question.

Results

Based on the ratings from the NAPS database and the pilot study we selected a final set of 10 positive and 10 negative stimulus pairs (images & descriptions) optimized with regards to differences in Valence, Valence intensity, Arousal and Stimuli Match. In this selection process, we also aimed to ensure a diversity of situations and characters portrayed (e.g., different age groups, gender, race) in line with findings from previous work (see Vivanco Carlevari, Oosterwijk & van Kleef, 2024). In the final set, positive and negative descriptions and images differed significantly in terms of Valence in the expected direction. Positive and negative descriptions were statistically equivalent in terms of Valence intensity, Arousal and Length (in characters). Images were difficult to match in terms of Valence Intensity and Arousal; positive images were more intensely positive than negative images were negative; negative images were rated as more arousing than positive images. Please note that in the main study participants made choices to view images based on the descriptions, which is why we prioritized matching Arousal for the descriptions (cues) instead of the images. Finally, in the final set, positive and negative image-description pairs were rated statistically equivalent in terms of how well the image matched the description (i.e., based on the variable Stimuli Match). For means and test results see Table SM1.

Table SM1

Ratings for Final Stimulus Set

		Positive	Negative	df	t-test
Descriptions	Valence	7.16 (0.19)	3.13 (0.26)	18	-12.40**
	Valence Intensity	2.26 (0.17)	2.18 (0.21)	18	0.27
	Arousal	4.56 (0.17)	4.69 (0.18)	18	-0.51
	Description Length	50.40 (2.16)	54.30 (2.00)	18	-1.33
Images	Valence	7.14 (0.07)	3.32 (0.19)	11.06	18.84**
	Valence Intensity	2.14 (0.07)	1.68 (0.19)	11.06	2.27*
	Arousal	5.02 (0.23)	6.47 (0.21)	18	-4.62**
Both	Stimuli Match	1.06 (0.15)	1.03 (0.23)	18	0.10

Note. Mean scores for each measure, standard error reported in parenthesis, df = degrees of freedom, * $p < 0.05$, ** $p < 0.001$.

Supplementary Material Study 3.1a - Motives to View

Table SM2

Stimuli

NAPS Code	Description
Faces_051_h	A young boy rides his bike without training wheels
Faces_242_h	Two friends volunteer for community work
Faces_246_v	A backpacker is excited about exploring a new city
Faces_260_h	An elderly man enthusiastically shows his stamp collection
Faces_321_h	A football team celebrates the winning goal
Faces_332_v	A man demonstrates a yoga posture surrounded by nature
Faces_337_h	A photographer is happy after winning the local photo contest
Faces_351_h	Twin sisters blow out candles on their 110th birthday
Faces_352_h	A man is thrown into a pool by his friends
People_175_h	A group of kids try out new tricks in the skatepark

		Suffering context
Faces_012_v	A girl cries when she is being publicly scolded by her parents	Interpersonal conflict
Faces_165_v	An Alzheimer patient falls asleep on public transport	Mental health
Faces_170_h	A journalist is attacked while covering a protest	Human rights violation
Faces_173_v	A cyclist receives medical treatment after a severe accident	Accident
Faces_269_v	A group of soldiers get ready to defend a city	War/Terror Attack
Faces_287_h	A football player is in pain after a bad foul	Accident
People_017_h	Firemen are trying to extinguish an out-of-control fire	Accident
People_127_h	A group of men attack someone because of his sexual orientation	Gender violence
People_134_h	A family works hard to block the water during a flood	Nature
People_231_h	The skeletal remains of genocide victims are discovered	Human rights violation

Table SM3

Descriptive Values Motives to View

	Positive Images		Negative Images		
	M	*SD*	*M*	*SD*	t-test
Curiosity	44,42	34,81	35,47	34,78	9,81*
Knowledge	27,31	30,65	33,04	32,29	-6,99*
Meaning	31,02	30,92	37,45	31,66	-8,00*
Novelty	30,76	33,51	38,99	34,42	-8,70*
Reduce Uncertainty	40,21	35,80	39,66	35,98	0,62
Utility	19,01	28,38	26,09	31,32	-9,97*
Self-Relevance	18,85	28,08	13,57	23,65	7,92*
Social Norm	23,59	31,18	21,03	28,99	3,23*
Moral Duty	13,39	24,66	19,42	27,97	-8,75*
Social Support	27,36	32,60	25,96	31,42	1,71
Compassion	31,80	33,32	61,66	32,87	-31,84*

Thrill	29,83	32,58	17,99	27,26	12,86*
Positive Emotions	61,11	31,78	11,39	21,89	59,83*
Feeling Better	16,87	26,70	22,96	30,75	-7,50*
Negative Emotions	7,12	16,79	57,39	33,04	-61,31*

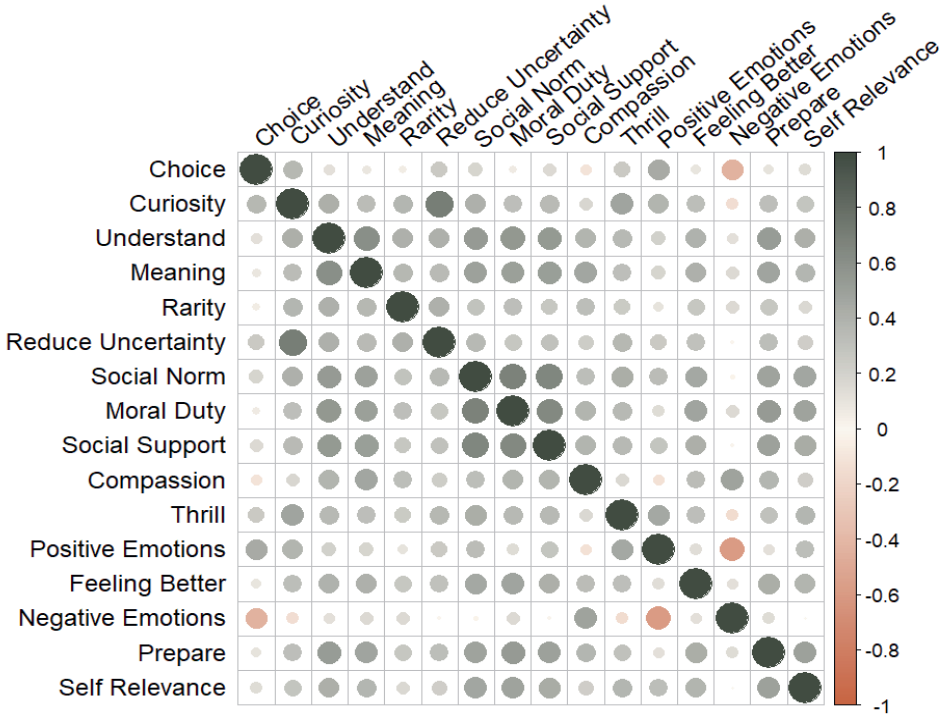
Note. *M* = Mean, *SD* = Standard Deviation, * = $p < 0.001$

Model 1 – All motives included

Curiosity and Reduce Uncertainty ratings presented a high correlation (r = 0.71, see Figure SM3 for the correlation matrix). This implies high collinearity in the model (threshold of r < 0.70) and given that Curiosity is conceptually closer to the outcome variable of Choice, we decided to exclude this item and keep Reduce Uncertainty for the rest of the analyses.

Figure SM1

Predictors Correlation Matrix



Model 1 showed a significant main effect of Valence Condition, such that positive images were chosen more often than negative ones. Details of this model

are presented in Table SM5. In terms of the motives, 9 predictors showed a main effect: Knowledge, Reduce Uncertainty, Self-Relevance, Social Norm, Moral Duty, Positive Emotions, Negative Emotions, Feeling Better and Thrill. Most of these motives were positive predictors of choice, such that the higher the expectation, the higher probability of choosing to see the image. Interestingly, Moral Duty and Negative Emotions were significant negative predictors. This implies that the higher the anticipation of experiencing negative emotions or fulfilling one's moral duty, the lower the probability of choosing to view the image.

In terms of the significant interactions with valence, there is an effect of Meaning (positive images, B = -0.27, SE = 0.18, z = -1.47, p = 0.14; negative images, B = 0.04, SE = 0.10, z = 0.45, p = 0.66), Reduce Uncertainty (positive images, B = 0.51, SE = 0.16, z = 3.27, p = 0.001; negative images, B = 0.66, SE = 0.09, z = 7.02, $p < 0.001$) and Positive Emotions (positive images, B = 1.14, SE = 0.16, z = 7.11, $p < 0.001$; negative images, B = 0.16, SE = 0.18, z = 0.88, p = 0.38). For Meaning and Reduce Uncertainty, the interaction effect showed that the relationship between reduce uncertainty and choice is stronger for negative than for positive images. On the contrary, the interaction between Valence Condition and Positive Emotions, implies that the relationship between positive emotions and choice only holds for positive images.

Model 2 – Item Reduction Method

Given than Model 1 included 32 predictors, in Model 2 we explored a data complexity reduction method to simplify the model. Therefore, we ran an Exploratory Factor Analysis (EFA) to evaluate which motives grouped together. The Kaiser-Meyer-Olkin (KMO) measure verified that the sample size was adequate for using EFA (KMO = .896). Bartlett's test of sphericity $\chi 2$ (91) = 24376.75, $p < .001$, indicated a correlation structure adequate for the analysis. The very simple structure (Revelle & Rocklin, 1979) suggested a 7 and a 2 factor solution. Factor loadings for the 7 factor solution are available in Table SM4.

The EFA revealed three factors with multiple items; the first related to epistemic value and included Knowledge and Meaning; the second related to social value and included, Social Norm, Moral Duty and Social Support; the third related to affective value and included Positive and Negative Emotions. Our work in previous studies is fairly consistent with these results (see Vivanco Carlevari et al., 2024).

Table SM4

Exploratory Factor Analysis Motives to View

	7 Factor Solution						
	1	2	3	4	5	6	7
Knowledge	0.191		**0.488**	0.114	0.119		
Meaning	0.139		**0.528**				
Novelty				**0.973**			
Reduce Uncertainty	-0.105		0.308	0.246		0.154	0.207
Utility	0.181		0.262		0.306	0.110	
Self-Relevance					**0.887**		
Social Norm	**0.753**	-0,107					
Moral Duty	**0.807**	0.105					
Social Support	**0.691**		0.177				
Compassion	0.118	0.449	0.301				
Thrill							**0.867**
Positive Emotions		**-0,624**	0.125		0.128		0.232
Feeling Better						**0.904**	
Negative Emotions		**0.927**					

We ran a multilevel logistic regression for Model 2 to evaluate the motives that predict choice to view (see Table SM5 for statistical details). The results showed a main effect of Condition, and for 4 single items; Reduce Uncertainty, Self-Relevance, Compassion and Thrill. This showed a similar pattern of results as Model 1, as Reduce Uncertainty, Self-Relevance and Thrill where also significant predictors of Choice in that model.

Regarding the interaction effects with Valence condition, Model 2 showed that Reduce Uncertainty (positive images, $B = 0.56$, $SE = 0.15$, $z = 3.88$, $p < 0.001$; negative images, $B = 0.70$, $SE = 0.09$, $z = 7.65$, $p < 0.001$) and the aggregated score of Positive and Negative Emotions (positive images, $B = 0.59$, $SE = 0.12$, $z = 4.71$, $p < 0.001$; negative images, $B = -0.70$, $SE = 0.08$, $z = -7.88$, $p < 0.001$) interact with stimuli valence. This second interaction implies that a higher expectation of experiencing emotions, increases the probability of choosing positive images but reduces the probability of choosing negative images.

Table SM5

Results of 3 Different Models, Motives to View Exploratory Study

		All Motives		Data Driven Reduction		Best Items	
	Fixed effects:	B (SE)	p-value	B (SE)	p-value	B (SE)	p-value
	(Intercept)	1.49 (0.19)	< 0.001	1.51 (0.18)	< 0.001	1.48 (0.19)	< 0.001
	Condition	-0.44 (0.14)	0.002	-1.22 (0.15)	< 0.001	-0.41 (0.14)	0.004
Knowledge	Knowledge	0.21 (0.10)	0.027	0.14 (0.09)	0.136	0.17 (0.09)	0.049
	Meaning	-0.09 (0.09)	0.305				
	Novelty	0.01 (0.08)	0.921	-0.05 (0.07)	0.482		
	Red Uncertainty	0.54 (0.08)	< 0.001	0.61 (0.08)	< 0.001	0.56 (0.08)	< 0.001
Personal	Utility	0.10 (0.10)	0.322	0.03 (0.08)	0.695		
	Self-Relevance	0.26 (0.09)	0.004	0.21 (0.08)	0.009	0.22 (0.08)	0.007
Social	Social Norm	0.27 (0.11)	0.014	0.14 (0.10)	0.153	0.17 (0.09)	0.057
	Moral Duty	-0.41 (0.11)	< 0.001				
	Social Support	0.17 (0.10)	0.085				
	Compassion	0.04 (0.09)	0.683	-0.16 (0.08)	0.049	0.05 (0.09)	0.551
Affective	Feeling Better	0.18 (0.09)	0.047	0.13 (0.08)	0.123		
	Thrill	0.45 (0.09)	< 0.001	0.53 (0.08)	< 0.001	0.43 (0.09)	< 0.001
	Positive Emotions	0.52 (0.10)	< 0.001	-0.08 (0.07)	0.250	0.54 (0.10)	< 0.001
	Negative Emotions	-0.90 (0.11)	< 0.001			-0.89 (0.11)	< 0.001
Knowledge * Valence	Cond*Knowledge	-0.12 (0.09)	0.193	0.03 (0.09)	0.761	-0.01 (0.08)	0.911
	Cond*Meaning	0.21 (0.08)	0.014				
	Cond*Novelty	0.07 (0.07)	0.320	0.10 (0.07)	0.128		
	Cond*RedUncertainty	0.16 (0.07)	0.024	0.13 (0.07)	0.043	0.20 (0.07)	0.003

Personal * Valence	Cond*Utility	0.05 (0.09)	0.613	0.15 (0.08)	0.069		
	Cond*SelfRelevance	-0.08 (0.08)	0.360	0.08 (0.07)	0.280	-0.01 (0.08)	0.893
Social * Valence	Cond*Social Norm	-0.08 (0.11)	0.474	0.06 (0.09)	0.547	0.04 (0.08)	0.596
	Cond*Moral Duty	0.16 (0.11)	0.153				
	Cond*SocialSupport	0.06 (0.09)	0.516				
	Cond*Compassion	0.05 (0.09)	0.551	0.04 (0.08)	0.631	0.11 (0.08)	0.182
Affective * Valence	Cond*FeelingBetter	-0.03 (0.09)	0.719	0.04 (0.08)	0.579		
	Cond*Thrill	-0.03 (0.09)	0.729	-0.04 (0.08)	0.588	-0.02 (0.09)	0.842
	Cond*PositiveEmo	-0.37 (0.10)	< 0.001	-0.59 (0.06)	< 0.001	-0.32 (0.10)	0.002
	Cond*NegativeEmo	-0.13 (0.10)	0.230			-0.09 (0.10)	0.387

Note. Cond* = Condition and motive interaction. B = Fixed effect estimate. SE = Standard Error.

Model Comparison

In order to evaluate the three different models of this exploratory phase, we compared them in terms of their fit and complexity (see Table SM6). In terms of AIC, Model 1 was slightly better in terms of model fit. In terms of BIC, Model 3 showed the best fit with less complexity.

Given that our goal was to prioritize model that was both theoretically relevant and as simple as possible, , we decided to run Model 3 in the Confirmatory phase and test if the results obtained in this study replicate.

Table SM6

Model Comparison

	N of Predictors	AIC	BIC
Model 1	32	3100.3	3301.7
Model 2	24	3244.3	3395.3
Model 3	20	3110.2	3236.1

Note. Comparison of three models. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion

Interest Ratings

We test differences on interest ratings per condition. Figure 1b show mean differences for positive and negative images ($t(185) = -2.481$, $p = 0.014$, CI[-8.09,-0.92]). Therefore, for the chosen images, participants rated negative images ($M = 55.48$, $SD = 20.17$) significantly more interesting than positive ones ($M = 50.97$, $SD = 21.64$).

Supplementary Material Study 3.1b - Motives to View Confirmatory Study

Descriptive Statistics

Table SM7

Paired sample t-test across conditions

	Positive Images		Negative Images		Paired sample t-test	
Motive	Mean	SD	Mean	SD	*t*(382)	p-value
Knowledge	29.27	22.77	36.66	22.39	-9.40	<.001
Reduce Uncertainty	41.88	27.82	42.98	26.21	-1.16	0.248
Self-Relevant	21.10	19.80	15.28	16.02	8.68	<.001
Social Norm	27.32	25.39	22.86	19.63	4.29	<.001
Compassion	34.17	24.68	65.20	23.17	-22.23	<.001
Thrill	32.43	24.92	18.88	18.50	9.19	<.001
Positive Emotions	63.03	21.32	12.50	12.54	46.29	<.001
Negative Emotions	7.21	9.64	57.39	20.16	-46.60	<.001

All Motives Model – Exploratory Analysis

Table SM8

All items - Motives to View Study 3.1b

Fixed effects:	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	1.53	0.15	9.93	< 0.001	***
Condition	-0.44	0.12	-3.54	< 0.001	***
Knowledge	0.20	0.07	2.84	0.005	**
Meaning	0.02	0.06	0.24	0.807	

Novelty	-0.07	0.06	-1.18	0.237	
Reduce Uncertainty	0.51	0.06	8.64	< 0.001	***
Utility	0.12	0.07	1.73	0.083	
Self-Relevance	0.09	0.07	1.42	0.155	
Social Norm	0.08	0.07	1.19	0.236	
Moral Duty	0.13	0.08	1.56	0.119	
Social Support	-0.07	0.07	-1.11	0.267	
Compassion	0.03	0.06	0.53	0.594	
Thrill	0.56	0.06	8.80	< 0.001	***
Positive Emotions	0.53	0.08	7.00	0.000	***
Feeling Better	0.04	0.07	0.54	0.587	
Negative Emotions	-0.80	0.08	-9.89	< 0.001	***
Cond*Knowledge	0.03	0.07	0.44	0.658	
Cond*Meaning	0.11	0.06	1.80	0.071	
Cond*Novelty	0.01	0.05	0.12	0.905	
Cond*Reduce Uncertainty	0.14	0.05	2.81	0.005	**
Cond*Utility	0.08	0.07	1.27	0.206	
Cond*Self Relevance	-0.14	0.06	-2.26	0.024	*
Cond*Social Norm	-0.02	0.07	-0.29	0.771	
Cond*Moral Duty	0.04	0.08	0.48	0.628	
Cond*Social Support	0.02	0.06	0.36	0.721	
Cond*Compassion	-0.03	0.06	-0.45	0.654	
Cond*Thrill	-0.13	0.06	-2.04	0.042	*
Cond*Positive Emotions	-0.37	0.07	-4.97	< 0.001	***
Cond*Feeling Better	0.03	0.06	0.50	0.617	
Cond*Negative Emotions	-0.07	0.08	-0.93	0.351	
Random effects:	Variance	Std.Dev.			
Participant (Intercept)	2.63	1.62			
Image Description (Intercept)	0.21	0.45			

Note. Cond* = Condition and motive interaction. *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$

Interest Results

Interest ratings did not show a significant difference across valence condition $t(366) = -1.40$. $p = 0.163$. Therefore. contrary to our hypothesis. interest of negative images ($M = 54.28$. $SD = 20.94$) was not statistically higher than for positive images ($M = 52.31$. $SD = 22.63$).

Supplementary Material Study 3.2a - Motives to Read

Table SM9

Descriptions and Stories

Description	Story
A young boy rides his bike without training wheels	A young boy wants to ride his bike without the extra wheels. He has been practicing for weeks. At first, he wobbles, but soon he feels more confident. His parents cheer him on, as he leaves the training wheels behind. The boy happily rides through the quiet streets, showing that he can do it on his own.
Two friends volunteer for community work	In a small town, two friends decide to help out. They volunteer for community work at the local park. With rakes and other tools, they clean up leaves and pick up litter. As they work side by side, laughter fills the air. The park soon looks spick and span. The friends feel proud, knowing they have made a difference
A backpacker is excited about exploring a new city	A backpacker is bubbling with excitement when he enters a new city. With a map in hand, he wanders through unfamiliar streets, eager to explore. Every corner holds a surprise – vibrant markets, historic landmarks, and the buzz of a new culture. Local food stalls and friendly faces beckon. The new city welcomes this adventurous traveler.
An elderly man enthusiastically shows his stamp collection	A elderly man shares his passion for stamps. With a twinkle in his eye, he shows his collection to anyone willing to listen. Every stamp, a tiny piece of history, has a story. Cheerfully he flips through pages filled with colorful postage from around the world. Each stamp is a cherished memory of distant lands and bygone times.
A football team celebrates the winning goal	The stadium erupts in joy as the football team scores the winning goal. Players leap into the air, arms raised in triumph. Cheers echo through the stands as fans wave flags and scarves. Teammates gather, exchanging hugs and high-fives, their faces lit with happiness. The sound of the referee's final whistle is drowned in the sounds of celebration.

A man demonstrates a yoga posture surrounded by nature	In a quiet meadow, a man places his body in aa yoga pose. Surrounded by nature's beauty, he extends his arms gracefully, connecting with the gentle breeze. He enjoys the lush grass beneath his feet and the warm glow of the sun. As he moves into each pose, he feels his body relaxing.
A photographer is happy after winning the local photo contest	A photographer smiles when he recalls the day he won the local photo contest. A sense of triumph still echoes in his mind—he remembers the applauding audience; the admiration of his fellow photographers. The winning photograph had captured an important moment in local history that left a lasting impression on the community.
Twin sisters blow out candles on their 110th birthday	Twin sisters are celebrating their 110th birthday. Surrounded by their loved ones, they lean over a cake ablaze with flickering candles. After all guests sing a cheerful birthday song, the sisters blow out the candles and the room applauds and cheers. Everyone is amazed at more than a century of sisterly connection.
A man is thrown into a pool by his friends	Amidst laughter, someone is thrown into a pool. His friends cheer while the man splashes up a fountain of water. . He comes back up from the water, smiling and deciding which of his friends he will throw in the pool next. Laughter fills the air again, and the group enjoys having a good time during the summer break.
A group of kids try out new tricks in the skatepark	Excitement buzzes in the air as a bunch of kids hit the skatepark, eager to try out new tricks. Skateboards clatter against the ramps, and laughter echoes as they attempt flips and spins. With determination on their faces, they exchange tips and cheer each other's successes. The skatepark is the place to be that summer.
A girl cries when she is being publicly scolded by her parents	In a busy street, a girl is scolded by her parents for breaking a vase in a department store. . Their serious words make her cry, and she feels sad and embarrassed. People who walk by notice the situation. The parents do not seem to notice that they are making a scene.
An Alzheimer patient falls asleep on public transport	An old man with Alzheimer's falls asleep on the bus, finding comfort in the steady sound of the engine. He holds a worn-out photo, with a phone number on the back - his way of remembering things. After a while the bus driver notices him and alerts emergency services to bring the elderly man back to his home.
A journalist is attacked while covering a protest	During a protest, a journalist is injured by the riot police. In the chaotic scene the journalist, there to report, became a target. The attack happens unexpectedly, leaving the journalist shaking and bleeding. Nearby protesters and colleagues rush over to help, trying to remove him from the violent surroundings as quickly as possible.

A cyclist receives medical treatment after a severe accident	After a severe cycling accident, a cyclist receives urgent medical care. The scene is chaotic as bystanders call for help. The cyclist, injured and in pain, is quickly attended by paramedics. With care and precision, they stabilize the victim before transporting him to the hospital. The cyclist's road to recovery begins with the swift response of medical professionals.
A group of soldiers get ready to defend a city	A city is facing a threat and a group of soldiers is gearing up to defend the walls. Their faces display determination as they check their equipment and test their communication lines. The enemy is at the gates and each soldier knows their role, unified by a common purpose—to protect the city.
A football player is in pain after a bad foul	After a harsh foul on the football field, a player winces in pain. The impact was intense, and the player clutches his injured leg. Teammates rush over, showing concern as the referee addresses the foul. The player is assisted off the field for medical attention. The faces of the trainer and medical professionals reflect the severity of his injury.
Firemen are trying to extinguish an out-of-control fire	Firefighters try to control a blazing fire on a train track. The flames roar and engulf everything in their path. The brave firefighters spray water, their faces determined. The intense heat and smoke fills the air as they work tirelessly to extinguish the flames. Afterwards, it takes a long time to remove the burned out train wrecks.
A group of men attack someone because of his sexual orientation	In a disturbing incident, a group of men target someone because of his sexual orientation, attacking him with prejudice and hate. Five men take turns hitting the man while he is on the ground . Bystanders call the police and plead with the perpetrators to stop the fight. One person jumps in and protects the victim from the blows.
A family works hard to block the water during a flood	In the face of a flood, a family works tirelessly to block the water. Using sandbags and determination, they labor together, placing barriers to divert the rising tide. The air buzzing with urgency as they fortify their home against the water. Mud-streaked but resolute, each family member contributes, a united front against the flood's force.
The skeletal remains of genocide victims are discovered	In a grim discovery, the skeletal remains of genocide victims are found. The scene unfolds with a mix of sorrow and shock as forensic experts carefully unearth the evidence. Each bone tells a silent tale of lives lost, marking a tragic chapter in history. It has been a long wait for the victims' families.

Note. Please note that the descriptions were created by the authors while the stories were written with the support of AI (OpenAI, 2024).

Table SM10

Motives to Read Operationalization

Category	Motive	Item
Epistemic	Curiosity	Reading this story will satisfy my curiosity
	Knowledge	Reading this story will expand my knowledge about the world
	Meaning	Reading this story will give me meaningful insight into the human condition
	Novelty	Reading this story will show me something I have rarely read before
	Reduce Uncertainty	Reading this story will stop me from wondering what the story is about
Personal	Utility	Reading this story will be useful to handle similar situations in the future
	Self-Relevance	Reading this story will be relevant to my personal life
Social	Social Norms	Reading this story is considered as the right thing to do
	Moral Duty	Reading this story is my moral duty
	Social Support	Reading this story is a way to show social support
	Compassion	Reading this story will make me feel compassion for the people involved
Affective	Thrill	Reading this story will be a thrill
	Feeling better	Reading this story will make me feel better about my own situation
	Positive Emotions	Reading this story will evoke positive emotions
	Negative Emotions	Reading this story will evoke negative emotions

Table SM11

Descriptive Values Motives to Read

	Positive Stories		Negative Stories		
	M	*SD*	Mean	*SD*	t-test
Curiosity	38,43	22,85	53,21	23,00	-11,418 *
Knowledge	31,02	20,15	42,35	18,92	-12,378 *
Meaning	30,08	20,57	41,20	20,72	-11,394 *

Novelty	25,93	17,68	32,52	18,27	-6,495 *
Reduce Uncertainty	43,86	26,29	57,39	24,60	-10,730 *
Utility	16,44	16,48	31,44	19,56	-15,119 *
Self-Relevance	14,32	13,30	14,41	14,43	-0,137
Social Norm	15,68	17,35	27,19	21,41	-11,089 *
Moral Duty	10,27	13,46	22,08	20,09	-11,019 *
Social Support	20,79	19,83	29,99	21,39	-8,530 *
Compassion	28,00	20,66	52,38	20,42	-16,684 *
Thrill	19,57	17,21	27,49	19,26	-5,380 *
Positive Emotions	48,56	22,39	14,12	12,58	21,874 *
Feeling Better	13,84	14,41	27,03	21,02	-10,177 *
Negative Emotions	8,45	9,86	48,25	20,18	-28,097 *

Note. *M* = Mean, *SD* = Standard Deviation, * = $p < 0.001$

Model 1 – All motives included

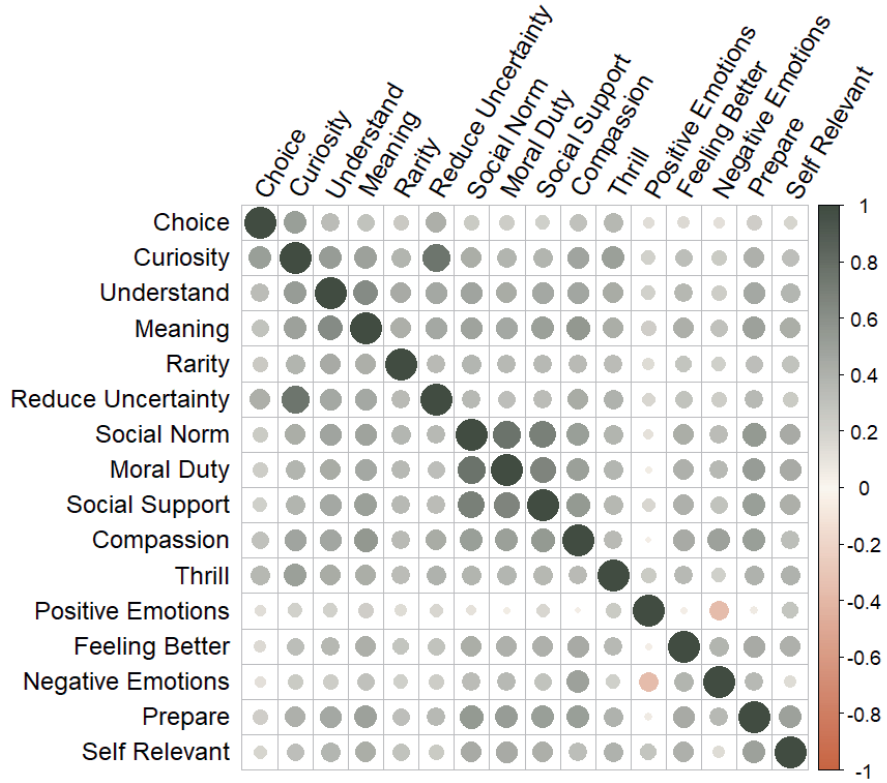
For Study 3.2a, Curiosity and Reduce Uncertainty ratings also showed a high correlation (r = 0.75). Therefore, same to Study 3.1a, the Curiosity item was excluded from the following analysis in order to avoid collinearity issues in the model.

Model 1 showed significant main effects for Valence Condition, and 10 motives, Knowledge, Novelty, Reduce Uncertainty, Self-Relevance, Social Support, Compassion, Positive Emotions, Negative Emotions, Feeling Better and Thrill. Similar as for Study 3.1a, most of these motives were positive predictors of choice. Three motives were negative predictors, Social Support, Feeling Better and Negative Emotions.

In terms of the significant interactions with valence, there is an effect of Reduce Uncertainty (positive stories, B = 0.71, SE = 0.10, z = 7.33, $p < 0.001$; negative stories, B = 1.07, SE = 0.10, z = 10.49, $p < 0.001$), Self-Relevance (positive stories, B = 0.26, SE = 0.10, z = 2.76, p = 0.006; negative stories, B = 0.06, SE = 0.09, z = 0.63, p = 0.53) and Feeling Better (positive stories, B = -0.35, SE = 0.12, z = -2.83, p = 0.004; negative stories, B = -0.02, SE = 0.08, z = -0.31, p = 0.76).

Figure SM2

Predictors Correlation Matrix



Model 2 – Item Reduction Method

In Model 2 we explored a data complexity reduction method by running an EFA. The Kaiser-Meyer-Olkin (KMO) verified that the sample size was adequate for using EFA (KMO = .910). Bartlett's test of sphericity $\chi 2$ (91) =25035, $p < .001$, indicated an appropriate correlation structure for the analysis. The very simple structure (Revelle & Rocklin, 1979) suggested a 7 factor solution. Factor loadings for the 7 factor solution are presented in Table SM12.

Table SM12

Exploratory Factor Analysis Motives to Read

7 Factor Solution							
	1	2	3	4	5	6	7
Knowledge		**0.519**	0.142	0.100			

Meaning		**0.636**					0.130
Novelty			**0.969**				
Reduce Uncertainty		0.462		0.192			
Social Norm	**0.888**						
Moral Duty	**0.850**						
Social Support	**0.710**	0.146					
Compassion	0.211	**0.501**			0.190	0.105	
Thrill				**0.932**			
Positive Emotions		0.167			**-0.720**		
Feeling Better						**0.936**	
Negative Emotions		0.215			**0.667**		
Utility	0.225	0.243			0.147		0.306
Self-Relevance							**0.836**

The EFA was very similar to the one we ran for Study 3.1a and the same three factors emerged. The factor for epistemic value included more items, Knowledge, Meaning, Reduce Uncertainty and Compassion. Since Compassion is not an epistemic motive, we excluded this item from the aggregated score. Consistent with Study 3.1a, Reduce Uncertainty was included as a single item. The factor for social value included Social Norm, Moral Duty and Social Support. The factor for affective value included Positive and Negative Emotions. Due to the large similarities with the EFA of Study 3.1a we ran a model using the same structure for both studies.

We ran a multilevel logistic regression for Model 2 to evaluate the motives that predict choice to view (see Table SM13 for statistical details). The results showed a main effect for one factor, Epistemic value, and 6 single items, Novelty, Reduce Uncertainty, Self-Relevance, Compassion, Thrill and Feeling Better. Not that Feeling Better was a negative predictor.

In terms of the interaction effects with Valence Condition, Model 2 showed a significant interaction between the motives Reduce Uncertainty, Feeling Better and the aggregated score of Positive and Negative Emotions. The relationship between choice and Reduce Uncertainty was stronger for negative stories ($B = 1.07$, $SE = 0.10$, $z = 10.62$, $p < 0.001$) than positive stories ($B = 0.72$, $SE = 0.10$, $z = 7.61$, $p < 0.001$). The negative relationship between choice and Feeling Better was stronger for positive than negative stories (positive stories, $B = -0.40$, $SE = 0.10$, $z = 3.98$, $p < 0.001$; negative stories, $B = -0.05$, $SE = 0.08$, $z = -0.68$, $p = 0.499$). The negative

relationship between the aggregated score of Positive and Negative Emotions was stronger for positive stories (B = 0.41, SE = 0.10, z = 3.98, p < 0.001) than negative stories (B = -0.21, SE = 0.09, z = -2.33, p = 0.020).

Table SM13

Results of 3 Different Models, Motives to Read Exploratory Study

		Model 1		Model 2		Model 3	
	Fixed Effects	B (SE)	p-value	B (SE)	p-value	B (SE)	p-value
	(Intercept)	-0.44 (0.18)	0.013	-0.50 (0.16)	0.001	-0.42 (0.18)	0.018
	Condition	0.66 (0.16)	< 0.001	0.22 (0.14)	0.113	0.67 (0.16)	< 0.001
Knowledge	Knowledge	0.17 (0.07)	0.014	0.26 (0.07)	< 0.001	0.20 (0.06)	0.002
	Meaning	0.07 (0.07)	0.313				
	Novelty	0.14 (0.06)	0.011	0.14 (0.06)	0.011		
	RedUncertainty	0.97 (0.07)	< 0.001	0.97 (0.07)	< 0.001	0.96 (0.07)	< 0.001
Personal	Utility	-0.10 (0.07)	0.139	-0.11 (0.68)	0.098		
	Self Relevance	0.19 (0.06)	0.002	0.24 (0.06)	< 0.001	0.15 (0.06)	0.008
Social	SocialNorm	-0.08 (0.08)	0.303			-0.12 (0.07)	0.081
	MoralDuty	0.10 (0.08)	0.238	-0.14 (0.08)	0.056		
	SocialSupport	-0.15 (0.07)	0.044				
	Compassion	0.33 (0.07)	< 0.001	0.23 (0.07)	< 0.001	0.30 (0.07)	< 0.001
Affective	FeelingBetter	-0.15 (0.07)	0.020	-0.22 (0.06)	< 0.001		
	Thrill	0.61 (0.06)	< 0.001	0.65 (0.06)	< 0.001	0.60 (0.06)	< 0.001
	PositiveEmotions	0.52 (0.08)	< 0.001	0.10 (0.06)	0.121	0.54 (0.08)	< 0.001
	NegativeEmotions	-0.31 (0.09)	< 0.001			-0.35 (0.08)	< 0.001
Knowledge * Valence	Cond*Knowledge	-0.11 (0.06)	0.077	-0.08 (0.06)	0.241	-0.07 (0.06)	0.194
	Cond*Meaning	0.03 (0.06)	0.655				
	Cond*Novelty	0.08 (0.05)	0.137	0.10 (0.05)	0.051		
	Cond*RedUncer	0.19 (0.05)	< 0.001	0.18 (0.05)	< 0.001	0.22 (0.05)	< 0.001
Personal * Valence	Cond*Utility	0.08 (0.07)	0.204	0.11 (0.06)	0.097		
	Cond*SelfRelevance	-0.12 (0.06)	0.031	-0.08 (0.06)	0.170	-0.04 (0.05)	0.490
Social * Valence	Cond*SocialNorm	0.06 (0.08)	0.445			0.16 (0.06)	0.007
	Cond*MoralDuty	0.04 (0.08)	0.560	0.13 (0.07)	0.055		
	Cond*SocialSupport	0.03 (0.07)	0.638				
	Cond*Compassion	0.02 (0.07)	0.801	-0.03 (0.06)	0.649	0.07 (0.06)	0.299

Affective * Valence	Cond*FeelingBetter	0.19 (0.06)	0.002	0.23 (0.06)	< 0.001		
	Cond*Thrill	-0.11 (0.06)	0.067	-0.06 (0.06)	0.282	-0.07 (0.06)	0.259
	Cond*PositiveEmo	0.02 (0.08)	0.815	-0.30 (0.06)	< 0.001	0.04 (0.08)	0.560
	Cond*NegativeEmo	-0.11 (0.08)	0.170			-0.05 (0.08)	0.551

Note. Cond* = Condition and motive interaction. B = Fixed effect estimate. SE = Standard Error.

Model Comparison

Same as for Study 3.1a, we evaluate the three models of the exploratory phase in terms of fit and complexity (see Table SM14). In terms of AIC, Model 1 was slightly the best one balancing model fit. In terms of BIC, Model 3 showed the best fit. To keep consistency between the two studies, we registered the results of Model 3 as our hypothesis for the confirmatory phase.

Table SM14

Model Comparison

	N of Predictors	AIC	BIC
Model 1	32	3902.1	4103.3
Model 2	24	3966.0	4116.9
Model 3	20	3911.3	4037.1

Note. Comparison of three models. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion

Interest Ratings

With regards to interest ratings, for the chosen stories, participants rated negative stories (M = 64.04. SD = 18.04) significantly more interesting than positive ones (M = 53.08. SD = 22.31), (t(181) = -7.16. p < 0.001. CI[-13.99.-7.94]).

Supplementary Material Study 3.2b - Motives to Read

Descriptive Statistics

Table SM15

Paired sample t-test across conditions

	Positive Stories		Negative Stories		paired sample t-test	
Motive	Mean	Mean	Mean	SD	t(348)	p-value
Knowledge	34.16	44.63	44.63	22.80	-14.06	<.001
Reduce Uncertainty	46.27	60.60	60.60	27.15	-13.91	<.001
Self-Relevance	19.13	18.99	18.99	18.01	0.20	0.842
Social Norm	19.17	30.22	30.22	21.31	-13.61	<.001
Compassion	33.23	55.94	55.94	23.09	-20.77	<.001
Thrill	24.32	33.07	33.07	21.06	-7.00	<.001
Positive Emotions	50.01	17.67	17.67	22.80	25.37	<.001
Negative Emotions	10.11	47.68	47.68	12.50	-33.64	<.001

All Motives Model – Exploratory Analysis

Table SM16

All items - Motives to Read Study 3.2b

Fixed effects:	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-0.19	0.15	-1.25	0.212	
Condition	0.36	0.14	2.60	0.009	**
Knowledge	0.17	0.05	3.18	0.001	**
Meaning	0.09	0.05	1.71	0.088	
Novelty	-0.09	0.05	-1.97	0.048	*
Reduce Uncertainty	0.88	0.05	17.49	< 0.001	***
Utility	-0.03	0.05	-0.60	0.550	
Self-Relevance	0.22	0.05	4.27	< 0.001	***
Social Norm	0.22	0.06	3.41	0.001	***
Moral Duty	0.01	0.06	0.22	0.827	
Social Support	-0.17	0.06	-2.90	0.004	**

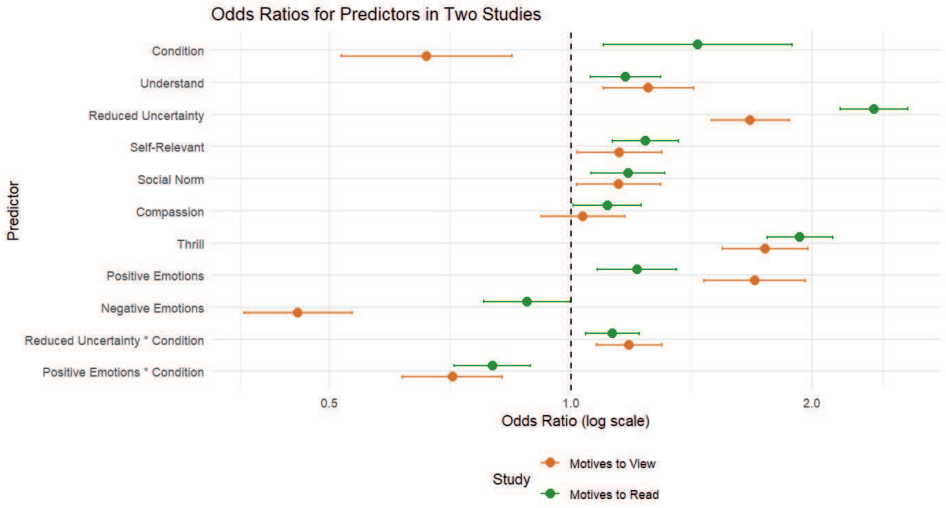
Compassion	0.12	0.05	2.22	0.027	*
Thrill	0.67	0.05	13.70	< 0.001	***
Positive Emotions	0.20	0.06	3.35	0.001	***
Feeling Better	0.03	0.05	0.65	0.516	
Negative Emotions	-0.11	0.06	-1.77	0.078	
Cond*Knowledge	0.06	0.05	1.23	0.217	
Cond*Meaning	-0.10	0.05	-1.99	0.046	*
Cond*Novelty	-0.06	0.04	-1.40	0.161	
Cond*Reduce Uncertainty	0.13	0.04	3.13	0.002	**
Cond*Utility	0.09	0.05	1.65	0.099	
Cond*Self Relevance	-0.08	0.05	-1.60	0.110	
Cond*Social Norm	0.07	0.06	1.16	0.247	
Cond*Moral Duty	-0.04	0.06	-0.62	0.535	
Cond*Social Support	0.10	0.05	1.93	0.053	
Cond*Compassion	0.12	0.05	2.42	0.015	*
Cond*Thrill	0.00	0.05	-0.09	0.925	
Cond*Positive Emotions	-0.21	0.06	-3.78	0.000	***
Cond*Feeling Better	0.03	0.05	0.70	0.486	
Cond*Negative Emotions	-0.17	0.06	-2.81	0.005	**
Random effects:	Variance	Std.Dev.			
Participant (Intercept)	1.68	1.29			
Image (Intercept)	0.32	0.56			

Note. Cond* = Condition and motive interaction. *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$

Interest Ratings

Reported Interest showed differences as predicted ($t(319) = -7.31$. $p < 0.001$); experienced Interest for (already chosen) negative stories ($M = 65.46$. $SD = 18.62$) was significantly higher than for positive stories ($M = 57.04$. $SD = 23.33$).

Supplementary Figure Odd Ratios



Supplementary Materials for Chapter 4



Stimuli Images & Descriptions

Table SM1

Studies Materials – Image Code and Description

Valence	NAPS Code	Description
Positive	Faces_051_h	A young boy rides his bike without training wheels
	Faces_103_h	A young man is excited on his first day at university
	Faces_242_h	Two friends volunteer for community work
	Faces_246_v	A backpacker is excited about exploring a new city
	Faces_260_h	An elderly man enthusiastically shows his stamp collection
	Faces_332_v	A man demonstrates a yoga posture surrounded by nature
	Faces_337_h	A photographer is happy after winning the local photo contest
	Faces_352_h	A man is thrown into a pool by his friends
	People_171_v	A tourist is posing while sight-seeing on holiday
	People_175_h	A group of kids try out new tricks in the skatepark
Neutral	Faces_006_h	A girl listens while the adults talk at a family reunion
	Faces_048_h	Two kids walk back home after visiting a store
	Faces_167_v	A spokesperson answers questions at a press conference
	Faces_224_h	A woman drinks water after a walk with her grandchildren
	Faces_309_h	Two friends walk down a busy street in their hometown
	Faces_319_v	A couple search for their hotel after the taxi left
	People_028_h	An athlete trains for a cart race with their dogs
	People_097_h	A construction worker carries tools across a building site
	People_149_h	A man and his dog nap on the steps outside their home
	People_150_h	A man watches the football training from the stands
Negative	Faces_012_v	A girl cries when she is being publicly scolded by her parents
	Faces_165_v	An Alzheimer patient falls asleep on public transport
	Faces_170_h	A journalist is attacked while covering a protest
	Faces_173_v	A cyclist receives medical treatment after a severe accident
	Faces_269_v	A group of soldiers get ready to defend a city
	Faces_287_h	A football player is in pain after a bad foul
	People_017_h	Firemen are trying to extinguish an out-of-control fire
	People_127_h	A group of men attack someone because of his sexual orientation
	People_134_h	A family works hard to block the water during a flood
	People_231_h	The skeletal remains of genocide victims are discovered

Note. Studies 4.1 and 4.2 used the full list of stimuli. Study 4.3 used only the Positive and Negative Condition

Stimuli Selection Report

Image ratings

The following report involve a subset of images selected from the peoples and faces category of the Nencki Affective Picture System (Marchewka et al., 2014). Table SM1 include the image codes of this selection. The valence and arousal ratings were extracted from the original, publicly available data set. In this dataset, Valence was measured with a 9 point scale rating from 1- very negative to 9- very positive. Arousal was measured with a 9 point scale rating from 1- relaxed to 9- aroused, and 5- neutral/ambivalent. We computed a measure of Valence Intensity, calculated by taking the absolute value of the valence rating of each image minus the midpoint of the rating scale (i.e., 5). This Valence Intensity variable reflects how intense each image is in terms of its positivity or negativity. For each score we ran a one way ANOVA including image condition as factor with three levels (positive, negative, and neutral). When appropriate, we ran pairwise comparison to explore differences between these three levels. Condition means, standard deviations and pairwise comparison differences are reported in Table SM2.

The selected images showed significant differences in Valence $F(2,27) = 199.78$, $p < 0.001$. Pairwise comparison showed significant differences across the three image's valence.

The selected images showed significant differences in our computed measure of valence Intensity $F(2,27) = 47.48$ $p < 0.001$ between the neutral and both valenced conditions. Most important, however, negative and positive images do not differ in terms of Valence Intensity.

The selected images showed significant differences in Arousal $F(2,27) = 21.02$, $p < 0.001$. Negative images were associated with significantly higher levels of arousal as compared to the neutral and positive condition.

Table SM2

Images Descriptives for Study Conditions

	Positive *M (SD)*	Neutral *M (SD)*	Negative *M (SD)*
Image Valence	7.03^{a} (0.13)	5.35^{b} (0.37)	3.32^{c} (0.61)
Image Intensity	2.03^{a} (0.13)	0.44^{b} (0.24)	1.68^{a} (0.61)
Image Arousal	4.97^{a} (0.60)	4.76^{a} (0.67)	6.47^{b} (0.67)

Note. *M* = Mean; *SD* = Standard Deviation; a, b, c = pairwise comparison using Bonferroni correction. Different superscripts refer to significant differences ($p < .05$).

Description Ratings

We create a verbal description to pair with each of the selected images. In a pilot study, published in previous work (Vivanco Carlevari et al., 2025) we measured perceived valence and arousal of the descriptions corresponding to the negative and positive condition. In addition, participants rated how well they thought the image matched the description ("to what extent is this image more positive, more negative or equally positive/negative than what you would expected based on the description") with a scale from 1-more positive to 9- more negative and 5-equally positive/negative in the middle of the scale. Based on this rating we computed a variable named Stimuli Match by taking the absolute value of the rating scale minus the midpoint of the scale (i.e., 5). The variable Stimuli Match reflects the extent to which each image matches the associated description. Note that the neutral conditions was a novel inclusion of the current research, therefore there is no data about this subset of descriptions from the pilot study.

For the descriptions we ran a one way ANOVA with the three levels of stimuli valence (positive, negative, and neutral) and for valence, intensity, arousal and stimuli match, we ran t-test to compare the positive and negative condition.

The results show no significant differences in Description Length ($F(2,27) = 0.90$, $p = 0.42$). No significant differences in Descriptions Valence ($t(18) = -12.56$, $p < 0.001$), Descriptions Intensity ($t(18) = -0.36$, $p = 0.72$), Descriptions Arousal ($t(18) = -1.58$, $p = 0.13$) and Stimuli Match ($t(18) = -0.82$, $p = 0.42$).

Secondary Outcomes Report
Personal, Social and Affective Value of viewing Images of Suffering

In addition to epistemic value, content portraying suffering may have social, personal, and affective value. Across the three studies of this paper, we measured secondary outcomes, namely self-relevance (as a personal outcome), compassion (as a social outcome), and negative emotions, positive emotions and thrill (as affective outcomes). Note that these social, personal, and affective outcomes were included given that previous research shows they are relevant to the experience of engaging with suffering (Vivanco Carlevari et al., 2024, 2025) but the primary contribution of the paper is the epistemic value of engaging with suffering. In this section we report the results regarding these secondary outcomes for the three studies.

As for the epistemic outcomes, we pre-registered the hypotheses before collecting data and published them in AsPredicted. Firstly, we predicted that Com-

passion and Negative Emotions would be rated higher for negative compared to positive and neutral social images. Secondly, we predicted that Thrill would be rated higher for negative compared to neutral social images. Thirdly, we predicted that Positive Emotions would be rated higher for positive compared to neutral and social images. Finally, we didn't have a prediction for Self-Relevance, so we explored this outcome exploratorily. Note that these outcomes were measured together with epistemic outcomes and for the data analyses we followed the guidelines reported in the main text of the manuscript.

Study 4.1 Secondary Outcomes Results

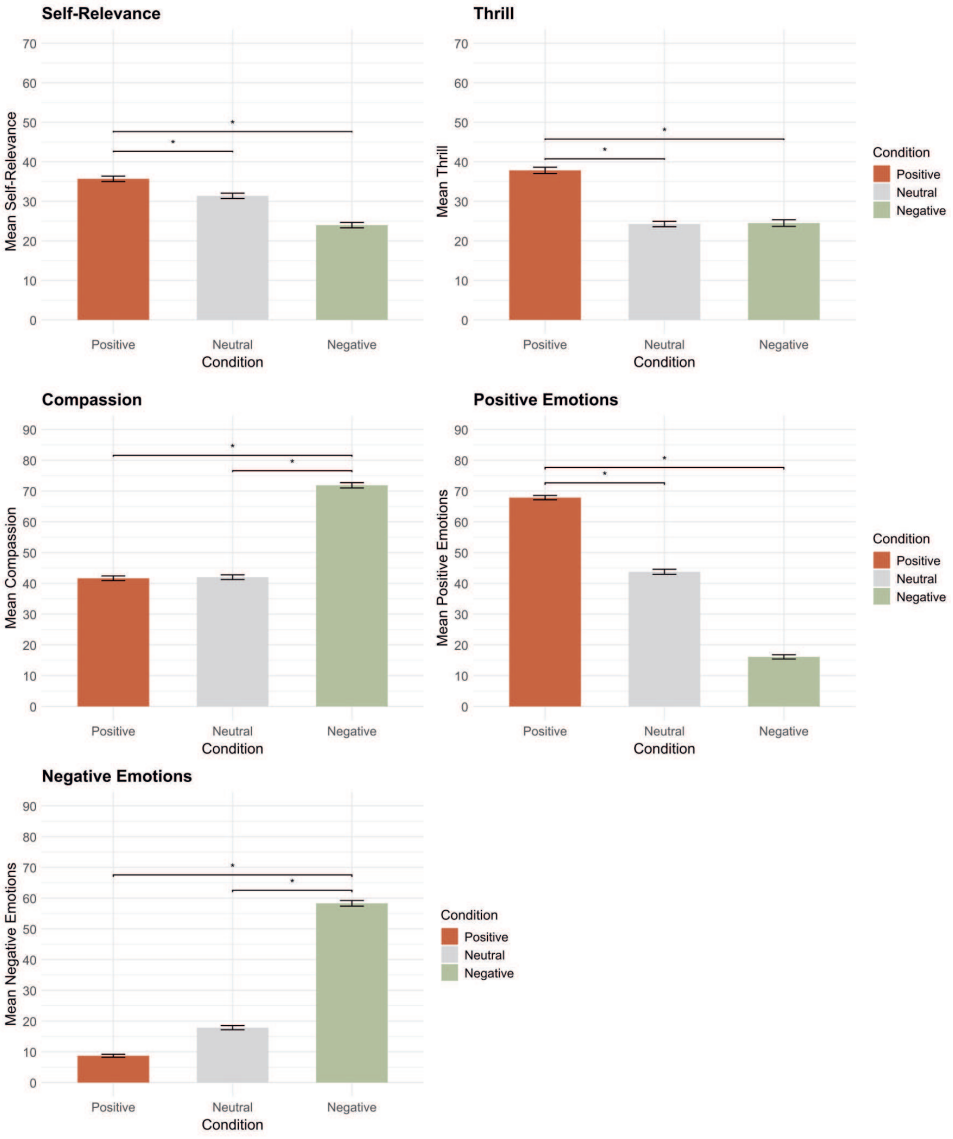
In terms of social outcomes, participants experienced higher levels of Compassion ($F(2,326) = 161.96$, $p < .001$, $\eta 2g = 0.26$) for negative ($M = 71.86$, $SD = 35.01$) compared to positive ($M = 41.64$, $SD = 30.65$) and neutral images ($M = 42.00$, $SD = 31.09$).

In terms of affective outcomes, participants experienced more Positive Emotions ($F(2,326) = 636.35$, $p < .001$, $\eta 2g = 0.52$) for positive images ($M = 67.85$, $SD = 28.64$) compared to negative ($M = 16.10$, $SD = 27.99$) and neutral images ($M = 43.75$, $SD = 33.27$) and more Negative Emotions ($F(2,326) = 702.73$, $p < .001$, $\eta 2g = 0.62$) for negative images ($M = 58.30$, $SD = 36.89$) compared to positive ($M = 8.71$, $SD = 19.71$) and neutral images ($M = 17.86$, $SD = 27.43$). All of these results aligned with our hypotheses. In contrast to our hypothesis, participants did not experience more Thrill ($F(2,326) = 29.32$, $p < .001$, $\eta 2g = 0.06$) for negative ($M = 24.49$, $SD = 34.08$) as compared to neutral images ($M = 24.26$, $SD = 27.70$)). Furthermore, positive images ($M = 37.83$, $SD = 32.09$) were rated significantly higher on Thrill as compared to negative and neutral images.

In terms of Self-Relevance ($F(2,326) = 63.13$, $p < .001$, $\eta 2g = 0.04$), the results demonstrated that participants experienced positive images ($M = 35.69$, $SD = 27.83$) as more personally relevant as compared to negative ($M = 23.97$, $SD = 27.33$) and neutral images ($M = 31.39$, $SD = 27.40$). These results are plotted in Figure SM1.

Figure SM1

Study 4.1 Results: Secondary Outcomes Differences by Image Valence



Note. Bars represent mean by condition. Error bars represent ±1 standard error. Asterisks indicate statistically significant pairwise differences ($p < .05$).

Study 4.2

Table SM3

Full List of Outcome Measures for Study 4.2 and Study 4.3

Outcome	Item
Reduced Uncertainty	This image satisfies my urge to know what it looks like
Remaining Uncertainty	This image leaves me wondering what happened in the situation
Knowledge	This image expands my knowledge about the world
Meaning	This image gives me a meaningful insight into the human condition
Moral Reflection	This image makes me reflect on my moral values
Self-Relevance	This image is relevant for my personal life
Compassion	This image makes me feel compassion for the people involved
Positive Emotions	This image makes me feel positive emotions
Negative Emotions	This image makes me feel negative emotions
Thrill	This image gives me a thrill

Secondary Outcomes Results

In line with our predictions, Compassion ($F(2,408) = 160.38$, $p < .001$, $\eta 2g = 0.20$) was rated higher for negative compared to positive and neutral images. In terms of affective outcomes, Negative Emotions ($F(2,408) = 546.32$, $p < .001$, $\eta 2g = 0.54$) was rated higher for negative images compared to positive and neutral. The outcome Positive Emotions ($F(2,408) = 546.06$, $p < .001$, $\eta 2g = 0.47$) was rated higher for positive images compared to negative and neutral.

Table SM4

Secondary Outcomes Descriptives

Outcome	Positive *M (SD)*	Neutral *M (SD)*	Negative *M (SD)*
Self-Relevance	38.72a (30.31)	33.76b (28.54)	28.76c (30.06)
Compassion	43.48a (32.30)	44.60a (31.41)	69.56b (35.43)
Thrill	43.37a (35.23)	28.78b (29.05)	28.72b (34.33)
Positive Emotions	66.96a (33.26)	45.97b (34.79)	20.67c (33.14)
Negative Emotions	13.73a (25.69)	21.59b (30.75)	60.78c (40.29)

Note. *M* = Mean; *SD* = Standard Deviation; a, b, c = means pairwise comparison using Bonferroni correction. Different superscripts refer to significant differences ($p < .05$).

In line with Study 4.1 and contrary to our hypothesis, neutral and negative images were not significantly different for Thrill ($F(2,408) = 53.25$, $p < .001$, $\eta 2g = 0.08$). Positive images were rated significantly higher for Thrill compared to the other two conditions.

Finally, although not preregistered as a hypothesis, but consistent with Study 4.1, Self relevance ($F(2,408) = 53.05$, $p < .001$, $\eta 2g = 0.03$) was rated higher for positive images as compared to negative and neutral images. Table SM4 presents the descriptives and pairwise comparison results for these outcomes.

Study 4.3

Secondary Outcomes Results

In line with our predictions and replicating the results of Study 4.1 and 4.2, Compassion ($F(1, 275) = 230.87$, $p < .001$) and Negative Emotions ($F(1, 275) = 789.69$, $p < .001$) were rated higher for negative images compared to positive.

As seen in Study 4.1 and 4.2, Self-Relevance ($F(1, 275) = 96.88$, $p < .001$), Thrill ($F(1, 275) = 119.09$, $p < .001$) and Positive Emotions ($F(1, 275) = 711.64$, $p < .001$) were rated higher for positive images compared to negative.

In terms of Engagement type main effect, besides the epistemic outcomes of Knowledge and Reduced Uncertainty, the secondary outcome of Thrill also had a significant effect ($F(1, 283) = 4.11$, $p = .04$). Similar to the epistemic outcomes, Thrill showed a higher rating in the choice condition compared to the exposure condition.

Table SM5

Secondary Outcomes Descriptives

	Valence		Engagement type	
Outcome	Positive *M (SD)*	Negative *M (SD)*	Choice *M (SD)*	Exposure *M (SD)*
Self-Relevance	41.14 (35.77)	31.66 (33.23)	39.23 (34.83)	34.17 (34.81)
Compassion	41.67 (35.58)	72.68 (30.05)	56.26 (36.58)	56.40 (36.47)
Thrill	45.00 (35.65)	27.29 (32.68)	39.44 (35.43)	33.90 (35.15)
Positive Emotions	65.55 (30.99)	23.55 (30.78)	46.79 (37.23)	44.63 (37.42)
Negative Emotions	12.07 (22.95)	54.75 (35.13)	33.20 (36.34)	31.33 (36.18)

Note. *M* = Mean, *SD* = Standard Deviation

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"La era está pariendo un corazón.
No puede más, se muere de dolor.
Y hay que acudir corriendo pues se cae,
El porvenir."

The future is sustained by kindness.

Written in calle Federico Froebel,
Santiago de Chile in April 2026.

English Summary

Suffering is an inherent part of human life. Experiences of hardship range from large-scale disasters that shape entire societies to private and silent struggles that unfold within individual lives. In an era of constant media exposure, reports of war, catastrophe, injustice, and crisis seem omnipresent, yet acknowledging the scope of such suffering frequently exceeds emotional and cognitive capacities. At the same time, misfortunes are not limited to distant and large-scale events; through conversations and everyday exchanges, people hear about accidents, illness, financial difficulties, or interpersonal conflict affecting people we do not personally know. Similarly, we voluntarily immerse ourselves in fictional narratives centered on drama, loss, violence, and death. In other words, we encounter stories of hardship everywhere—online, in the news, in the arts, and in everyday conversations—because suffering is an avoidable part of life.

Given that engaging with others' suffering can be taxing and overwhelming, it might seem reasonable to expect that people would avoid such content, particularly when no personal relationship involves the individual suffering. Yet people consistently choose to read, watch, discuss, and even organize around the hardships of strangers. Although engaging with negative situations carries emotional and cognitive costs, people would weigh these costs against anticipated benefits (Niehoff & Oosterwijk, 2020). Through a series of empirical studies, this work examines the motives that drive voluntary engagement with strangers' suffering and the outcomes that follow such exposure, arguing that this decision reflects an evaluation of the perceived value of engaging with suffering.

Across three empirical chapters, the work integrates theoretical perspectives from curiosity research, information seeking, motivated empathy, and emotion regulation to investigate why people voluntarily engage with negative social information through different modalities. The dissertation proposes a framework in which engagement with others' suffering is understood as a goal-oriented behavior. The results of each empirical chapters investigated the value of engaging with suffering from a different angle. Therefore, we initiated by investigating people's reflections on their experiences of engaging with strangers' suffering and elaborated a taxonomy of motives (Chapter 2). The taxonomy derived in a choice paradigm, to test the motives' that increase the likelihood of engaging

with emotionally evocative images and stories (Chapter 3). Finally, we investigated the value of engaging with suffering by comparing the experienced outcomes of viewing images of suffering to positive and neutral social images (Chapter 4).

In Chapter 2, we build a taxonomy of how people make sense of the value of engaging with strangers' suffering. Using a mixed-methods approach, one fully qualitative study and one mixed methods study, we asked participants to recall an instance when they voluntarily engaged with a stranger's hardship and to explain why they chose to do so. In Study 2.1, we conducted a thematic analysis focusing on four questions: *who* the stranger was, *what* the situation about, *how* participants engaged, and *why* they engaged. The findings revealed a wide variation in the situations suffering, characterized the stranger, the source of information, and the value participants saw in engaging. In Study 2.2, we turned the qualitative themes into items and examined how they clustered statistically. The results demonstrated that people engage with the suffering of strangers due to epistemic value, referring to the information and knowledge acquired from the situation. Furthermore, people reflected on the eudaimonic value, as stories of suffering can hold meaning and provide insight on human's vulnerabilities and struggles. Results also reflected the social value, as people mentioned engaging to sympathize with situations of suffering and show support. Finally, situations of suffering hold affective value, as people experienced relevant positive and negative emotions while engaging with these situations. Together, these studies laid the groundwork for understanding both the range of instances of suffering people engage with and the diverse motives that drive these choices.

In Chapter 3, we examined whether the motives identified in Chapter 2 predict people's choices to engage with emotionally evocative content in a controlled setting. Drawing on the previously identified range of reasons to engage, we measured these motives and tested which ones were related to the decision to choose to view or read about scenes of suffering. The studies included both negative and positive social situations to assess whether emotional valence shaped the salience of different motives. We also included different modalities of the stimuli by presenting images and written stories. Across exploratory and confirmatory studies, we first identified the most relevant motives and then tested their robustness. The results demonstrate that the choice to engage with emotionally evocative content increased if the content would be perceived as offering relevant knowledge, considered self-relevant, if it would evoke positive emotions, and as sense of thrill. Choices to engage decreased if the content would expect to evoke negative emotions. These results hold regardless of the stimuli valence. One motive

was consistently interacted with valence, being a stronger predictor for choosing scenes of suffering: uncertainty reduction. This chapter allowed us to refine and strengthen a model of the key motives that drive engagement with emotionally evocative social situations.

In Chapter 4, we shifted the focus to experienced outcomes of engaging with suffering. Using a set of emotionally evocative images similar to those in Chapter 3, we asked participants to report the epistemic, social, and affective outcomes of viewing positive, negative, and neutral social situations. We also tested whether the type of engagement —through passive exposure or active choice—shaped the experienced outcomes reported. Results demonstrated that images of suffering hold salient epistemic value, as people reported experiencing higher levels of acquired knowledge, meaning of the human condition, and moral reflection from negative compared to positive and neutral social scenes. Interestingly, people reported higher levels of *reduced uncertainty* from positive and neutral images compared to negative. This finding contrasted with the results of Chapter 3, as *reducing uncertainty* was a stronger predictor for choosing negative content. Furthermore, people experienced higher levels of *remaining uncertainty* from viewing negative images compared to positive and neutral social images. This suggest a potentially paradoxical effect in which people are motivated to reduce uncertainty when they choose to engage with negative content, but possibly realize once engagement has occurred that the content raises new questions. The dynamics between motives to engage (anticipated impact) and experienced outcomes (actual impact), and how comparing these may drive subsequent engagement, is an important direction for future research.

Across these chapters, the findings investigate the value people reflect, anticipate and experience by engaging with the suffering of strangers. Although attending to suffering can be emotionally demanding, it can offer epistemic, social, and affective value. Engaging with the suffering of strangers can deepen understanding of complex or uncertain situations, expand knowledge about the world, and prompt reflection on vulnerability, fragility, and meaning in life. It can feel personally relevant, strengthen a sense of moral identity, and foster compassion, solidarity, and connection with distant others. At the same time, it stirs emotions that are not always comfortable and may raise new questions or uncertainties. Overall, this dissertation shows that the costs of engaging with suffering are, in some cases, outweighed by its perceived benefits. My goal was to advance in the understanding of how engaging with others' hardship can serve as a meaningful way to learn, to reflect and to connect to others.

Resumen en Español



El sufrimiento es parte inherente de la experiencia humana. Las situaciones de adversidad son diversas, abarcando desde desastres a gran escala que marcan a sociedades enteras, hasta dificultades que se desarrollan en la vida privada de cada persona. En una era de exposición mediática constante, las noticias sobre guerras, catástrofes, injusticias y crisis parecen omnipresentes, pero dimensionar el sufrimiento humano a menudo supera nuestras capacidades emocionales y cognitivas. Historias de sufrimiento son accesibles a través de conversaciones e interacciones cotidianas, las personas regularmente comentan sobre accidentes, enfermedades, dificultades económicas o conflictos interpersonales que afectan a personas que no conocemos personalmente. Del mismo modo, nos sumergimos voluntariamente en historias de ficción cargadas de drama, duelos, violencia y muerte. En otras palabras, la vida nos presenta historias de sufrimiento por todas partes; internet, en las noticias, en las artes, así como en conversaciones; porque el sufrimiento es una parte inevitable de la vida.

Dado que contactarse con el sufrimiento ajeno puede resultar abrumador, es razonable asumir que las personas evitan este tipo de contenido, especialmente si no existe un vínculo personal con la persona que sufre. Sin embargo la experiencia cotidiana muestra otra realidad, las personas eligen frecuentemente leer, ver, conversar e incluso organizarse en torno al sufrimiento de desconocidos. Aunque involucrarse en situaciones negativas conlleva costos emocionales y cognitivos, las personas evaluarían estos costos en contraste con el valor de contactarse con dicha situación (Niehoff & Oosterwijk, 2020). El presente trabajo examina esta pregunta, investigando los motivos que impulsan el interés por el sufrimiento de desconocidos y las consecuencias que derivan de dicha exposición, argumentando que esta decisión refleja el valor percibido de contactarse con el sufrimiento.

En tres capítulos empíricos, este trabajo doctoral integra perspectivas teóricas sobre la curiosidad, la búsqueda de información, la empatía motivada y la regulación emocional, para comprender por qué las personas se interesan e involucran voluntariamente con el sufrimiento de desconocidos a través de distintos medios. La tesis propone un marco en el que el interés por el sufrimiento se entiende como una decisión motivada. Los resultados de cada capítulo empírico investigan el valor de contactarse con el sufrimiento desde distinto ángulos. En un principio,

se investigaron las reflexiones de las personas sobre sus propias experiencias involucrándose con el sufrimiento de desconocidos, lo cual posibilitó elaborar una taxonomía de motivos (Capítulo 2). Posteriormente, esta taxonomía se aplicó a un paradigma de toma de decisiones que puso a prueba los motivos que aumentan la probabilidad de decidir ver o leer historias con carga afectiva (Capítulo 3). Por último, investigamos las consecuencias de interesarse en imágenes de sufrimiento comparado con imágenes sociales positivas y neutras (Capítulo 4).

En el capítulo 2, elaboramos una taxonomía de motivos para contactarse con el sufrimiento de desconocidos. Utilizando un enfoque de métodos mixtos, un estudio cualitativo y otro mixto, pedimos a los participantes que recordaran una situación en la que se interesaron en el sufrimiento de un desconocido y que explicaran por qué decidieron involucrarse. En el Estudio 2.1, llevamos a cabo un análisis temático centrado en cuatro preguntas: *quién* era la persona desconocida, en *qué* consistía la situación, *cómo* se involucraron los participantes y *por qué* decidieron hacerlo. Los resultados revelaron una amplia diversidad de situaciones de sufrimiento, caracterizando al desconocido y la fuente de información. Además, el valor que los participantes veían en involucrarse constituyó la base para la taxonomía de motivos. En el Estudio 2.2, convertimos estas temáticas cualitativas en ítems y examinamos cómo se agrupan estadísticamente. Los resultados demostraron que las personas se involucran con el sufrimiento de desconocidos debido al valor epistémico, es decir, la información y el conocimiento adquirido en la situación. Además, las personas reflexionaron sobre el valor eudaimónico, ya que las historias de sufrimiento pueden proporcionar una perspectiva sobre las dificultades y vulnerabilidades humanas. Los resultados también reflejaron el valor social, ya que las personas mencionaron que se involucraron para simpatizar con situaciones de sufrimiento y mostrar apoyo. Por último, las situaciones de sufrimiento tienen un valor afectivo, ya que las personas experimentaban emociones positivas y negativas al involucrarse con estas situaciones. En conjunto, estos estudios sentaron las bases para comprender tanto la variedad de situaciones de sufrimiento como los diversos motivos que impulsan la decisión de contactarse.

En el capítulo 3, examinamos cuáles de los motivos identificados en el capítulo 2 predicen la decisión de interactuar con contenido emocional en un experimento controlado. Basándonos en la variedad de motivos identificados anteriormente, comprobamos cuáles estaban relacionados con la decisión de elegir ver o leer sobre escenas de sufrimiento. Los estudios incluyeron situaciones sociales tanto negativas como positivas para evaluar si esta carga emocional

afecta los motivos para contactarse. También incluimos diferentes modalidades de estímulos mediante la presentación visual de imágenes e historias escritas. A lo largo de estudios exploratorios y confirmatorios, identificamos los motivos más relevantes y luego comprobamos la solidez de estos hallazgos. Los resultados demuestran que la elección de interactuar con contenido emocional aumenta si se percibe que el contenido ofrece información o conocimiento, si se considera relevante personalmente, si evoca emociones positivas y si entrega una experiencia de intensidad emocional. La decisión de interactuar con el contenido disminuye si se espera que el contenido genere emociones negativas. Estos resultados son constantes independiente de la carga afectiva de los estímulos. Un motivo que interactúa de forma consistente con la carga emocional, siendo un predictor más fuerte de la elección de escenas de sufrimiento es la reducción de la incertidumbre. Este capítulo nos permitió refinar y reforzar un modelo de los motivos que impulsan la interacción con situaciones sociales emocionalmente intensas.

En el capítulo 4, cambiamos el enfoque hacia las consecuencias experimentadas al contactarse con el sufrimiento. Utilizando un conjunto de imágenes con carga emocional similar a las del capítulo 3, pedimos a los participantes que reportaran sobre las consecuencias epistémicas, sociales y afectivas de ver imágenes sociales positivas, negativas y neutras. También evaluamos si el tipo de involucramiento con el contenido —a través de una exposición pasiva o una elección activa— influía en las consecuencias reportadas. Los resultados demostraron que las imágenes de sufrimiento tienen un valor epistémico más sobresaliente que las imágenes neutras y positivas. Las personas reportan haber adquirido mayores niveles de conocimiento, una mayor comprensión de la condición humana y una mayor reflexión moral al observar escenas de sufrimiento. Curiosamente, las personas informaron una mayor reducción de incertidumbre al observar imágenes positivas y neutras en comparación con las negativas. Este hallazgo contrasta con los resultados del Capítulo 3, donde la reducción de incertidumbre fue un predictor más importante para elegir contenido negativo. A la vez, las personas reportan mayores remanentes de incertidumbre al observar imágenes negativas en comparación con imágenes sociales positivas y neutras. Esto sugiere un efecto potencialmente paradójico en el que las personas se sienten motivadas a reducir la incertidumbre cuando eligen interactuar con contenido negativo, pero posiblemente una vez que interactúan con el contenido, notan que el contenido plantea nuevas preguntas. Estos hallazgos plantean como futura línea de investigación la dinámica entre los motivos que predicen (impacto anticipado)

y las consecuencias experimentadas (impacto real) y cómo constituyen un ciclo que nutre el interés e involucramiento con el sufrimiento de desconocidos.

A lo largo de estos capítulos, los resultados exploran el valor que las personas reportan, anticipan y experimentan al involucrarse con el sufrimiento de personas desconocidas. Si bien atender al sufrimiento puede ser emocionalmente demandante, puede ofrecer un valor epistémico, social y afectivo. Contactarse con el sufrimiento ajeno puede otorgar comprensión de situaciones complejas o inciertas, ampliar el conocimiento sobre el mundo e impulsar la reflexión sobre la vulnerabilidad, la fragilidad y el sentido de la vida. Puede resultar personalmente relevante, fortalecer la reflexión moral, la compasión, la solidaridad y la conexión con personas distantes. Al mismo tiempo, despierta emociones incómodas y puede plantear nuevas preguntas o incertidumbres. En general, esta tesis demuestra que, en algunos casos, los costos de contactarse con el sufrimiento se ven compensados por el valor percibidos. Mi objetivo fue profundizar en la comprensión de cómo interesarse por el sufrimiento ajeno puede servir como una forma de aprender, reflexionar y conectar con los demás.

Nederlandse Samenvatting

Lijden is een inherent onderdeel van de menselijke ervaring. Situaties van tegenspoed zijn divers en variëren van grootschalige rampen die hele samenlevingen treffen tot moeilijkheden die zich in het privéleven van individuen voordoen. In een tijdperk van constante media-aandacht lijkt nieuws over oorlogen, rampen, onrecht en crises alomtegenwoordig, en de omvang van menselijk lijden overbelast vaak onze emotionele en cognitieve capaciteiten. Verhalen over lijden zijn toegankelijk via alledaagse gesprekken en interacties; mensen praten regelmatig over ongelukken, ziekten, financiële problemen of interpersoonlijke conflicten met mensen die ze niet persoonlijk kennen. Evenzo verdiepen mensen zich gewillig in fictieve verhalen vol drama, verdriet, geweld en dood. Met andere woorden, het leven biedt overal verhalen over lijden: online, in het nieuws, in de kunst en in gesprekken; omdat lijden deel uitmaakt van het leven.

Omdat het confronteren met het lijden van anderen overweldigend kan zijn, is het aannemelijk dat mensen dit soort content vermijden, vooral als er geen persoonlijke band is met de persoon die lijdt. De dagelijkse ervaring laat echter een andere realiteit zien: mensen kiezen er vaak voor om te lezen, te kijken, te discussiëren en zelfs actie te ondernemen rond het lijden van vreemden. Hoewel het omgaan met negatieve situaties emotionele en cognitieve kosten met zich meebrengt, wegen mensen deze kosten af tegen de waargenomen waarde van het omgaan met dergelijke situaties (Niehoff & Oosterwijk, 2020). Dit proefschrift onderzoekt deze vraag door de motieven voor het omgaan met het lijden van vreemden en de gevolgen van een dergelijke blootstelling te onderzoeken, en betoogt dat deze beslissing de waargenomen waarde van het omgaan met lijden weerspiegelt.

In drie empirische hoofdstukken integreert dit proefschrift theoretische perspectieven uit nieuwsgierigheid, informatievergaring, gemotiveerde empathie en emotieregulatie om te begrijpen waarom mensen geïnteresseerd raken in en zich vrijwillig bezighouden met het lijden van vreemden via verschillende middelen. Het proefschrift stelt een raamwerk voor waarin het omgaan met lijden wordt begrepen als een gemotiveerde beslissing. De resultaten van elk empirisch hoofdstuk onderzoeken de waarde van het omgaan met lijden vanuit verschillende invalshoeken. In eerste instantie werd, door middel van reflecties van mensen

op hun eigen ervaringen met het lijden van vreemden, een taxonomie van motieven ontwikkeld (hoofdstuk 2). Vervolgens werd deze taxonomie toegepast op een besluitvormingsparadigma dat de motieven testte die de kans vergroten om emotioneel aangrijpende verhalen te bekijken of te lezen (hoofdstuk 3). Ten slotte vergeleken we de uitkomsten van het bekijken van beelden van lijden met positieve en neutrale sociale beelden (hoofdstuk 4).

In deze hoofdstukken onderzoeken de bevindingen de waarde die mensen rapporteren, verwachten en ervaren wanneer ze zich bezighouden met het lijden van vreemden. Hoewel het omgaan met lijden emotioneel belastend kan zijn, kan het epistemische, sociale en affectieve waarde bieden. Het omgaan met het lijden van anderen kan inzicht geven in complexe of onzekere situaties, de kennis over de wereld verbreden en reflectie op kwetsbaarheid, fragiliteit en de zin van het leven aanmoedigen. Het kan persoonlijk relevant zijn en morele reflectie, compassie, solidariteit en verbondenheid met mensen op afstand versterken. Tegelijkertijd roept het ongemakkelijke emoties op en kan het nieuwe vragen of onzekerheden oproepen. Samenvattend laat deze scriptie zien dat de kosten van het omgaan met lijden in sommige gevallen worden gecompenseerd door de waargenomen waarde. Mijn doel was om het begrip te verdiepen van hoe het omgaan met het lijden van anderen kan dienen als een manier om te leren, te reflecteren en verbinding te maken met anderen.

Contribution to Empirical Chapters & Funding



Chapter 2

Vivanco Carlevari, A., Oosterwijk, S., & van Kleef, G. A. (2024). Why do people engage with the suffering of strangers? Exploring epistemic, eudaimonic, social, and affective motives. *Cognition and Emotion*, 39(3), 614–634. https://doi.org/10.1080/02699931.2024.2385691

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Chapter 3

Vivanco Carlevari, A., van Kleef, G. A., Niehoff, E., & Oosterwijk, S (2025). Scenes of Suffering: Why Do People Choose to Engage with Emotionally Evocative Images and Stories? *PsyArXiv*. https://doi.org/10.31234/osf.io/jyt7g_v1. *Manuscript under review*.

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Chapter 4

Vivanco Carlevari, A., Jalsovec, E., Oosterwijk, S., & van Kleef, G. A., (in prep, 2026). More Knowledge, More Reflection, More Uncertainty: Unpacking the Value of Viewing Images of Suffering. *Manuscript under preparation.*

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Suffering is an inherent part of human life, from large-scale disasters that affect whole societies to private, silent struggles of everyday life. In an era of constant media exposure, reports of war, catastrophe, injustice, and crises are omnipresent, and stories of suffering are part of regular conversations, social media, literature, films, and other forms of art. Such instances often involve strangers, unfamiliar others, and people in distant times or places. Given the emotional and cognitive costs of engaging with others' suffering, one might expect people to avoid such content, especially when those involved are not personally close. Yet examples are multiple in which people routinely choose to read, watch, and discuss the hardships of others, actively turning toward suffering.

This dissertation examines why people voluntarily engage with strangers' suffering and the outcomes of doing so. Drawing on research on curiosity, information seeking, motivated empathy, and emotion regulation, it proposes that such engagement reflects judgments about its perceived value. This value may be epistemic, eudaimonic, personal, social, or affective. Overall, this work aims to clarify how engaging with others' hardship can foster learning, reflection on life, and a sense of connection with distant others.

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