

THE UNIVERSITY OF CHICAGO

THE PSYCHOLOGY OF MORBID CURIOSITY

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## ABSTRACT

Threats to survival from predators and hostile conspecifics have led all species to possess cognitive architecture for predator management. Some animals display a curiosity for predators, engaging in behaviors such as predator inspection. The costs associated with learning about predators and other threats are high in most of the animal kingdom. In humans, the ability to imaginatively simulate threatening situations has drastically reduced the cost of learning about threats. This cost reduction has resulted in an explosion of what I call morbid curiosity, or the motivation to learn about potential threats. Humans often engage in morbid curiosity for entertainment, deriving pleasure from safe exposure to hypothetical threats. Historically, scholars have referred to the popularity of frightening entertainment as the paradox of horror. In this dissertation, I provide a theoretical and empirical foundation for the psychological study of morbid curiosity. I argue that morbid curiosity derives from an evolved cognitive architecture for predator management, is powered by curiosity, and, in humans, is amplified by the capacity for imagination. After presenting a theoretical framework for morbid curiosity, I present a set of studies in which I develop and validate the Morbid Curiosity Scale, a measure of individual differences in morbid curiosity. I then present two studies looking at how individual differences in morbid curiosity predict information gathering and psychological resilience during a novel threat — the COVID-19 global pandemic. I conclude by discussing the implications of the present research, offering suggestions for future research, and proposing that a clear understanding of morbid curiosity can dissolve the paradox of horror.

# CHAPTER 1.

## The Psychological Foundations of Morbid Curiosity

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### **The Paradox of Horror**

Humans derive seemingly paradoxical enjoyment out of scaring themselves. Though the beginnings of the horror genre are often traced to gothic literature in the mid-18th century, horror stories extend much further back in human history. Some of the earliest examples of writing include tales of monsters, ghosts, haunted spaces (Asma, 2009; Felton, 2010). From scary stories to horror films and haunted houses, the horror genre is wildly popular. Instead of avoiding all situations that elicit typically negative emotions such as fear and anxiety, many people intentionally seek out these situations under certain circumstances. This bizarre behavior has puzzled some of the world's greatest thinkers. Why would people purposely seek out material that makes them feel afraid or anxious?

More than 2000 years ago, Aristotle mused that tragedy was popular because it allowed people to purge themselves of difficult emotions such as pity and fear (Aristotle, ca. 335 B.C.E./1996). David Hume also observed that sorrow, anxiety, and terror seem to make certain spectacles more enjoyable (Hume, 1971). These early speculations have led to modern scholarly

work on what is now known as the paradox of horror — the seemingly paradoxical phenomenon where people seek out situations that elicit anxiety, fear, and disgust. Some modern scholars argue that people do not actually enjoy the negative emotions themselves, but rather the curiosity that is aroused from the unfamiliar (Carroll, 1990). However, others have argued that people can enjoy negative emotions themselves rather than simply tolerate them as collateral damage for curiosity (Gaut, 1993).

I argue in this dissertation that our desire for exposing ourselves to threat-related or scary situations is a behavioral outcome of morbid curiosity. As the name suggests, morbid curiosity can be defined as a curiosity about dangerous or threatening situations. The expression of morbidly curious behaviors exploded in humans with the evolved capacity for imagination. By imagining or simulating threatening situations, humans have drastically reduced the cost of learning threat-related information while retaining the motivation to learn about that information. This drastic shift in the cost, but not the benefit, of learning threat-related information has led to the saturation of threat-related topics in popular culture. Our capacity for imagination opened the floodgates of morbid curiosity, but the fundamental mechanisms of morbid curiosity — threat management and curiosity — are present across the animal kingdom. At the center of our tendency to be morbidly curious is the evolutionary pressure to effectively detect and avoid predators.

## **Predator Detection and Avoidance**

Threats to survival from predators and hostile conspecifics have led all species to possess cognitive architecture for predator management. Lima and Dill (1990) offered a simple equation to capture the important variables associated with the risk of being killed by a predator:

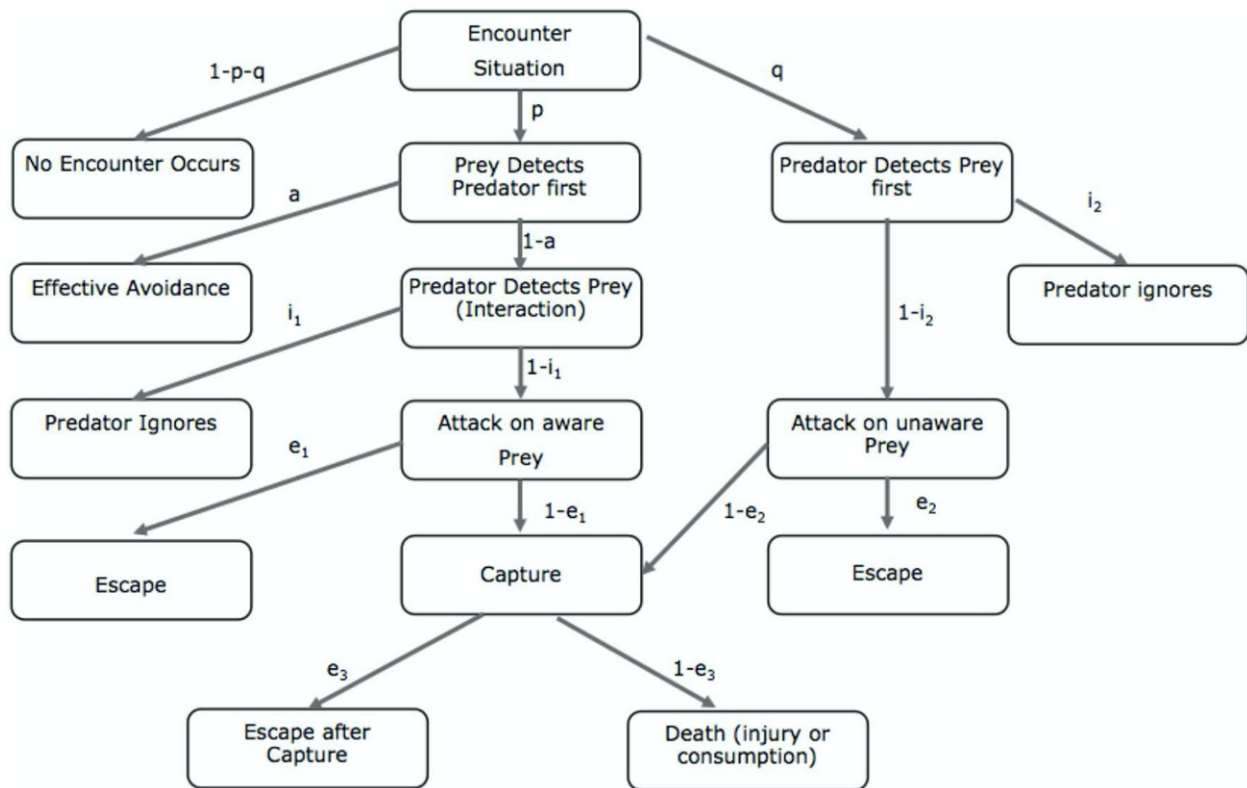
$$\text{[Equation 1] } P(\text{death}) = 1 - e^{(-T\alpha d)}$$

Here,  $T$  is the time spent in situations of predation risk,  $\alpha$  is the frequency of predator-prey encounters, and  $d$  is the probability of death if an encounter occurs. In other words, your odds of dying from a predator is a function of how much time you spend in situations where you are vulnerable to attack, how frequently you encounter predators, and the odds of a predator killing you during an encounter. Each of these variables is accessible and modifiable by both the predator and the prey. An animal can reduce its risk of dying by predation by 1) reducing the amount of time spent in vulnerable situations, 2) reducing the rate of predator-prey encounters, or 3) decreasing the odds of dying during an encounter.

Time spent vulnerable to an attack ( $T$  from Equation 1) is difficult for prey to decrease. Predators can more easily increase the value by spending more time near prey. Time that prey must spend on foraging for food has to be balanced with the time spent vulnerable to attack ( $T$ ). By engaging in necessary foraging or other activities that require departure from protective cover, prey increase  $T$ . Predators do not need to make this tradeoff; the time a predator spends searching for food (the prey) directly increases  $T$ .

The frequency of predator-prey encounters ( $\alpha$  from Equation 1) arguably has the greatest and most direct impact on the probability of being killed by a predator. If a prey never has an encounter with a predator, then the odds of dying from a predator will always be 0. Of course, it's highly unlikely for prey to never have an encounter with a predator. In this context, an encounter is defined as occurring whenever a predator or prey is in the other's radius of detection. This means that action by either the predator or prey is not required for an encounter to occur. As Lima and Dill (1990) note,  $\alpha$  is largely a statistical concept that depends on factors such as the number of predators in a given area and complexity of the habitat.

This leaves the odds of dying during an encounter ( $d$ ) as the most likely variable to be modified by the prey and to be subject to natural selection. Figure 1 provides a zoomed-in look at  $d$  from Equation 1, or the odds of a predator killing the prey during an encounter. It charts some possible outcomes of an encounter situation between a prey and predator.



**Figure 1.1.** Predator-prey model from Mobbs et al., 2015 (modified from Lima and Dill, 1990).  $a$  = probability of avoiding,  $i$  = probability of ignoring,  $e$  = probability of escaping,  $p$  = probability that the prey detects the predator first,  $q$  = probability that the predator detects the prey first.

If a prey detects a predator first, its chances of dying during that encounter are drastically decreased because it can effectively avoid the predator. As such, predator detection mechanisms have evolved in prey species to tip the scales in favor of early detection and consequently

avoidance. The evolution of simple eyespots that detect light and dark is one of the earliest examples of prey evolving detection mechanisms in the face of selection pressure from predators. The addition of a new sense gave prey species a massive advantage in avoiding predators and launched an evolutionary arms race that likely played a major role in the Cambrian Explosion over 500 million years ago (Parker, 2004). The visual systems of predators and prey have continued to evolve in tandem with one another over hundreds of millions of years.

To keep their edge in the face of ever-increasing predation efficiency, prey species have evolved sensitive detection thresholds when it comes to potential predators. By erring on the side of over-detection, prey will commit more false alarms, but fewer missed detections. A missed detection is far more costly than a false alarm. While the former might cost the prey some cognitive and metabolic resources, the latter could cost the prey its life. In the evolutionary literature, this bias framework has been called error management theory (Haselton and Buss, 2000). One example of overactive predator detection is the visual looming bias. Across multiple species, rapidly approaching or expanding objects will trigger defensive behaviors (Barrett, 2005). A related bias is the auditory looming bias, in which approaching sounds are perceived to be closer than receding sounds, even when they start and stop at the same distance as the receding sounds (Bach et al., 2008).

## **Predator Inspection**

Prey may not always initiate flight/flee as soon as a predator is detected. This could be for various reasons, including competing motivations (e.g., hunger, reproduction, curiosity) or lack of motivation to immediately flee (e.g., low fear). If the prey does not avoid a predator after detecting it, it will often stay vigilant of the predator. In the animal literature, allocating attention to predators is referred to as predator inspection. While it has been observed in a range of

animals, predator inspection has been most widely studied in fish (Lima & Dill, 1990). Minnows that live in close proximity to predators will often inspect a predator (e.g., a pike) when the predator is detected. Minnows will spend more time inspecting the predator when the costs are lower, such as when the predator is stationary or when the minnow is in a group (Pitcher et al., 1986). Similar behavior has also been observed in Thomson's gazelles, which are more likely to approach a lion or a cheetah when they are not moving and when the gazelle is part of a larger group (FitzGibbon, 1994).

The widespread nature of predator inspection despite the potential cost of capture suggests that the behavior is likely adaptive. One possible function of predator inspection is to gather clues about the motivational state of the predator. In other words, is the predator actively hunting? If the predator is not actively hunting, the more energy-efficient decision is not to flee. This information is particularly important for animals who live in close proximity to their predators, or where  $\alpha$  in Equation 1 is high. Remaining vigilant of a predator that has been detected can reduce the risk of ambush. Once detected, a stealthed predator might be approached by the prey, signaling to the predator that it has been detected, which may cause the predator to leave the area (FitzGibbon, 1994). Predator inspection behavior could also be important for developing predator recognition, especially when predators look similar to non-predators in the local environment (Magurran & Girling, 1986; Lönnstedt et al., 2012). Predator inspection may also be of greater importance to subadults and adolescents who are quick enough to escape but have less knowledge about predators (FitzGibbon, 1994). By engaging in predator inspection once they are physically capable of escaping, adolescents and subadults can learn about the appearance, behaviors, and strategies of predators — something that will pay dividends for the remainder of their life by decreasing ( $d$ ).

Research on predator inspection has, as the name suggests, largely focused on predators — non-conspecifics whose goal is to consume the prey. However, the same logic applies to hostile conspecifics and other threats to physical safety. It is adaptive to detect and attend to threats to physical safety in your environment because learning about them can improve decision-making when faced with that threat or the potential of facing that threat. This is particularly true for group-living and social animals, such as humans, where the threat of hostile conspecifics is high. Consequently, evolutionary psychologists have argued that humans possess psychological mechanisms for self-protection (Boyer & Bergstrom, 2010; Fessler et al., 2014; Neuberg et al., 2011). However, these psychological mechanisms for threat detection share some neurological features with psychological mechanisms for threat detection in other animals (e.g., amygdala for threat detection; Rosen & Donley, 2006). Natural selection is more likely to build on and modify existing mechanisms than it is to construct entirely new mechanisms (Barrett, 2014). It is likely that the core neurological features of these hypothesized mechanisms are phylogenetically conserved. If this is true, the same base variables from Equation 1 with respect to predators can be computed to assess the relative risk of death from many different kinds of threat.

Due to increased learning capabilities compared to other animals, humans can better estimate and modify  $d$  by learning about threats. For example, is a particular predator more likely to be found in the forest? Is it more active during the night? The same applies to hostile conspecifics. Are aggressive or dangerous people more likely to be found in certain places? Are there any clues in a person's behavior or appearance that indicate whether they are likely to be dangerous? By learning about potential threats, humans can more effectively identify them, avoid them, and escape them. However, negative emotions such as fear and disgust can motivate



humans to avoid situations where information about threats could be learned. Motivation to avoid these situations can be counteracted by increased motivation to gather information: i.e., curiosity.

## **Curiosity**

Like many aspects of human psychology that seem too obvious to require a definition and rigorous scientific explanation, curiosity has been difficult to define and explain. As is the case for many aspects of human psychology, some of the first thoughts on curiosity can be traced back to William James. James (1890) proposed that there are two types of curiosity. The first involves seeking information about novel objects. This type of curiosity, James contended, is present in most animals. The second type, which James suggested has almost nothing to do with the first and is specific to humans, is scientific curiosity or metaphysical wonder. James argued that this type of curiosity is more concerned with ways of conceptualizing objects rather than the objects themselves. Scientific curiosity responds not to novel stimuli per se, but rather to gaps in knowledge. Still, James only briefly mused about curiosity, and did not offer empirical evidence for his conceptual distinction.

Daniel Berlyne (1954) was the first experimental psychologist to investigate curiosity in detail. He also broke down curiosity into two major types, resembling those that James identified. Berlyne called the first type of curiosity perceptual curiosity, referring to the drive to explore novel stimuli until they are no longer so novel. He gave the example of a rat that exhibits increased exploratory activity around a new stimulus. He distinguished this novelty-seeking form of curiosity from epistemic curiosity, which he claimed is more about acquiring knowledge than reducing uncertainty, and is largely unique to humans.

Berlyne (1966) later divided curiosity along a second axis: specific vs diversive. Specific curiosity occurs when there is a gap in information about some phenomenon. This gap produces discomfort, which motivates one to seek out additional information about that specific phenomenon. An example of this can be seen if you briefly show a participant a complex image. Given the chance, the participant will most likely want to re-investigate the image, reducing the gap in knowledge that was produced from the momentary look. On the other hand, diversive curiosity arises when an organism is under-stimulated and seeks novel stimulation to satisfy the feeling of deprivation. An example of this can be seen if a participant is placed in a dark room with the option to press buttons to make lights appear. The human participant will press buttons in a sequence that produces variety in the light patterns (Berlyne, 1966).

Decades later, Loewenstein (1994) offered a reinterpretation of the psychology of curiosity. He criticized the concept of diversive curiosity, arguing that it was more akin to sensation seeking and related to boredom than it was to scientific curiosity. He noted that previous theories of curiosity fail to answer whether or not people actually enjoy feeling curious and, if they do, why they try to end it through information-seeking. Loewenstein offered a new perspective on curiosity in an attempt to reconcile these issues with previous theories. His information-gap theory of curiosity, which deals only with internally motivated, specific state curiosity (as opposed to externally motivated, diversive, or trait curiosity), predicts that curiosity arises to resolve uncertainty about a specific topic or situation. The logical conclusion of this prediction is that curiosity will have an inverted-U shape relationship with knowledge such that curiosity rises as an individual learns about a topic, peaks when an individual possesses a moderate degree of knowledge or confidence in a topic, and declines thereafter.

More recently, Dubey and Griffiths (2020) have posited that the function of curiosity is to increase the usefulness of one's own knowledge through information gathering. Under this hypothesis, the value of knowledge is a function of the organism's current knowledge about the environment and the probability of encountering some stimulus in the future. In positing this function, Dubey and Griffiths have attempted to reconcile the uncertainty-reduction perspective and the novelty-seeking perspective on curiosity. When an organism is faced with a novel stimulus, it should investigate it only if that stimulus is likely to occur again.

While Dubey and Griffiths provide an integrative and robust functional explanation of curiosity, a discussion about the role of evolved predispositions is noticeably absent. Part of the value of information comes from what an organism has learned throughout its life, but some of the value comes from evolved predispositions that were adaptive for that organism's ancestors. In some cases, the current value of some piece of information based on what was learned during life may be at odds with the average value of that information over the course of that species' evolution. Most humans in the US do not encounter wild snakes in their lifetime. However, most humans in the US still display an information gathering bias (via visual attention) toward snakes, arguably due to their long history as predators to primates and ecological threats to humans (LoBue & DeLoache, 2008; Öhman & Mineka, 2003). Another example can be seen in two types of minnows, one of which evolved under pike predation for thousands of years and one that spent thousands of years in a pike-free environment. Given the novel introduction of a pike, the minnows whose ancestors were preyed upon by pike display more frequent and early predator inspection (i.e., information gathering).

Dubey and Griffith's account also does not explain individual differences in trait predisposition for information gathering. In the minnow study mentioned above, some

individuals were more likely than others to investigate the pike, regardless of which group they belonged to. Numerous studies in humans and other animals have demonstrated large and stable individual differences in curiosity across various domains (Gosling & John, 1999; Lilley et al., 2017; Silvia & Christensen, 2020; Spielberger & Starr, 2012). The presence of individual differences in trait curiosity does not negate the theory that the *function* of curiosity is to increase the usefulness of an organism's knowledge in order to improve future decision-making. However, in predicting and understanding an organism's behavior, individual differences must be taken into consideration. This is especially important in group-living animals, where variation in trait levels of curiosity may be a better overall strategy in the context of threat management (Bell et al., 2009; Blanchard et al., 2011).

If curiosity refers to internal motivation for information gathering, and organisms are sometimes internally motivated to learn about threats, then it follows that organisms are sometimes curious about threats. The curiosity literature mentions some constructs that are similar to threat management, such as thrill-seeking, adventure-seeking, risk-taking, and diversive exploration (Berlyne, 1966; Kashdan et al., 2020). Although these facets of curiosity are not specifically about threat, they do involve engagement with potentially dangerous situations. Though often considered sub-facets of curiosity, these constructs appear to be theoretically and empirically distinct from other measures of curiosity and are more akin to sensation-seeking (Byman, 2005; Loewenstein, 1994).

Some motivation for information gathering must be present in instances of predator-inspection. Presumably, psychological mechanisms involved in curiosity provide the motivational source for all information gathering. Despite this, the concept of curiosity is mostly absent in the threat management literature. One could argue that the information gathering that

occurs in threat management, such as predator inspection, is not actually curiosity, but is instead some intrinsic aspect of threat management. However, there is at least some evidence that curiosity serves the purpose of information gathering during threat management.

Due to a rare genetic disease, a patient known by the pseudonym “SM” experienced bilateral amygdala lesions. SM is famous in neurology because the brain damage caused by her condition was largely confined to the amygdala, offering insight to the function of this brain region. The amygdala is integral to many behaviors, but it is most widely known for its role in fear and threat management. Much of the knowledge about the role of the amygdala in threat management in humans comes from the multitude of studies conducted with SM. Studies have shown that SM is unable to recognize the emotion of fear in another person’s face (despite typical recognition of other emotions in the face), sees potentially dangerous people as trustworthy and approachable, and exhibits impairments in both auditory and visual fear conditioning (Feinstein et al., 2016).

In one of the more interesting studies conducted with SM, Feinstein and colleagues (2011) exposed her to snakes and spiders, showed her horror films, and even took her to a haunted attraction. The researchers tested her external manifestations of fear and avoidance in response to dangerous animals by taking her to an exotic pet store. Feinstein and colleagues note that, “Upon entering the store, SM was spontaneously drawn to the snake terrariums and appeared visually captivated by the large collection of snakes.” SM held one of the snakes for several minutes while “displaying a wide range of exploratory behaviors: she rubbed its leathery scales, touched its flicking tongue, and closely watched its movements as it slithered through her hands. Her verbal behavior revealed a comparable degree of fascination and inquisitiveness.” SM reported not feeling afraid of the snakes or tarantulas in the store. However, SM knew snakes and

spiders were dangerous. When the researchers asked SM why she would want to touch something she knows is dangerous, she said that she was “overcome with curiosity.”

The same researchers took SM to a haunted house attraction at Waverly Hills Sanatorium House. The researchers noted that SM excitedly led a group of researchers and strangers through the haunted house and exhibited a lack of fear of the scare actors. Feinstein and colleagues reported that “SM exhibited an unusual inclination to approach and touch the monsters. Ironically, SM scared one of the monsters when she poked it in the head because she was ‘curious’ as to what it would feel like.” Despite reporting no fear throughout the haunted house, SM reported a high degree of excitement and arousal, which she compared to her experience riding roller coasters. Freed from her fear, SM exhibited a high degree of curiosity-driven exploratory behavior in the haunted house.

In both the exotic pet store and the haunted house, SM exhibited a lack of fear at typically fear-inducing stimuli and high levels of self-reported and behaviorally measured curiosity. SM is not the only person to find snakes and spiders interesting or to enjoy a haunted house, but her bilateral amygdala lesion offers some clues to the distinct neurological basis of threat management and curiosity. Despite her inability to feel fear, SM recognized that the snakes and spiders were dangerous. The part of her threat management system that activated fear and avoidance of danger was compromised by her bilateral amygdala lesion, but her curiosity was unfettered. She still felt compelled to gather visual and tactile information about an animal that she observed to be dangerous. In neurotypical humans and animals, a more careful balance must be struck between information gathering and exposure to danger. When a minnow investigates a pike, a gazelle walks towards a stealthed cheetah, a vervet monkey inspects a snake, or a person watches a true crime documentary, both curiosity and threat detection mechanisms are involved.

## **Systems for Navigating Approach and Avoidance Motivations**

Effective risk management and decision-making requires that animals compute the potential benefits of acquiring information about a threat and compare it to the potential cost of acquiring that information. Reinforcement Sensitivity Theory (RST) is a biological theory of personality that explains behavior and emotions on the basis of systems that deal with sensitivity to reward, punishment, and conflicting goals (Gray 1982; Gray & McNaughton, 2000). The modern version of the RST proposes three systems: The fight-flight-freeze system (FFFS), the Behavioral Activation System (BAS) and the Behavioral Inhibition System (BIS).

The FFFS is involved in punishment sensitivity. As such, it moderates the emotion of fear and avoidance behaviors. The BAS deals with dopamine-based reward sensitivity, or the appetitive system. It moderates impulsivity and reward-orientation. The BIS is involved in resolving goal conflicts. These conflicts could be between high and low BAS (approach-approach), high and low FFFS (avoid-avoid), or high BAS and high FFFS contexts (approach-avoid; Pickering & Corr, 2008). The BIS handles all goal-related conflicts, regardless of whether the goals derive from stable individual differences, conditioned responses, or a mix of the two (McNaughton & Corr, 2004). In all cases, BIS activation is associated with anxiety, arousal, risk assessment, and information gathering.

In nature, the risks of interacting with a threat in order to learn about it (i.e., engage in morbidly curious behavior) are often high. This leads to high FFFS activation and general avoidance in the face of dangers such as predators. In cases of predator inspection, the scales tip in favor of BAS, likely through decreased fear (FFFS). This is evidenced by the fact that organisms are more likely to engage in predator inspection when the danger is lower, such as when they are part of a larger group or when the predator is stationary (FitzGibbon, 1994;

Pitcher et al., 1986). Another way to view this is as a balance between the behaviors elicited by curiosity (information gathering) and the behaviors elicited by fear (avoidance or fleeing). Although the risk-assessment is based on moment-to-moment information, the threshold or sensitivity to danger and information gathering (e.g., trait levels of fear and curiosity) may differ between individuals. These differences in sensitivity predict individual differences in personality traits relevant to morbid curiosity such as neuroticism and openness to experience (Heym, 2008; Li et al., 2015; Smits & Boeck, 2006; Walker & Jackson, 2014).

## **Imagination**

Although mechanisms for threat management and curiosity are sufficient to produce morbid curiosity, its expression in humans is substantially modified by a third mechanism: imagination. Humans have the uniquely developed ability to imagine events and experience them through mental simulation (Gilbert and Wilson, 2007; Suddendorf et al., 2018). By imagining potential future events, humans can generate realistic scenarios where the learning benefit is high but the cost of interaction is low. In RST language, the perception of danger is much lower, meaning less activation of FFFS. This shifts the balance in favor of BAS and approach. Because of this shift in the cost-benefit ratio, morbidly curious behaviors become much more attractive and viable.

For most animals, morbidly curious behavior is limited to simple and opportunistically reactive interactions such as predator inspection. In humans, imagination allows decisions to be made in the present that will provide benefits in the future. Many animals prepare for the future in some sense, typically through rigidly evolved behaviors such as building nests or stocking up on food. However, the more complex form of future preparation such as imagination and what Suddendorf et al. (2018) refer to as episodic foresight, appears to be unique to humans. One of



the key adaptive advantages of this complex form of future preparation is the ability to prepare for dangerous situations.

Through language and culture, humans can share the products of their imagination with others. What people share with others and what others are interested in consuming is not random; elements of threat are responsible for greater propagation of information than positive, neutral, or negative (but non-threatening) elements (Bebbington et al., 2017; Blaine & Boyer, 2018). People also more readily believe threat-related information and perceive sources of threat-related information as more competent (Boyer & Parren, 2015; Fessler et al., 2014). Much like the minnow that investigates the pike and then returns to the shoal to alert others, humans will often investigate threats, real or potential, and share what they find with others. Humans, however, can share their information across multiple channels of communication (oral, written, visual) and preserve the information so that it can be shared in the future.

While it can be adaptive to imagine potential threats and how to respond to them, overactive threat prospection also lies at the core of anxiety (Miloyan et al., 2016). Though often discussed as a pathology, normal levels of anxiety are adaptive, motivating humans to detect and avoid potential threats (Bateson et al., 2011; Liénard & Boyer, 2006; Marks & Nesse 1994; Nesse, 2019). Anxiety is often compared to a smoke detector, where over-detection is better than misses. It is less costly for your smoke detector to give off a few false alarms due to hypersensitivity than to miss a few real fires due to hyposensitivity; likewise, it's less costly to prepare for potential threats that may never materialize due to hypersensitive anxiety than to be caught off-guard by a threat due to hyposensitive anxiety. This is consistent with the role of BIS in RST. When BIS deals with conflicts between BAS and FFFS, it tends to increase the effect of motivationally negative stimuli on decision-making, promoting FFFS activation and biasing

behavior toward avoidance (McNaughton & Corr, 2004). Despite the general advantage of false alarms over missing a true positive, chronic hypersensitivity can be detrimental. If your smoke detector wakes you up several times per night, it can lead to negative health consequences. Likewise, chronically overactive anxiety is detrimental to health and wellbeing (Sapolsky, 2004).

## **Morbid Curiosity**

Based on what we have discussed so far, it is reasonable to say that morbid curiosity is born out of a need to detect and deal with threats (threat management), and it is powered by the motivation to gather information (curiosity) and the ability to mentally simulate potential threats (imagination). A simple form of morbid curiosity that exists in most animals can occur without imagination. Predator inspection is a good example of this simpler form of morbid curiosity. In humans, this simple form of morbid curiosity is mostly reactionary. Rubbernecking while driving is one example. When there is a wreck on the side of the highway, people slow down their cars to get a better look. The behavior of slowing down to inspect the outcome of a dangerous situation doesn't require imagination.

Over 2000 years ago, Plato gave us a clear example of morbid curiosity in the story of a man named Leontius. One day, Leontius was walking near the city walls of Piræus, when he caught a glimpse of a pile of dead bodies with an executioner standing over them. Leontius felt an overwhelming desire to look at the bodies while simultaneously loathing the thought of them. After some time, Leontius's desires overcame him and he rushed up to the bodies, exclaiming, "There! You wretches! Gaze your fill at the beautiful spectacle!" (Plato, ca. 270 B.C.E./2000, pg. 439e – 440a).

This simple form of morbid curiosity rarely stays simple. Involuntary or reactionary morbid curiosity often leads to the more complex form involving imagination. Most people who

stop to stare at a car wreck will spend at least a few seconds thinking about the car wreck afterwards, imagining what caused it and how it might have been prevented. This mental simulation is what powers the human form of morbid curiosity. When Leontius saw the executed criminals, he likely spent some time thinking about it — Would decapitation be a bad way to be executed? Would you die instantly? How long could you live without your head? In humans, the simple form of morbid curiosity can serve as the input stimulus for the more complex form.

When the capacity for imagination, the predilection to gather and share information with others, and the need for threat management are combined, the creation and ensuing popularity of the horror genre is the natural consequence. Though scholars have struggled to agree on a definition for horror (Bloom 2012; Smuts, 2008), horror might be simply defined as the genre that aims to evoke fear and anxiety in its audience, typically through the use of a predatory monster, paranormal entity, or murderous human. The horror genre is massively popular and profitable. One of the most striking examples of this was *Paranormal Activity*, which had a production budget of just \$15,000 but grossed over \$200 million at the box office. Horror also dominates in the literary world, with some of the most successful authors in history being horror novelists. Stephen King has sold over 350 million books; R.L Stine has sold over 400 million books; Dean Koontz has sold over 450 million books (Parker, 2017).

The popularity of horror is not a modern phenomenon. Humans have long told scary stories. Ghosts haunted the Greeks and Romans (Felton, 1999). Witches and spirits have brought misfortune to people everywhere since at least the Mesopotamians (Hutton, 2017; Singh, 2021). Ogres, giants, vampires, and monsters of all kinds appear throughout history and across the world in art and culture (Asma, 2009; Gilmore, 2003). These monsters and paranormal entities serve as supernormal stimuli for our threat management systems, effectively capturing our

attention and promoting transmission. Though they share many core features, particularities of the monsters and other kinds of threats in scary stories are often tailored to local ecologies and cultural narratives (Clasen, 2012). There are many manifestations of morbidly curious behavior, but the creation and consumption of oral, written, and audiovisual horror stories is perhaps the quintessential expression of morbid curiosity.

The discussion thus far has explained why threatening elements are attractive and the target of curiosity and imagination. It is adaptive to learn about threats. However, an important question remains: Why would humans find *enjoyment* in attending to, learning about, and imagining threats? The observation that people willingly subject themselves to negative emotions such as fear, disgust, and anxiety has been termed the paradox of horror (Carrol, 1990). Those who hate the horror genre expect to experience fear, while those who love it expect to experience both fear *and* enjoyment (Clasen et al., 2020). In other words, morbid curiosity involves the activation and coordination of multiple emotions, both positive and negative, in pursuit of threat-learning.

One way to interpret the co-activation of fear and enjoyment during morbid curiosity is to situate morbid curiosity within the RST framework. As mentioned previously, the BAS system is associated with reward sensitivity (e.g., enjoyment) while FFFS is associated with punishment sensitivity (e.g., fear). When choosing to initially engage with a fictional threat (e.g., watching a horror movie) the BAS system will be more active than FFFS. This may occur for several reasons. In individuals who have high trait levels of sensation-seeking, novel, complex, and intense sensations are rewarding (Zuckerman, 1994). In anticipation of experiencing intense sensations from a horror movie, the dopamine-based BAS system may upregulate in individuals who have high trait levels of sensation-seeking.

Experiencing threats safely may also trigger rewarding feelings. The rewarding feeling could come from the feeling that you are learning something when you safely engage with threats, as learning progress is intrinsically rewarding (Oudeyer & Kaplan, 2007; Oudeyer et al., 2016). Horror can also be understood as a type of play (e.g., Andersen et al., 2020), and play is intrinsically rewarding (Vanderschuren et al., 2016). Play has an important role in juvenile development, allowing juveniles to practice behaviors and learn strategies that will be important as adults (Pellis & Pellis, 2017). Play is especially adaptive when the behavior it mimics is risky. Rough and tumble play, for example, allows animals to practice motor and cognitive strategies for fighting and escaping predators while keeping the risk of injury low (Aldis, 1975). In rough and tumble play, BAS systems are highly active while FFFS systems are less activated. Similarly, engaging with horror can be understood as a form of “scary play” that functions as threat simulation for the purpose of learning (Andersen et al., 2020; Clasen, 2017; Kerr et al., 2019; Marks & Nesse, 1994). In this framework, horror offers individuals a way to “play with fear” by providing opportunities to engage with moderately frightening experiences in a safe context (Andersen et al. 2020, Andersen et al., 2022; Scrivner & Christensen, 2021).

Although BAS activation can lead individuals to engage with horror, there will be times during morbidly curious behavior where FFFS is upregulated, increasing fear and creating a conflict between BAS and FFFS. This conflict between and BAS and FFFS will activate the BIS system, which generates arousal, anxiety, and increased attention. The building of suspense in a horror movie is a prime example of increased FFFS and BIS activation. The viewer engages their imagination, projecting themselves into the movie in the protagonist’s situation. They may also empathize with the protagonist during the movie, increasing their immersion in the story and the perception of how significant the consequences in the movie are. In the beginning of the film, the

killer is often hinted at, activating the FFFS and subsequently upregulating the BIS. When BIS is upregulated, anxiety increases and negatively valenced stimuli are weighted more heavily in decision-making. When the killer makes his appearance and attacks the protagonist, FFFS activation is quickly upregulated. Although the threat in the movie is never an *actual* threat, horror movies expertly trigger genuine fear responses, recruiting and activating the same parts of the brain that respond to real threats (Nummenmaa, 2021). In viewers with high FFFS sensitivity, FFFS activation will outweigh BAS activation. When FFFS outweighs BAS, viewers will engage in avoidance behaviors such as closing their eyes or covering their face.

RST can provide a framework for understanding morbidly curious behavior. High sensitivity to BAS might motivate people to seek out and engage with morbid stimuli because those stimuli are relatively low risk and high reward. Their rewarding behavior comes from a variety of sources, including intense sensations, the perception of learning progress, and initiation of play behavior. Certain moments during threat learning, such as jump scares, may increase FFFS activity and trigger BIS. Outcomes of BIS activity such as increased anxiety, attention, and arousal, correspond with the phenomenology of engaging in morbidly curious behavior; high anxiety, arousal, and focused attention are central to the experience during a horror movie. If FFFS activity increases enough and subsequent fear is high enough, people will disengage from the stimulus through avoidance behaviors such as covering their eyes or looking away. Individual differences in BAS, FFFS, and BIS sensitivity can also lead to individual differences in morbid curiosity and its associated behaviors. Some individuals are more sensitive to rewards, some to punishments, and some to conflicts between the two. These sensitivity differences are the basis of individual differences in morbid curiosity.

## Summary of Current Studies

Empirical investigations of morbid curiosity as a proper phenomenon are almost completely absent in psychology (see Zuckerman and Litle 1986 and Oosterwijk, 2017 for rare instances empirical investigations). Even in the few studies that have looked at morbid curiosity empirically, theoretical development is absent. Understanding the psychology behind our attraction to threat-related information could shed light on a multitude of topics where threat-related information features prominently, including aspects of religion, rituals, entertainment, psychopathology, and conspiracy theories. This dissertation describes six studies across three chapters that provide foundational research on the psychology of morbid curiosity. In Chapter 2, I present four studies in which I develop and validate the Morbid Curiosity Scale, a measure of individual differences in trait morbid curiosity. Study 1 develops the initial scale using exploratory factor analysis. Study 2 confirms the factor analysis and investigates personality correlates of morbid curiosity. Study 3 demonstrates that morbid curiosity is stable across time and is positively associated with interest in fictional genres where threat is central. Study 4 presents a behavioral demonstration of morbid curiosity, showing that the Morbid Curiosity Scale accurately predicts morbidly curious behaviors.

The COVID-19 pandemic offered an opportunity to study morbid curiosity in the face of a novel threat. Chapter 3 presents a study on morbid curiosity conducted during the initial months of the COVID-19 pandemic. I explored how trait morbid curiosity was related to interest in 1) factual information about Coronavirus that was specifically morbid; 2) general factual information about Coronavirus; 3) pandemic and virus genres of films and TV shows; and 4) genres of film and TV shows that center around threat more broadly. I found that morbidly

curious people expressed more interest than usual in horror, thriller, and pandemic movies.

Morbidly curious people were also more interested in morbid information about Coronavirus.

Chapter 4 presents another study conducted during the early months of the COVID-19 pandemic. I tested whether trait morbid curiosity and past and current engagement with thematically relevant media fictions, including horror and pandemic films, was associated with greater preparedness for and psychological resilience toward the pandemic. Fans of horror films reported greater resilience during the pandemic and fans of “prepper” genres (alien-invasion, apocalyptic, and zombie films) reported both greater resilience and preparedness. I also found that trait morbid curiosity was associated with positive resilience and interest in pandemic films during the pandemic. This study provides support for the idea that morbid curiosity promotes engagement with frightening fictional experiences, which can in turn promote preparedness and resilience to novel threats.



# CHAPTER 2.

## Development and Initial Validation of the Morbid Curiosity Scale

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## Abstract

The success of horror films, popularity of true crime, and prevalence of violence in the news implies that morbid curiosity is a common psychological trait. However, research on morbid curiosity is largely absent from the psychological literature. In this paper, I present a psychometric tool for assessing morbid curiosity, defined as a motivation to seek out information about dangerous phenomena, and use it to investigate the psychological nature of morbid curiosity. In studies 1 and 2 ( $n_{\text{total}} = 1370$ ), the Morbid Curiosity Scale was developed and its relationship to personality was assessed. Morbidly curious individuals were rebellious, socially curious, and low in animal reminder disgust. Study 3 ( $n = 317$ ) demonstrated that trait morbid curiosity is stable over 4-6 weeks and that morbidly curious individuals prefer movies where threat is a central theme. In Study 4 ( $n = 137$ ), participants were presented with a choice between morbid information and non-morbid information (image and text). Morbid curiosity predicted over half the variance ( $r^2 = .53$ ) in decisions to further investigate morbid information. These four studies provide evidence that morbid curiosity is a normally occurring psychological trait that can be assessed using the new 24-item Morbid Curiosity Scale.

## Introduction

Several lines of research suggest that humans are predisposed to attend to particular features of the world, such as faces, people, and potentially dangerous phenomena (Birmingham, Bischof, & Kingstone, 2008; End & Gamer, 2017; Koster, Crombez, Van Damme, Verschuere, & De Houwer, 2004; Pascalis & Kelly, 2009; Scrivner et al., 2019). This is true even when the phenomenon is unpleasant, and pleasantness appears to be unrelated to interestingness (Turner & Silvia, 2006). Furthermore, the modern commercial success of violent action films and horror movies and literature, along with the prevalence of death and violence in the news, suggests that people are curious about topics which might typically be described as unpleasant.

Attending to unpleasant features of the environment may be a necessary part of learning about those features, especially if the unpleasantness would otherwise promote avoidance and prevent information gathering. One example of this is the initial attentional capture of disgusting features. Though they inspire avoidance, disgusting features have been shown to capture attention and cognitive processing in the early stages of visual processing (Armstrong et al., 2019; Wheaton et al., 2013). While the function of the emotion of disgust is presumably to inspire avoidance of potentially pathogenic material, one must first notice and identify the material before it can be avoided. By initially attracting attention, disgusting material can be quickly identified, and exposure can be minimized. Without this predisposition to initially attend to disgusting material, the possibility of longer exposure to potentially pathogenic material would be greater.

Disgusting features are not the only unpleasant things about which humans appear to have curiosity. Violence, danger, and death are historically old and cross-culturally prevalent themes in art, news, and story-telling (Davis & McLeod, 2003; Scalise-Sugiyama, 2006;

Schechter, 2005). Many rumors also feature information about threatening or potentially threatening phenomena. As the adage suggests, bad news may indeed travel more quickly than good news (Heath et al., 2001). While a general negativity bias plays a role in the spread of information, threat in particular is often responsible for greater propagation of information (Bebbington et al., 2017; Blaine & Boyer, 2018). People also more readily believe threat-related information and perceive sources of threat-related information as more competent (Boyer & Parren, 2015; Fessler et al., 2009). Thus, in addition to the avoidance that is inspired by threatening phenomena, curiosity is also aroused and motivates to information gathering.

### Morbid Curiosity

Morbid curiosity is colloquially described as an interest in or curiosity about unpleasant things, especially death. While psychologists have extensively explored how the mind deals with death (e.g., Solomon et al., 2015) and curiosity has been investigated in a variety of research programs (e.g., Kidd & Hayden, 2015; Loewenstein, 1994), they have largely overlooked morbid curiosity as a topic of study. In what appears to be the first psychological paper on morbid curiosity, Zuckerman & Litle (1986) developed the Curiosity About Morbid Events (CAME) scale, which is composed of items that reflect an interest or enjoyment in watching violence and death. Zuckerman & Litle (1986) reasoned that the driving factor behind curiosity about morbid events was an individual's need for novel stimulation and arousal. They found that males scored higher on the CAME scale and that scores on the CAME scale positively correlated with sensation seeking.

Despite being published over 30 years ago, the CAME scale has not experienced widespread use in psychology. The lack of adoption of the CAME scale may be due, in part, to the scale itself. The CAME scale is unidimensional and has not been extensively validated either

internally or externally. Moreover, most questions on the CAME scale are about witnessing violence, which may only be one aspect of morbid curiosity. Indeed, there is no reason to believe that seeing or witnessing violence itself is the core of morbid curiosity.

The descriptor “morbid” suggests that death plays a central role in defining the object of curiosity. However, it may not make sense for something as broad and abstract as death to be the object of curiosity. Rather, the factors that lead to death might be the objects of morbid curiosity. To the extent that morbid curiosity — or any psychological trait — is an aspect of cognition that has been shaped by evolution, then it would make sense for natural selection to act on more specific socioecological problems related to death rather than the broad problem of death (Kirkpatrick & Navarrete, 2006 and Navarrete & Fessler, 2005).

Let us consider an analogy with reproduction and sexual desire. While the ultimate outcome (production of offspring and passing on of genes) is what “matters” for the evolution of reproductive behavior, it is the pathway to this outcome (sex) that is the object of desire. Similarly, the ultimate outcome of a morbid event (death) is what matters, but the pathway to it (a dangerous phenomenon) is the object of curiosity. In other words, death itself is not necessarily what we are curious about; we are curious about the things that lead to death. Understood in this way, morbid curiosity may be defined as an interest in phenomena perceived as dangerous or threatening.

While seeking out dangerous information is probably influenced by sensation seeking as Zuckerman and Litle (1986) suggest, it seems unlikely that sensation seeking is the *core* of morbid curiosity. A sensation-seeking account of morbid curiosity would predict that more intense images would capture more curiosity. However, Oosterwijk (2017) found no relationship between the rated intensity of an image and participant choice to investigate that image, casting

doubt on the central role of sensation seeking in explaining morbid curiosity. Oosterwijk also reported extensive individual variation in how often participants chose to view the morbid stimuli. Moreover, inclination to view morbid images depended on the content it displayed (also see Ibarra and Maestripieri, 2017). Thus, morbid curiosity requires more than just sensation seeking, and it may be best understood as a multi-factor construct.

Despite the CAME scale not experiencing widespread use, research on morbid curiosity (e.g., Niehoff & Oosterwijk, 2020; Oosterwijk, 2017; Oosterwijk et al., 2020; Scrivner, 2021) and related topics such as interest in frightening entertainment (e.g., Andersen et al., 2020; Clasen, 2017; Clasen et al., 2019; Clasen et al., 2020; Kerr, 2015; Kerr et al., 2019; Martin, 2019; Scrivner & Christensen, 2021; Scrivner et al., 2021), violence (e.g., Harrison & Frederick, 2020; Scrivner et al., 2019), disgust (Wabnegger et al., 2021), and dark tourism (e.g., Stone & Sharpley, 2008) has become increasingly more common. This boom in research on morbid curiosity and related psychological and behavioral phenomena implies that the construct is interesting, relevant, requires a more robust theoretical conceptualization, and is in need of an appropriate assessment tool.

I argue that morbid curiosity drives individuals to learn about aspects of life that are perceived to be dangerous. When a dangerous phenomenon is perceived to be near or impending curiosity may spike in order to gather information about the dangerous phenomenon. By learning about the threatening factors associated with death, one can learn to avoid the negative outcomes associated with those factors. Too much avoidance of dangerous or disgusting factors associated with death could lead to ignorance about ecologically important aspects of the world and would be maladaptive in many cases. Thus, morbid curiosity manifests as a balance between the costs of exposure to morbid content and the perceived benefits of learning about that content.

However, like other traits, individual differences exist in the extent to which one is curious about the dangerous aspects of life.

### The Current Research

If morbid curiosity is to be properly studied as an individual difference in psychology, then a reliable scale that assesses trait morbid curiosity is needed. The goal of the current research was to create a robust personality instrument for morbid curiosity, evaluate which personality and individual differences are most strongly correlated with morbid curiosity, and assess morbid curiosity during a behavioral task. In Studies 1a-d, the Morbid Curiosity Scale (MCS) was created and the factor structure of the construct was evaluated ( $n_{\text{total}} = 1040$ ). The factor structure of the MCS was confirmed in Study 2 on a new sample of participants ( $n = 330$ ). Participants in Study 2 also completed a series of personality questionnaires to assess the convergent and discriminant validity of the MCS and investigate the personality correlates of morbidly curious people. Study 3 ( $n = 317$ ) demonstrated that trait morbid curiosity is stable over 4-6 weeks and that morbidly curious individuals prefer movies where threat is a central theme. Study 4 ( $n = 137$ ) was test of the predictive power of the MCS in a behavioral task. Participants completed the MCS followed by a computerized choice task where they chose to view either morbid or non-morbid stimuli based on limited information (i.e., brief flashing of competing images and vague descriptions). Together, these four studies provide an initial description of the psychological nature of morbid curiosity, its relationship to personality and behavior, and provide researchers with a 24-item instrument for measuring trait morbid curiosity.

## Study 1: Development of the Morbid Curiosity Scale

### Study 1 Method

#### *Scale Development*

The morbid curiosity scale was developed across four studies using iterative exploratory factor analysis. The fourth and final iteration is described here; the full description of the first three iterations and rationale for item generation can be found in the Supplementary Materials (Studies 1a – 1c). For the fourth iteration of the scale, 20 items from the previous version were included alongside nine new items. Based on factor analysis from the previous versions of the scale, items were chosen for the fourth version that fit into one of four categories that appeared to emerge: minds of dangerous people, body violations, violence, and paranormal danger.

#### *Participants*

US adults ( $n = 283$ ; 123 female) were recruited through MTurk and an online participant recruitment portal for university students ( $n = 112$ ; 79 female) for a study on personality and curiosity. Ten participants were removed from analysis for nonsense answers to an open-ended attention check ( $n_{\text{total}} = 385$ ). All participants completed the task online at their convenience. MTurk eligibility was contingent upon being 18 or older, having completed at least 100 tasks, having a 96% or higher approval rate, and fluency in English. Eligibility for the university sample was contingent upon being 18 or older and fluency in English.

Participant age ranged between 19 and 77 ( $M_{\text{age}} = 34$ ). Of those who reported their race ( $n = 379$ ), 67% reported their race as White/Caucasian, 13% as Asian, 10% as Black/African American, and 8% as Other/Multiracial. Since online and student samples are often used in psychological research, combining the two is one way to better capture generalizability in participant samples typically used in psychology experiments and increase sample size. Sample



size was determined by funding and number of participants recruited by the end of the academic quarter. While there is no official manner by which sample size should be determined for exploratory factor analysis, the final sample of 385 participants and item pool of 29 items exceeds common heuristics used to determine sample size for factor analysis, including a sample size of greater than 300 (Comrey and Lee, 1992) and a subject-to-item ratio of 10:1 (Nunnally, 1978).

#### *Procedure*

Participants rated the extent to which they agreed or disagreed with the 29 proposed items of the Morbid Curiosity Scale on a 6-point scale (1 = *Strongly disagree* to 6 = *Strongly agree*). Exploratory factor analysis (EFA) was used to analyze the underlying factors in the Morbid Curiosity Scale using the *psych* package in R (Revelle, 2018).

#### Study 1 Results and Discussion

##### *Exclusions*

Nine outliers were detected using Mahalanobis distance ( $X^2(29) = 58.30$ ) and they were removed from further analysis ( $n_{\text{final}} = 376$ ). Data were inspected for multivariate assumptions (normality, linearity, homogeneity, and homoscedasticity) to ensure they were appropriate for EFA. Bartlett's test indicated that the data would benefit from factor analysis ( $X^2(406) = 6773.75, p < .001$ ) and the Kaiser-Meyer-Olkin (KMO) test indicated sampling adequacy for EFA ( $MSA = 0.93$ ).

##### *Exploratory Factor Analysis*

Parallel analysis was conducted using the *psych* package in R. The first four factors had eigenvalues of 10.21, 2.12, 1.87, and 1.35, respectively, while the fifth factor had an eigenvalue of 0.26. The first five randomly generated eigenvalues were 0.73, 0.50, 0.44, 0.38, and 0.34,

respectively. Thus, the parallel analysis suggested that a four-factor model of morbid curiosity was appropriate. While parallel analysis is arguably the best method for determining the number of factors (Lim & Jahng, 2019), a scree plot was also inspected and supported the four-factor solution (Supplementary Figure 1). Maximum likelihood estimation was used with direct oblimin (oblique) rotation to examine factor structure. Using a factor loading criterion of .30, the model achieved simple structure with each item loading on only one factor.

Item loadings ranged from .36 to .89, with an average loading of .72 (Supplementary Figure 2). Item P8, which was about belief in ghosts/spirits, was removed because it was less related to the other questions which are about the *interestingness* of morbid phenomena rather than the *reality* of morbid phenomena. The lowest performing items on each subscale tended to be the reverse coded items (B3, P4, V1). Though the items cross-loaded below the pre-determined cutoff of .30, these items were removed due to minor cross-loading (.17 – .27) and lower performance compared to other items. The items on the minds of dangerous people subscale were all adequate, but one item (M1) was also removed to reduce redundancy in that subscale. See Supplementary Table 4 for the five items that were removed.

EFA was conducted on the reduced pool of items ( $n = 24$ ). The scale achieved stable structure with factor loadings ranging from .45 to .92 ( $M = .73$ ). The scale as a whole demonstrated excellent internal reliability (Cronbach's  $\alpha = .94$ ), as did each subscale ( $\alpha = .87$ -.92; Table 1.1). Factors correlated with one another between .40 and .47, and the average inter-item correlation for the entire scale was .38. The averages for each subscale reported in Table 1. The mean scores for each factor were: minds of dangerous people  $M = 3.83$  ( $SD = 1.30$ ), paranormal danger  $M = 3.18$  ( $SD = 1.34$ ), violence  $M = 3.17$  ( $SD = 1.22$ ), body violation  $M = 2.82$  ( $SD = 1.27$ ).

**Table 2.1.1.**

Factor loadings of the 24 items in the Morbid Curiosity Scale.

Items	<u>Factor Loadings</u>			
	1 Minds	2 Paranormal	3 Body	4 Violence
<b>2.</b> If a head transplant was possible, I would want to watch the procedure. (B1)	0.00	0.07	<b>0.75</b>	0.05
<b>6.</b> I would be curious to see how an autopsy is performed. (B2)	0.10	-0.08	<b>0.80</b>	-0.03
<b>10.</b> I am interested in seeing how limb amputation works. (B4)	-0.02	-0.03	<b>0.92</b>	-0.01
<b>14.</b> I would like to see how bodies are prepared for funerals. (B5)	0.01	0.10	<b>0.71</b>	-0.01
<b>18.</b> I think the preservation of bodies, like in taxidermy or mummification, is interesting. (B6)	0.04	0.23	<b>0.51</b>	0.09
<b>22.</b> I am curious what the deadliest toxin in the world would do to the body. (B7)	0.27	0.01	<b>0.45</b>	0.15
<b>3.</b> I am curious about crime and enjoy reading detailed news accounts about murders and other violent crimes. (M2)	<b>0.70</b>	-0.03	0.11	0.08
<b>7.</b> I would be interested in watching a documentary on motives behind real murders. (M3)	<b>0.88</b>	0.00	0.01	-0.02
<b>11.</b> My favorite part of a crime show is learning about why the killer did what he did. (M4)	<b>0.73</b>	0.02	-0.02	-0.02
<b>15.</b> I would be interested in watching an interview with an imprisoned serial killer talking about his crimes. (M5)	<b>0.85</b>	0.02	-0.05	0.05
<b>19.</b> Being a criminal profiler who studies the personality of murderers would be an interesting job. (M6)	<b>0.75</b>	0.04	0.08	-0.08
<b>23.</b> I am curious about the minds of violent people. (M7)	<b>0.84</b>	0.00	-0.01	0.03

4. I think the supernatural is an interesting topic. (S1)	0.02	<b>0.72</b>	-0.11	0.04
8. I would be interested in attending or watching a video of an exorcism. (S2)	-0.07	<b>0.59</b>	0.21	0.19
12. I find the Occult interesting. (S3)	0.00	<b>0.76</b>	0.04	0.03
16. A documentary on Voodoo would interest me. (S5)	0.07	<b>0.80</b>	0.01	0.01
20. I am curious how a Ouija board works. (S6)	0.00	<b>0.73</b>	0.08	-0.09
24. I think witchcraft would be an interesting topic to learn about. (S7)	0.02	<b>0.91</b>	-0.04	-0.02
1. If I lived in Medieval Europe, I would be interested in attending a public execution. (V2)	-0.09	0.09	0.29	<b>0.56</b>
5. If I lived in Ancient Rome, I would be interested in attending a gladiatorial fight. (V3)	-0.03	-0.06	-0.02	<b>0.88</b>
9. If I saw a street fight break out, and knew I could not intervene, I would try to watch it. (V4)	0.09	0.06	0.03	<b>0.58</b>
13. I would be curious enough to watch a duel if I lived in the Wild West. (V5)	0.08	-0.02	-0.03	<b>0.81</b>
17. I prefer violent movies and TV shows to be uncensored. (V6)	0.06	0.15	0.03	<b>0.55</b>
21. I am curious what a battle looked like in the Middle Ages. (V7)	0.00	0.06	-0.03	<b>0.71</b>
Cronbach's alpha	.92	.90	.87	.89
Interitem Correlation ( <i>M</i> )	.64	.55	.48	.53
Percent of explained variance	29%	26%	23%	22%

### *Study 1 Summary*

In summary, iterative exploratory factor analysis was used to investigate the factor structure of morbid curiosity. A final four-factor structure emerged. The Minds of Dangerous People factor contained items that centered around understanding the motivations of dangerous individuals (e.g., serial killers). The Paranormal Danger factor contained items that suggest an

interest in phenomena that may appear to defy the scientific understanding of the world or violate natural laws (e.g., magic or ghosts). The Violence factor contained items that reflect an interest in seeing (but not necessarily understanding the motives for) violent acts. Finally, the Body Violation factor contained items that suggest an interest in understanding the limits of the body and what happens when the body is damaged. Central to each of these factors is interest in learning about dangerous or threatening phenomena. For example, interviewing a serial killer, attending an exorcism, watching a duel, and observing an autopsy all allow for an observer to learn about phenomena that are dangerous.

The four-factor scale demonstrated excellent internal reliability, a stable factor structure with no items loading on more than one factor greater than .30, and all items loading onto their factor at .45 or higher. Each factor explained a similar amount of variance, ranging from 22% to 29%. In order to confirm the factor structure of the scale, a new sample of participants was recruited in Study 2. Participants in Study 2 also completed additional personality questionnaires so that the convergent validity, discriminant validity, and correlations between trait morbid curiosity and other individual differences could be assessed.

## Study 2: Morbid Curiosity and Personality

In Study 2, the factor structure of the Morbid Curiosity Scale (MCS) was verified using confirmatory factor analysis on a new sample of participants. The convergent and discriminant validity of the MCS was also evaluated by examining correlations between scores on the MCS on other measures of individual difference. If morbid curiosity is, at its core, a curiosity about dangerous phenomena, then it should 1) correlate positively with other measures of approach tendencies (e.g., curiosity), 2) correlate positively with horror media and violent media use, and 3) correlate negatively with measures of threat avoidance (e.g., disgust sensitivity). Because

psychopathy has been found to decrease threat avoidance (e.g., von Borries et al., 2012), the relationship between morbid curiosity and psychopathy was also explored. Finally, the relationship between HEXACO and the MCS and chronotype and the MC were investigated to further explore the psychological correlates of morbid curiosity.

## Study 2 Method

### *Participants*

US participants ( $n = 340$ ) were recruited through Prime Panels for a study on personality and curiosity. Prime Panels is an online recruiting service that utilizes a compilation of online research panels and pre-screened participants, resulting in more nationally representative demographics, more experimentally naïve participants, and high-quality participant data (Chandler et al., 2019). Ten participants failed attention checks and were removed from further analysis, leaving a total of 330 (157 female) participants. Participant age ranged between 18 and 96 ( $M_{age} = 42$ ). Self-reported race was approximately 83.5% White/Caucasian, 12% Black/African American, 1.5% Asian, 1.5% Native American, and 2% Other/Multiracial.

### *Confirmatory Factor Analysis*

Confirmatory factor analysis was conducted using maximum likelihood estimation and the Lavaan package for R. Five different indices of fit – CFI, TLI, RMSEA, SRMR, and  $\chi^2$  were used in assessing the factor structure.

### *Measures*

In addition to the 24-item Morbid Curiosity Scale, participants completed the Five-Dimensional Curiosity Scale Revised (Kashdan, Disabato, Goodman, & McKnight, 2020). The revised scale assesses curiosity along the dimensions of joyous exploration, deprivation sensitivity, stress tolerance, thrill seeking, and social curiosity (separated into overt and covert

social curiosity in the revised scale). Additionally, participants completed the 60-item HEXACO personality scale, which assesses personality along the dimensions of honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness (Ashton & Lee, 2009). Participants completed the Psychopathic Personality Inventory Revised short-form (PPI-SF; Lilienfeld & Hess, 2001). The PPI-SF is a well-validated and widely used measure of psychopathy that includes several subscales, including Machiavellian egocentricity, social potency, fearlessness, cold-heartedness, impulsive non-conformity, carefree non-planfulness, blame externalization, and stress immunity (Kastner, Sellbom, & Lilienfeld, 2012). The Disgust Scale Revised (DSR), which includes subscales on core disgust, animal reminder, and contamination disgust, was also administered to participants (Haidt, McCauley, & Rozin, 1994; revised by Olatunji et al., 2007). Having an evening-oriented chronotype is positively associated with traits such as unconventionality, novelty-seeking, sensation-seeking, and the dark triad – all traits that might reasonably be correlated with morbid curiosity (Marvel-Coen et al., 2018). Thus, participants' chronotype was also assessed using the Reduced Morningness-Eveningness Questionnaire (Adan, & Almirall, 1991). Finally, participants reported basic demographics and how often they engaged with violent media and horror media per week.

## Study 2 Results and Discussions

### *Confirmatory Factor Analysis*

The four-factor model demonstrated adequate indices of fit ( $\chi^2(246) = 778.23, p < .001$ ; RMSEA = .081, 90% CI[.075, .087]); SRMR = .06, CFI = .92; and TLI = .91) and performed better than a one-factor model ( $\chi^2(252) = 1643.67, p < .001$ ; RMSEA = .13, 90% CI[.123, .135]); SRMR = .07, CFI = .78; and TLI = .76). The obtained indices of fit values of the four-factor model were similar to other well-validated curiosity scales (e.g., Kashdan, Disabato, Goodman,

& McKnight, 2020) and meet common benchmarks of good model fit (Kenny, 2015). Factor loadings ranged from .66 to .89 with factor correlations between .71 and .88 (Supplementary Figure 3). As a whole, CFA on this sample of participants supports the four-factor, 24-item Morbid Curiosity Scale presented in Study 1.

*Personality Traits*

Zero-order correlations between the MCS and the other scales are presented in Table 1.2. Since sex was a variable of interest, one participant was removed from analysis for reporting a sex other than male or female, leaving a total of 329 participants for analysis. Based on zero-order correlations, morbid curiosity appears to be most similar to high fearlessness, rebelliousness, and Machiavellianism from the Psychopathic Personality Inventory, high thrill-seeking from the Five-Dimensional Curiosity Scale Revised, low honesty-humility from HEXACO, being younger, and being a male. Individually, each of these subscales only account for about 20-25% of the variance in morbid curiosity scores. Thus, the correlations in this sample suggest that the MCS is measuring a unique aspect of personality.

**Table 2.2.1.**

Study 2 Zero-order correlations with morbid curiosity and morbid curiosity subscales.

<b>Personality / Individual Difference Measure</b>	<b>Violence Subscale</b>	<b>Body Subscale</b>	<b>Minds Subscale</b>	<b>Paranormal Subscale</b>	<b>Morbid Curiosity</b>
Horror Media Use	.56	.50	.43	.51	<b>.56</b>
PPI Rebel	.58	.53	.36	.49	<b>.55</b>
PPI Fearlessness	.54	.53	.33	.37	<b>.50</b>
PPI Total	<b>.55</b>	<b>.50</b>	<b>.32</b>	<b>.40</b>	<b>.50</b>
PPI Machiavellianism	<b>.51</b>	<b>.50</b>	<b>.32</b>	<b>.41</b>	<b>.49</b>
FDC Thrill Seeking	<b>.49</b>	<b>.50</b>	<b>.34</b>	<b>.41</b>	<b>.49</b>
Violent Media Use	<b>.51</b>	<b>.41</b>	<b>.35</b>	<b>.41</b>	<b>.47</b>
PPI Social Potency	<b>.31</b>	<b>.37</b>	<b>.26</b>	<b>.26</b>	<b>.34</b>



FDC Covert Social Curiosity	<b>.30</b>	<b>.33</b>	<b>.25</b>	<b>.31</b>	<b>.34</b>
FDC Joyous Exploration	<b>.20</b>	<b>.30</b>	<b>.28</b>	<b>.25</b>	<b>.29</b>
FDC Deprivation Sensitivity	<b>.22</b>	<b>.30</b>	<b>.25</b>	<b>.25</b>	<b>.29</b>
PPI Blame Externalization	<b>.30</b>	<b>.26</b>	<b>.20</b>	<b>.25</b>	<b>.29</b>
FDC Overt Social Curiosity	<b>.20</b>	<b>.27</b>	<b>.26</b>	<b>.28</b>	<b>.28</b>
Extraversion	<b>.14</b>	<b>.19</b>	<b>.12</b>	.08	<b>.15</b>
Openness	.04	.10	.07	<b>.22</b>	<b>.12</b>
Chronotype	.08	.09	-.05	.09	.06
Agreeableness	.00	.08	-.01	-.06	.01
DSR Contamination	.00	-.03	-.03	-.07	-.03
Emotionality (Neuroticism)	<b>-.12</b>	-.04	.01	.02	-.04
PPI Carefree Nonplanfulness	.00	-.08	-.07	-.05	-.06
FDC Stress Tolerance	-.05	-.08	-.04	-.08	-.07
PPI Coldheartedness	-.03	<b>-.13</b>	<b>-.18</b>	-.10	<b>-.12</b>
PPI Stress Immunity	<b>-.12</b>	<b>-.16</b>	<b>-.09</b>	<b>-.18</b>	<b>-.16</b>
DSR Total	<b>-.16</b>	<b>-.20</b>	<b>-.17</b>	<b>-.15</b>	<b>-.19</b>
DSR Animal Reminder	<b>-.14</b>	<b>-.22</b>	<b>-.18</b>	<b>-.15</b>	<b>-.20</b>
Conscientiousness	<b>-.28</b>	<b>-.20</b>	-.10	<b>-.18</b>	<b>-.22</b>
DSR Core	<b>-.21</b>	<b>-.22</b>	<b>-.17</b>	<b>-.16</b>	<b>-.22</b>
Age	<b>-.30</b>	<b>-.30</b>	<b>-.16</b>	<b>-.23</b>	<b>-.28</b>
Sex	<b>-.45</b>	<b>-.34</b>	<b>-.20</b>	<b>-.26</b>	<b>-.35</b>
Honesty-Humility	<b>-.45</b>	<b>-.40</b>	<b>-.26</b>	<b>-.39</b>	<b>-.42</b>

*Note.* Sex was coded as 1 for male and 2 for female, so negative correlations indicated male-skewed correlations. Scale abbreviations are as follows: PPI – Psychopathic Personality Inventory short form revised; FDC – Five-Dimensional Curiosity Scale; DSR – Disgust Sensitivity Revised. Bold values indicate  $p < .05$ .

To see if morbid curiosity could be accounted for my multiple personality and individual differences, scores on the individual difference measures were z-scored and a regression was conducted. Less than half the variance in MCS scores was explained (multiple  $r^2 = .48$ , adjusted  $r^2 = .44$ ) in a regression model that included every administered subscale, age, and sex as fixed effects. Non-significant predictors were removed one at a time based on the highest  $p$ -value until

only significant predictors remained. A reduced regression model was conducted with the eight significant variables that remained from the full model (Table 1.3). At the core of these traits is the propensity to be rebellious (honesty-humility, rebellious nonconformity), unafraid of death or reminders of it (animal reminder disgust, PPI fearlessness), experience arousal from stress (stress immunity), and possess an interest in people (overt social curiosity). Younger individuals and males are also more likely to be high in morbid curiosity. The reduced model predicted about 44% of the variance in morbid curiosity (multiple  $r^2 = .45$ , adjusted  $r^2 = .44$ ). In other words, defying social conventions, being interested in what makes people tick, and not fearing the certainty of death were good predictors of being high in trait morbid curiosity. These traits may provide the motivational push required for an individual to become curious about and investigate potentially threatening circumstances. While the specific variables varied, the reduced model for each MCS subscale seemed to center around most of the same traits as those in the reduced model for the MCS total score. Reduced models for each of the MCS subscales can be found in the Supplementary Tables 5-8.

**Table 2.2.2.**

Study 2 reduced regression model for individual differences that predict morbid curiosity.

<b>Personality / Individual Difference Measure</b>	<b><math>\beta</math></b>	<b>SE</b>	<b><i>t</i></b>	<b><i>p</i></b>
FDC Overt Social Curiosity	0.19	0.04	4.33	< .001
Honesty-Humility	-0.13	0.05	-2.45	.015
Animal Reminder Disgust	-0.21	0.05	-4.56	< .001
PPI Fearlessness	0.13	0.06	2.23	.026
PPI Rebellious Nonconformity	0.24	0.06	4.04	< .001
PPI Stress Immunity	-0.13	0.05	-2.85	.005
Sex	-0.15	0.05	-3.24	.001
Age	-0.10	0.05	-2.10	.037

*Note:* PPI Stress Immunity can be described as the *absence* of arousal in stressful situations (Kastner & Selbom, 2012). Importantly, a complete lack of arousal in stressful situations would be *unmotivating*. Indeed, enjoyment of fearful situations occurs not when there is a lack of arousal, but rather an optimal amount of arousal (Clasen et al., 2019; Andersen et al., 2020). Corroborating this, PPI Stress Immunity was not correlated with thrill-seeking in this sample ( $r = -.03, p = .560$ ).

### *Study 2 Summary*

In sum, Study 2 provides further validity to the factor structure and construct of morbid curiosity as an individual difference. Convergent validity was confirmed through positive associations between morbid curiosity and individual differences such as horror media use, thrill-seeking, and social curiosity. Divergent validity was established through negative correlations with age, core disgust, animal reminder disgust, and honesty-humility. Finally, the inability of a large repertoire of traits to explain even half the variance in morbid curiosity suggests that the Morbid Curiosity Scale is measuring a distinct individual difference that is not captured by general personality, disgust, psychopathy, or general curiosity.

### Study 3: Morbid Curiosity and Media Preferences

Studies 1 and 2 examined and confirmed the factor structure of the 24-item Morbid Curiosity Scale and identified personality traits associated with morbid curiosity. The aim of Study 3 was to test the stability of morbid curiosity across time and assess its relationship to media preferences. If morbid curiosity is a motivation to learn about threatening situations, then it should predict fandom for genres where a threatening or dangerous phenomenon is central to the story (e.g., horror, crime, and thriller) and should be unrelated to genres where threat is not central to the story (e.g., romance and comedy).

## Study 3 Methods

### *Participants*

US participants ( $n = 322$ ; 181 female) were recruited through Prolific for a larger study on Personality, Media, and Current Events. Only questions pertaining to morbid curiosity and media preferences were analyzed in this study. Five participants failed attention checks and were removed from further analysis, leaving a total of 317 participants. Participant age ranged between 18 and 66 ( $M_{age} = 31$ ).

### *Confirmatory Factor Analysis*

Confirmatory factor analysis was conducted using maximum likelihood estimation and the Lavaan package for R. As in Study 2, five different indices of fit – CFI, TLI, RMSEA, SRMR, and  $\chi^2$  were used in assessing the factor structure.

### *Measures*

Participants completed the 24-item Morbid Curiosity Scale, the Ten-Item Personality Inventory (TIPI), reported their age, sex, income, and answered a series of questions about their media preferences. The TIPI is a 10-item measure of the Big Five dimensions (Gosling et al., 2003). Participants were asked to what extent they agreed (7-point scales, strongly disagree to strongly agree) with each of 10 statements about genre fandom. The statements were phrased: “I would consider myself a fan of \_\_\_\_\_ movies and TV shows.” The genres included horror, zombie, psychological thriller, supernatural, apocalyptic/post-apocalyptic, science fiction, alien-invasion, crime, comedy, and romance.

### *Test-Retest Reliability*

Four weeks after the initial study, participants were contacted again and asked to complete a second study. Though there is no agreed-upon time frame for test-retest reliability for stable traits, four weeks was chosen because it a stable trait should not change during this

amount of time, but variation due to transient error (e.g., mood or other state psychological changes) could be accounted for. Participants were given 2 weeks to finish the second study.

### Study 3 Results and Discussion

#### *Confirmatory Factor Analysis*

The Morbid Curiosity Scale demonstrated strong internal reliability ( $\alpha = .92$ ) and a Shapiro-Wilk normality test indicated that responses were normally distributed ( $p = .075$ ; Supplementary Figure 4) The four-factor model demonstrated adequate indices of fit:  $\chi^2(246) = 555.21, p < .001$ ; RMSEA = .064, 90% CI[.057, .071]); SRMR = .066, CFI = .93; and TLI = .92. The indices of fit values were similar or even slightly better than those in Study 2, suggesting the factor structure holds up well. CFA on this sample of participants further supports the validity four-factor, 24-item Morbid Curiosity Scale.

#### *TIPI and Morbid Curiosity*

Variables were z-scored and a regression model was conducted with each of the big five dimensions from the TIPI as predictors and morbid curiosity as the outcome. Agreeableness was the only significant predictor of morbid curiosity in the model ( $\beta = -.17, SE = 0.06, p = .005$ ). The overall  $r^2$  for the model was .04, indicating that the big five personality traits account for very little variation in trait morbid curiosity (Supplementary Table 9).

#### *Genre Fandom*

Zero-order correlations for TIPI, morbid curiosity, and genre fandom can be found in Supplemental Table 10. Regressions were conducted for trait morbid curiosity and each genre question while controlling for sex, age, income, and TIPI scores (Table 1.4). Trait morbid curiosity predicted alien-invasion, apocalyptic, crime, horror, supernatural, thriller, and zombie genre fandom. As expected, trait morbid curiosity was unrelated to comedy and romance genre

fandom. Interestingly, morbid curiosity was also unrelated to science fiction fandom broadly but was related to alien-invasion film fandom – a science fiction sub-genre where threat is a central theme.

**Table 2.3.1.**

Models for morbid curiosity and film genre fandom controlling for age, sex, income, and Big Five personality. Models conducted separately for each genre.

<b>Genre</b>	<b><math>\beta</math></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>
Alien-Invasion	0.25	0.06	4.58	< .001
Apocalyptic	0.33	0.05	6.07	< .001
Comedy	0.11	0.06	1.87	.062
Crime	0.51	0.05	9.93	< .001
Horror	0.48	0.05	9.36	< .001
Romance	0.00	0.06	0.03	.977
Science Fiction	0.07	0.06	1.26	.209
Supernatural	0.39	0.05	7.41	< .001
Thriller	0.40	0.05	7.44	< .001
Zombie	0.34	0.05	6.26	< .001

#### *Test-Retest Reliability*

Of the 322 participants from the initial study, 257 completed the follow-up study. After removing participants who had failed attention checks in either study, 249 participants remained for test-retest analysis. Participants' morbid curiosity scores from the follow-up study correlated strongly with scores from the first study ( $r = .85, p < .001$ ). Subscales also demonstrated strong test-retest reliability (minds:  $r = .86$ , paranormal:  $r = .84$ , body:  $r = .81$ , and violence:  $r = .80$ ; all  $p$ 's < .001). A Shapiro-Wilk normality test indicated that responses to the Morbid Curiosity Scale retest were normally distributed ( $p = .093$ ; Supplementary Figure 5).

### *Study 3 Summary*

Study 3 tested the relationship between morbid curiosity and media preferences and provided additional support for morbid curiosity as a distinct individual difference. Trait morbid curiosity as measured by the Morbid Curiosity Scale was consistent over a 4-6-week period and the factor structure remained robust. Consistent with the theory that morbid curiosity is a motivation to learn about threat, trait morbid curiosity predicted fandom in film genres that center around a threat (e.g., horror, thriller, paranormal), and was unrelated to fandom in the genres that do not center around a threat (e.g., comedy and romance).

Supporting the hypothesis that morbid curiosity inspires individuals to learn about threat, morbid curiosity predicted threat-centered science fiction subgenres (e.g., alien-invasion, apocalyptic), but not the science fiction genre broadly. While some science fiction does center around threat, it is often more broadly centered around futuristic advances in science and technology. Thus, the core of science fiction is not about a threat in the same way that it is for horror or thriller films. In sum, Study 3 adds to the convergent and divergent validity of the Morbid Curiosity Scale and the ability of morbid curiosity to account for media preferences beyond the effects of general personality and individual differences.

### **Study 4: Morbid Curiosity and Behavior**

The results of Studies 1 – 3 provided evidence that morbid curiosity is a distinct individual difference that motivates one to learn about threatening situations and can be reliably assessed using the Morbid Curiosity Scale. The aim of Study 4 was to see if differences in trait morbid curiosity predict decisions to learn about threat when given an alternative option. To assess the extent to which scores on the Morbid Curiosity Scale predicted decisions to learn about threats, participants completed a computerized choice task where they chose to gather

additional information about either threatening (morbid) or non-threatening (non-morbid) stimuli based on limited information (i.e., brief flashing of competing images and vague descriptions).

#### Study 4 Method

##### *Participants*

Participants ( $n_{\text{total}} = 144$ ) were recruited through an online participant recruitment portal for university students ( $n = 44$ ) and Prolific ( $n = 100$ ). Prolific eligibility was contingent upon being 18 or older, a US citizen, and speaking English as a first language. Eligibility for the university sample was contingent upon being 18 or older and fluency in English. Six participants were removed due to incomplete data. Since sex was used in regression analysis, one participant was removed for selecting something other than male or female ( $n_{\text{final}} = 137$ ; 83 female).

Participant age ranged between 18 and 66 ( $M_{\text{age}} = 29.2$ ).

##### *Procedure*

Participants completed the 24-item MCS followed by a computerized choice task similar to the one used in Oosterwijk et al. (2017). During the choice task, participants were presented with 32 trials. In the first 16 trials, two equally sized images were displayed side-by-side for 500 ms. After 500 ms, the left side of the screen said “Press ‘Q’ to make the image on the left show up again for 4 seconds” and the right side of the screen said “Press ‘P’ to make the image on the right side of the screen show up again for 4 seconds.” Participants made their selection and were allowed to view the image in the center of the screen for four seconds. Between each trial, participants saw a target in the center of the screen for 500 ms to help center their vision between the two images before stimuli were displayed.

For the second set of 16 trials, participants were first presented with two descriptions for an unlimited amount of time until a choice was made. Beneath the description on the left,



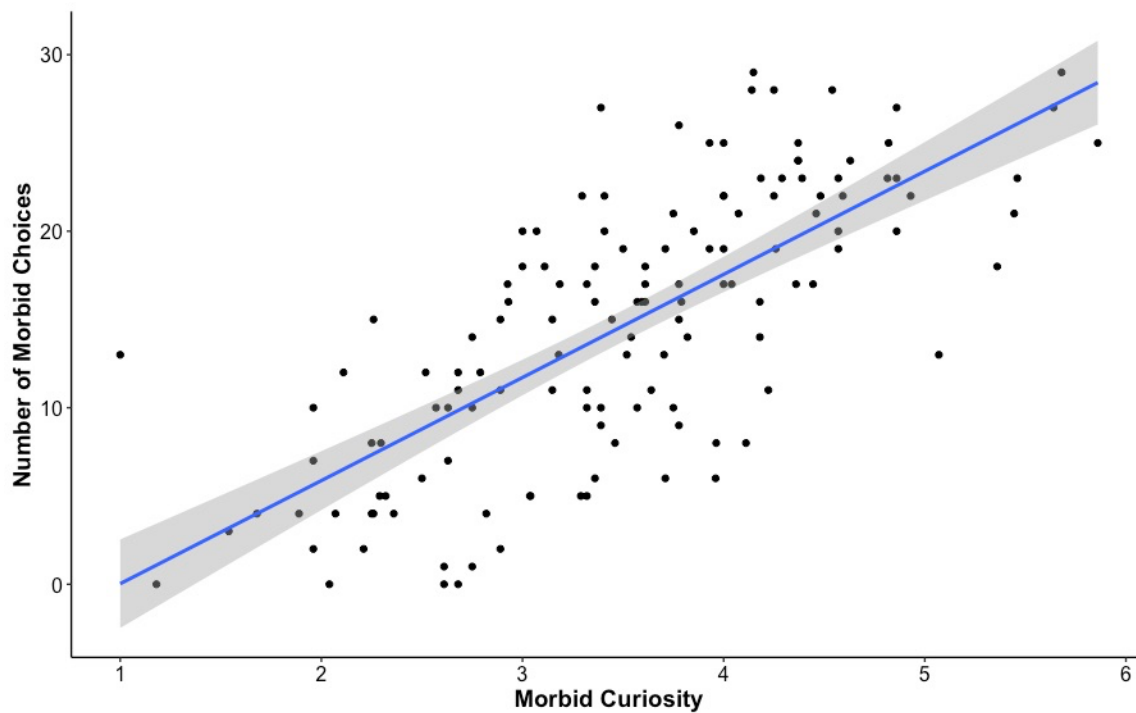
participants were instructed to press Q if they wanted to see what the description described; beneath the description on the right, participants were instructed to press P to see what was described. The participant's choice remained on screen until the participant clicked "next." As with the images, each morbid description was paired with a closely matched control description. For example, one trial presented participants with the choice to view either a photo of a supposedly haunted building (paranormal) or a photo of a famous building (control). Based on the choice, participants would then see the photo of their choice. In some cases, descriptions described written text. For example, one trial presented participants with the choice to either read an excerpt of an interview with an astronaut about his job or to read an excerpt from an interview with an FBI profiler talking about his job. Photos were always paired with photos, and written descriptions were always paired with written descriptions. Each morbid image or description was always paired with the same closely matched control image or description.

Presentation of pair order and which side the morbid image was presented on was randomized for all 32 trials such that morbid and control images were randomly displayed on either side of the screen. Participants were instructed that the task was not a reaction time test and that there were no right or wrong answers. Participants were asked to let their natural curiosity guide their selections. For analysis, the total number of morbid choices across both parts of the task was calculated in order to ensure that the measure was robust to variations in presentation (visual flash vs semantic description).

#### Study 4 Results and Discussion

The average morbid curiosity score was 3.51 ( $SD = 0.96$ ). A Shapiro-Wilk normality test indicated that responses were normally distributed ( $p = .93$ ). A paired t-test suggested that participants chose the non-morbid (17.3) stimuli slightly more often than the morbid (14.7)

stimuli,  $t(136) = 2.01, p = .046, d = 0.34$ ). Participant age, sex, and scores on the MCS were regressed onto the number of morbid choices they made during the choice task. Scores on the MCS strongly predicted the number of morbid stimuli choices ( $B = 5.64, SE = 0.48, p < .001$ ; Figure 1.1). Neither age ( $\beta = -0.06, SE = 0.04, p = .134$ ) nor sex ( $B = 1.19, SE = 0.94, p = .210$ ) predicted the number of morbid stimuli chosen in the model. When age and sex were removed from the model, morbid curiosity accounted for over half the variance in morbid choices ( $B = 5.84, SE = 0.47, p < .001, r^2 = .53$ ).



**Figure 2.1.** Correlation between scores on the Morbid Curiosity Scale and number of morbid stimuli chosen for inspection ( $r = 0.73, r^2 = .53$ ).

#### *Study 4 Summary*

Study 4 was a simple test of whether or not the Morbid Curiosity Scale predicts morbid behavior. On average, participants chose slightly fewer morbid stimuli than control stimuli. However, the average participant still chose to further investigate the morbid stimuli about 46% of the time, suggesting that the average person possesses some degree of morbid curiosity.

Additionally, variation in morbidly curious behavior was strongly predicted by scores on the Morbid Curiosity Scale. This study provided initial evidence that trait morbid curiosity can predict threat-related information gathering behavior for visual and written stimuli.

## General Discussion

Across four studies this paper presents the first attempt to describe the psychological nature of morbid curiosity and assess individual differences in this trait. This was accomplished through the construction of the new Morbid Curiosity Scale (Study 1), assessing its validity and relation to personality (Study 2), and evaluating the extent to which it predicts morbidly curious preferences (Study 3) and behaviors (Study 4). While the four factors of the 24-item Morbid Curiosity Scale — minds of dangerous people, body violation, paranormal danger, and violence — measure distinct facets of morbid curiosity, the underlying theme is a curiosity about threatening phenomena.

One of the strongest predictors of morbid curiosity in Study 2 was animal reminder disgust. Rozin et al. (2008) argue that animal reminder disgust is about the threat of death to self-conscious beings. While the factors that lead to death often inspire aversion, completely avoiding these phenomena would result in dangerous naivety. It seems likely that there must be a psychological mechanism that regulates interactions with dangerous phenomena and promotes information gathering about these phenomena when the benefits are perceived to be greater than the costs. Morbid curiosity is a promising candidate for the behavioral reflection of this psychological mechanism.

Crucially, there are individual differences in the degree to which dangerous information inspires curiosity. Perhaps one reason for the interindividual variation in morbid curiosity is that not every member of a group needs first-hand knowledge of a dangerous phenomenon in order to

learn about it. Indeed, if a critical mass of individuals perpetuates information about dangerous material, it can quickly spread throughout the group. This is consistent with evidence suggesting that threat-related information is more readily accepted as true and that the sources that threat are perceived as competent (Boyer & Parren, 2015; Fessler, Pisor, & Navarrete, 2014; Hilbig, 2009). Combined with the inherent danger in being curious about dangerous situations and phenomena, the premium placed on dangerous information might result in only a small number of individuals being extremely morbidly curious. The rest of the population would only require a moderate degree of morbid curiosity – just enough to listen to those who are sharing the information – in order to benefit. This would lead to morbid curiosity being roughly normally distributed in the population, as seen in the samples in the present studies.

One area where morbid curiosity may play a particularly powerful role is in media and entertainment preferences. In Study 3, morbidly curious participants were more likely to be fans of movies and TV shows where threat was a central theme. Though threats in these movies and TV shows are not real, fictional stories can serve as powerful vehicles for information and learning (Mar & Oatley, 2008; Morin et al., 2019; Scalise Sugiyama, 2021). Consumers are sometimes conscious of this. For example, the desire for real-world knowledge has been found to be a motivating factor for engaging with violent media (Bartsch et al., 2016). The same is likely true of other genres, including those with morbid or macabre themes. As noted by horror novelist Stephen King (2011), a good horror story uses fictional events to help readers understand their own real fears.

Study 4 provides empirical evidence that individuals vary with respect to morbidly curious behaviors and that this variation is captured by the Morbid Curiosity Scale. Individuals in Study 4 who scored high in trait morbid curiosity were more likely to gather more information

about morbid phenomena. The behavioral measure in Study 4 was a measure of epistemic morbid curiosity; participants were gathering information via pictures or text. It is unclear to what extent morbid curiosity predicts morbid behaviors that are more visceral. Presumably, a morbidly curious person would be more likely to not only prefer epistemic information about morbid objects, but also perhaps experiential or tactile information. However, the experiential or tactile information may only be preferred if it can provide additional knowledge that cannot be gleaned from a more distant method, such as visual inspection or reading. Future studies should attempt to distinguish between these different kinds of morbid curiosity.

#### Limitations and Future Directions

While this paper provides an important initial step in the study of the psychology of morbid curiosity, several questions remain. The four facets of morbid curiosity appear to target specific kinds of threats that humans face – the threat of violence, the threat of dangerous people, the threat of physical damage to the body, and the perceived threat of the paranormal or supernatural. However, threats can be somewhat subjective and encompass a wide variety of phenomena. Would an interest in predators, for example, be linked to morbid curiosity? What about weapons? While a gun could be considered a threat, it likely does not inspire morbid curiosity. However, a man holding a gun might inspire morbid curiosity, a man pointing a gun at another person probably would, and a man shooting another person almost certainly would. More work needs to be done to detail the finer theoretical lines of what actually triggers morbid curiosity and how this relates to threat perception.

There are also many other traits that could be related to morbid curiosity that were not tested in the current studies. It is likely that sensation-seeking is positively correlated with morbid curiosity, as exposure to many of the topics that fall under the umbrella of morbid

curiosity would lead to high-arousal. For example, interest in horror movies, one of the highest predictors of morbid curiosity, is positively correlated with sensation-seeking (See Martin, 2019 for review). Traits that are related to vigilance towards threat, such as superstitious beliefs and conspiracy theory beliefs, may also be associated with morbid curiosity. For example, increased threat perception during COVID-19 was related to increased conspiratorial thinking (Heiss et al., 2021). Future studies should investigate whether those who are interested in threat — i.e., the morbidly curious — exhibit similar behaviors

Morbid curiosity may also hold important implications for clinical psychology. For example, heightened morbid curiosity and heightened anxiety both promote threat vigilance. Some evidence suggests that, like morbidly curious individuals, anxious individuals are more likely to prefer entertainment that centers around threat (Nave et al, 2020; Strizhakova and Krcmar, 2007). It may be the case that anxiety and morbid curiosity share some psychological mechanisms that pertain to threat detection and monitoring. Of course, the morbidly curious person often enjoys the frightening experience while the anxious person does not. It is possible that scary-fun experiences, like those that morbidly curious people seek out, could be used to teach those with anxiety how to overcome anxiety-inducing experiences (e.g., see Kerr et al., 2019 and Scrivner & Christensen, 2021). Thus, a better understanding of morbid curiosity could pave the way for new insights and treatment avenues for a variety of anxiety disorders.

## Conclusions

Across four studies, this paper provides the groundwork for understanding the psychology of morbid curiosity. A novel and robust instrument for assessing individual differences in trait morbid curiosity was developed and validated. Personality correlates of morbid curiosity were assessed and the ability of the Morbid Curiosity Scale to predict behavior

was demonstrated. In sum these studies revealed that while people on average possess some degree of morbid curiosity, substantial variation in morbid curiosity exists and is adequately captured by the Morbid Curiosity Scale.

# CHAPTER 3.

## **An Infectious Curiosity: Morbid Curiosity and Media Preferences during a Pandemic**

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## **Abstract**

In this study conducted during the 2020 Coronavirus pandemic, I explored how trait morbid curiosity was related to interest in 1) factual information about Coronavirus that was specifically morbid; 2) general factual information about Coronavirus; 3) pandemic and virus genres of films and TV shows; and 4) genres of film and TV shows that center around threat more broadly. Participants ( $n = 125$ ) who scored high in morbid curiosity reported increased interest, compared to usual, in pandemic/virus genres as well as horror and thriller genres. Morbidly curious participants were also more interested specifically in morbid information about Coronavirus. Furthermore, disgust sensitivity was unrelated to these preferences. These results provide initial evidence that trait morbid curiosity can predict particular media preferences in the face of a real threat, and that morbid curiosity may reflect an adaptive predisposition in some individuals toward learning about the dangerous and disgusting aspects of a threat.

## Introduction

Just three months into the 2020 Coronavirus (COVID-19) outbreak, *Contagion*, a 2011 movie about a deadly viral pandemic, rose from the 270th most-watched Warner Bros. to the second most-watched Warner Bros. film (Mack 2020). Google Trends shows that the biggest spike in Google searches for *Contagion* began on March 11 — the same day that US President Donald Trump announced a travel ban on Europe due to the Coronavirus spread — and peaked on March 14 — the day President Trump extended the travel ban to the UK. The 1995 viral pandemic movie *Outbreak* experienced a similar trend, with Google searches for the film peaking on March 15. Google searches for topics such as “epidemic,” “pandemic,” “virus,” and “Coronavirus” all also peaked that same week (Google Trends 2020). We might reason that these search terms spiked in popularity because people were trying to learn more about the Coronavirus outbreak in response to its recent impact on their daily life around that time. The shutting of international borders may have signaled to the American consciousness that Coronavirus was, in fact, a real threat.

Still, it is puzzling that people would search for *entertainment* about the topic that was causing mass disruption in their lives. This behavior appears even stranger in light of the fact that pathogenic cues often activate the behavioral immune system, which produces feelings of disgust and motivates avoidance behaviors in response to potentially pathogenic material (Schaller 2011). When we see, smell, or inadvertently touch potentially pathogenic material, we recoil and avoid it; if we take a bite out of spoiled food, we spit it out. This response to potentially pathogenic material is powered by the emotion of disgust, which motivates an organism to behave in ways that minimize infection risk, usually through avoidance. However, a closer look at how the human mind deals with potentially dangerous information may help answer the

question of why some people seek out pathogen-related entertainment in the wake of a real pathogenic threat. Indeed, this morbidly curious behavior might make sense as an output of evolved mechanisms that process threatening or dangerous material in organisms cognitively equipped with the ability to imagine themselves in situations and learn from those imagined experiences.

Perceiving potentially pathogenic material should not activate disgust alone. If it did, it would sometimes lead to maladaptive behavior. For example, sexual reproduction involves interaction with bodily fluids, which are typical elicitors of disgust. Disgust at the sight of bodily fluids would lead to obvious reproductive issues if it led to avoidance every time. However, sexual arousal overrides the disgust signals that we are exposed to during sex by specifically lowering sexual disgust and increasing motivation for sex (Ariely and Loewenstein 2006; Stevenson, Case, and Oaten 2011). In other words, decision-making about engagement with potentially pathogenic material must take into account the trade-off between potential dangers and potential benefits (Tybur, Kurzban, Lieberman, and DeScioli 2013). While sexual disgust has been investigated, other systems that may counter or down-regulate disgust are under-explored. Curiosity is one possible counterweight to the typical avoidance behaviors that result from cognitive mechanisms that process pathogen cues.

Though there is little psychological research on the topic, morbid curiosity is a widely recognized phenomenon that is typically described as an interest or curiosity about unpleasant things related to death. While it has been documented that humans in general have attentional biases towards threat (Öhman and Mineka 2001; Scrivner et al. 2019), some people might be especially interested in learning about dangerous phenomena beyond a mere attentional bias. For example, some individuals are more interested in seeing, reading, or otherwise learning about

topics related to death, violence, and disgust (Zuckerman and Litle 1986; Hoffner and Levine 2005; Ibarra and Maestripieri 2017; Oosterwijk 2017; Scrivner 2021). At first glance, the existence of morbidly curious behavior like this appears to contradict the hypothesis that humans possess a behavioral immune system that motivates them to avoid disgusting material. However, in some people, disgusting and frightening features of the environment do not inspire avoidance, but instead stimulate curiosity. How do we reconcile the findings that people avoid disgusting and frightening material in some cases with the fact that they seek it out as entertainment in other cases?

I argue that individual differences in trait morbid curiosity lead to differences in media and entertainment preferences. Morbid curiosity might be conceptualized as an interest in information that typically inspires avoidance by virtue of being a possible threat to human life. Topics of morbid curiosity, then, are factors that are perceived to lead to or be informative of death. Examples may include the motivations of dangerous people (such as true crime), violations of the body (such as infections and injuries), violent acts (such as videos of murder), and even apparent danger that stems from supernatural sources (such as curses or spirits; Scrivner 2021). Instead of completely avoiding apparently dangerous or disgusting features of the world, morbid curiosity rouses internal motivation to explore these features. When a dangerous or disgusting phenomenon is perceived to be near or impending, curiosity may surge in some individuals in order to prompt them to gather information about the phenomenon. Taking the risk of gathering information by briefly exposing oneself to a dangerous phenomenon could be advantageous if it helps the individual know how to deal with the threat in the future or provides unique knowledge. If an individual's local ecology is giving cues that dangerous and disgusting features are present, it could be adaptive to gather some information about these

features, even if it requires some exposure to them. If you live in a violent neighborhood, it is good to know how, why, when, and from whom violence erupts. If you live in a pathogen-dense ecology, it is important to know something about the pathogens, such as what infected material looks and smells like. Having some curiosity about these features could lead to an adaptive edge by creating knowledge about how to predict and properly deal with them in future encounters.

Of course, costs and benefits of interacting with morbid material are still calculated, even in morbidly curious individuals. For example, how important is the information? Can you seek it out without endangering yourself? Will you have the chance to learn about it again? In many real-world instances, the costs of obtaining information about dangerous phenomena are high. One way to reduce the risk of interacting with a dangerous phenomenon is to create physical distance between yourself and the dangerous phenomenon. Because the human mind is equipped with the ability to create “simulated” experiences through imagination, humans are able to obtain information about different scenarios with very little risk. The learning potential of such imagined scenarios is especially powerful when it is combined with the ability to transmit these scenarios through oral, written, and reenacted stories that allow others to learn from them. By listening to, reading, or watching simulations of experiences in the form of fiction media, humans can empathize with and imagine themselves in the positions of characters in stories. By doing so, humans can create meaning and knowledge about similar scenarios in their own lives.

Fiction media can also provide an opportunity to try out different strategies to solve problems, including making bad decisions without having to pay a price for them. Indeed, the very function of fiction could be to create compelling simulations of experiences from which important information can be gleaned and transmitted (Mar and Oatley 2008). Just as we may play with materials or ideas in order to make sense of them, we might “play” with simulated

scenarios in order to learn about the situations they present (Piaget 1945; Clasen, Kjeldgaard-Christiansen, and Johnson 2018; Morin, Acerbi, and Sobchuk 2019). Because humans can learn about dangerous phenomena through simulations, the costs of learning about dangerous phenomena can be low. Assuming the information is accurate and applicable, the benefits of learning about the dangerous information would remain high. Thus, human decision-making likely evolved to process simulations of dangerous and disgusting phenomena as less threatening and/or to feel greater curiosity about this material (that is, morbid curiosity).

Still, there exist individual differences in the propensity to experience simulations of dangerous and disgusting phenomena without much distress. One example of this is recreational horror. Seeing a masked killer wielding a butcher knife in real life would be terrifying and truly dangerous — nobody would wish themselves in this scenario. But, put this scenario on a screen, and some people will *pay* to vicariously experience this simulated scenario. If something can be gained from the simulated experience, such as knowledge about how one *might* act if such a situation were to occur in real life, then the benefits remain large. However, by recognizing the scenario as fiction, the costs are processed as being lower than if it was occurring in real life. This provides a unique opportunity to gather valuable information that would otherwise be dangerous to obtain (for instance, what is it like to be chased by a man with a butcher knife?). At the level of the individual media user's psychology, the curiosity felt about this situation will often overcome the low cost of feeling a bit afraid, resulting in a motivation to seek out this information, even at a (monetary) cost. Thus, variations in levels of trait morbid curiosity may motivate some individuals to become interested in a potentially dangerous or disgusting feature by providing them with an extra spark of motivation that overcomes the perceived cost of interacting with the feature or a simulation of it. Under this framework of simulated experience

providing an opportunity for learning and meaning-making, the sudden popularity of pandemic films in the face of an actual pandemic begins to make sense. Specifically, people may become more interested than usual in news and fiction about pandemics due to the presence of a real pathogenic threat, and this interest may be amplified among more morbidly curious individuals.

In this study, I investigated how individual differences in trait morbid curiosity relate to media preferences in the midst of the 2020 Coronavirus pandemic. In particular, I explored whether trait morbid curiosity was related to an increased interest in 1) factual information about Coronavirus that was specifically morbid; 2) more general factual information about Coronavirus; 3) pandemic/virus genres of films and TV shows; and 4) genres of film and TV shows that feature threat more broadly, such as horror and thrillers. This design helps to clarify whether or not trait morbid curiosity amplifies information gathering in response to a threatening aspect of the environment, whether this amplification is specific to factual news about that aspect or also extends to fiction about that aspect, and whether the increase in morbid curiosity is specific to the threatening aspect that is salient or if an increase in morbid curiosity extends to threat-related information more generally. Because Coronavirus is a pathogenic threat, I also explored whether or not trait disgust sensitivity influenced these media preferences and how this might relate to morbid curiosity.

## Method

Participants ( $n = 126$ , 62 female) were recruited through Prolific for a study on personality and news consumption. Prolific is an online recruitment tool that provides a diverse sample pool, high quality participant data, and fair pay compared to other platforms (Peer, Brandimarte, Samat, and Avquisti 2017). The data were collected on March 22, 2020.

## Measures

Participants first completed the Morbid Curiosity Scale (Scrivner 2021) and the Disgust Scale- Revised (Haidt, McCauley, and Rozin 1994; revised by Olatunji et al. 2007). They then answered ten questions about their interest in Coronavirus, one question about how threatened they felt by Coronavirus, and reported their current interest (compared to usual) in six different genres of film and TV shows: scary/supernatural, mystery/thriller, pandemic/virus, romance, adventure/action, and comedy (Table 1).

## Analyses

Using the *psych* package in R (Revelle 2018), exploratory factor analysis was conducted to explore underlying factors in the ten questions that assessed interest in different aspects of Coronavirus. Cronbach's alpha was used to assess the internal consistency of the factors. Dependent variables used in analysis were the subscales produced from the factor analysis, the question about how threatened the participant felt by Coronavirus, and the genre interest questions. Linear regression models were conducted for each dependent variable controlling for participant sex and age. For each dependent variable, two models were conducted: one with disgust sensitivity as a predictor and one with morbid curiosity as a predictor. For the Coronavirus interest subscales, an additional model was conducted that included how threatened participants felt by Coronavirus. One participant was removed from the regression analyses for reporting something other than male or female for sex.



## Results

### Descriptive Statistics

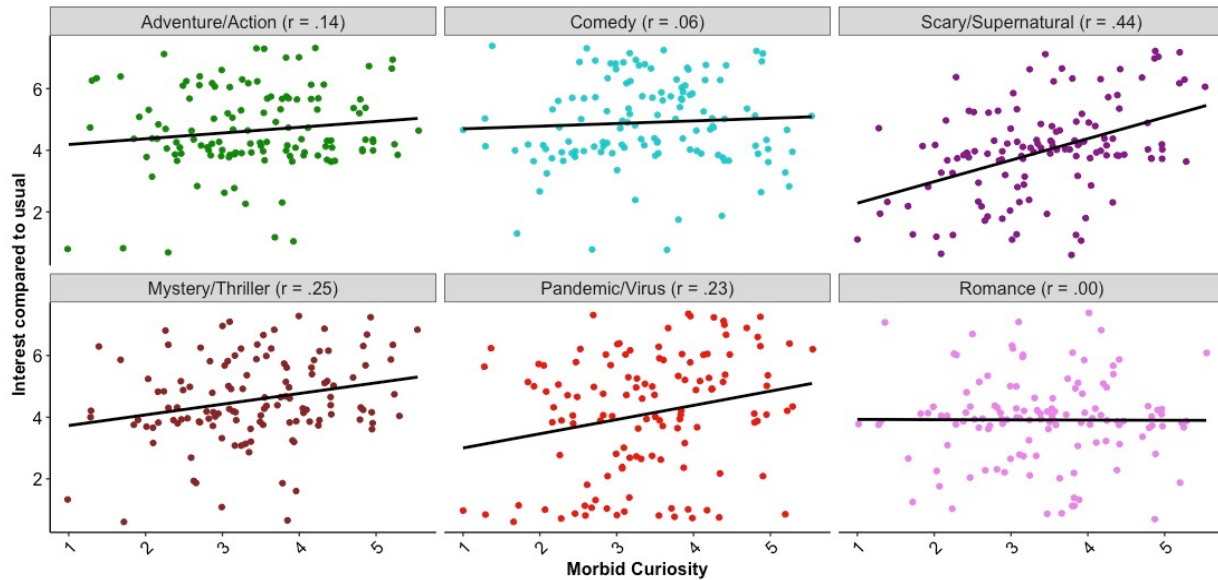
Participant age ranged between 18 and 72 years ( $M = 32$ ,  $SD = 11.5$ ), with most falling between 18 and 50. Means and standard deviations for responses to each media and Coronavirus question can be found in Table 1.1.

### Morbid Curiosity and Genre Interest

As expected, trait morbid curiosity was positively correlated with more interest in watching scary/supernatural ( $B = 0.71$ ,  $SE = 0.13$ ,  $p < .001$ ), mystery/thriller ( $B = 0.37$ ,  $SE = 0.13$ ,  $p = .003$ ), and pandemic/virus ( $B = 0.38$ ,  $SE = 0.17$ ,  $p = .030$ ) movies and TV shows in the next week compared to usual (Figure 2.1). Morbid curiosity was unrelated to interest in watching romance ( $p = .778$ ), comedy ( $p = .291$ ), or adventure/action ( $p = .091$ ) films and TV shows compared to usual (Table 2.3).

### Disgust Sensitivity and Genre Interest

Disgust sensitivity was unrelated to interest in watching any genre more than usual (all  $p$ 's  $> .19$ ) except for adventure/action, which garnered less interest by those high in disgust sensitivity ( $B = -0.51$ ,  $SE = 0.20$ ,  $p = .011$ ).



**Figure 3.1.** Correlation between trait morbid curiosity and interest in watching a movie or TV show from each genre in the next week compared to usual (1 — Much less interested, 7 — Much more interested).

**Table 3.1.**

Descriptive statistics for coronavirus interest and media preferences questions.

Questions	<i>M</i>	<i>SD</i>
How interested are you in watching a <b>pandemic or virus</b> movie or TV show in the next week compared to usual?	4.13	1.93
How interested are you in watching a <b>scary / supernatural</b> movie or TV show in the next week compared to usual?	3.97	1.53
How interested are you in watching a <b>mystery / thriller</b> movie or TV show in the next week compared to usual?	4.58	1.36
How interested are you in watching an <b>adventure / action</b> movie or TV show in the next week compared to usual?	4.65	1.33
How interested are you in watching a watching <b>comedy</b> movie or TV show in the next week compared to usual?	4.92	1.41
How interested are you in watching a <b>romance</b> movie or TV show in the next week compared to usual?	3.91	1.39
How interested are you in learning what Coronavirus does to the human body?	4.93	1.74
How interested are you in learning about how Coronavirus is influencing policy?	5.39	1.55
How interested are you in learning about Coronavirus death rates and countries that are impacted the most?	5.42	1.44

How interested are you in hearing stories about people who have <u>died</u> from Coronavirus?	3.92	1.77
How interested are you in hearing stories about people who have <u>recovered</u> from Coronavirus?	4.77	1.77
How interested are you in learning about the CDC guidelines for lowering your risk of Coronavirus infection?	5.30	1.59
*How long do you spend each day learning about Coronavirus, including reading/watching news about it?	2.53	1.20
How curious are you about the morbid aspects of Coronavirus?	3.94	2.04
How interested would you be in seeing photos of what Coronavirus does to the body?	3.67	2.09
How interesting do you think Coronavirus is?	5.06	1.63
How threatened do you feel by Coronavirus?	4.62	1.68

*Note. \* indicates a 5-point scale; All other choices were 7-point scales*

### Exploratory Factor Analysis

Data were screened for multivariate assumptions (normality, linearity, homogeneity, and homoscedasticity) to ensure they were appropriate for exploratory factor analysis. One outlier was detected using Mahalanobis distance ( $X^2(10) = 29.59$ ) and was removed from further analysis. Bartlett's test indicated correlation adequacy ( $X^2(45) = 476.24, p < .001$ ) and the Kaiser-Meyer-Olkin (KMO) test indicated sampling adequacy for exploratory factor analysis ( $MSA = 0.79$ ).

A parallel analysis suggested a two-factor model of morbid curiosity. Maximum likelihood estimation was used with direct oblimin (oblique) rotation to examine factor structure. Using a factor loading criterion of .40, all items except for the news item loaded on only one factor. After the question asking how long the participant spent each day learning about Coronavirus from the news was removed from analysis, the model achieved simple structure with each of the items loading on only one of the factors. Item loadings ranged from .47 to .89.

The first factor consisted of three items: interest in seeing photos of what Coronavirus does to the body, interest in what Coronavirus does to the human body, and interest in the morbid aspects of Coronavirus. Responses to these three measures were averaged and combined into a “morbid interest in Coronavirus” variable (Cronbach’s  $\alpha = .84$ ). The second factor consisted of the remaining six Coronavirus questions (Table 2.2). Responses to these measures were averaged and combined into a “general interest in Coronavirus” variable ( $\alpha = .77$ ). The mean and standard deviation for each factor was: morbid interest  $M = 4.18$  ( $SD = 1.71$ ), general interest  $M = 4.98$  ( $SD = 1.08$ ).

**Table 3.2.** Factor loadings for coronavirus interest questions.

<b>Questions</b>	<b>Morbid Interest</b>	<b>General Interest</b>
How interested are you in learning about how Coronavirus is influencing policy?	-0.21	<b>0.54</b>
How interested are you in learning about Coronavirus death rates and countries that are impacted the most?	0.07	<b>0.67</b>
How interested are you in hearing stories about people who have <u>died</u> from Coronavirus?	0.29	<b>0.47</b>
How interested are you in hearing stories about people who have <u>recovered</u> from Coronavirus?	-0.03	<b>0.49</b>
How interested are you in learning about the CDC guidelines for lowering your risk of Coronavirus infection?	-0.16	<b>0.69</b>
How interesting do you think Coronavirus is?	0.21	<b>0.73</b>
How curious are you about the morbid aspects of Coronavirus?	<b>0.82</b>	0.09
How interested would you be in seeing photos of what Coronavirus does to the body?	<b>0.89</b>	-0.08
How interested are you in learning about what Coronavirus does to the human body?	<b>0.61</b>	0.18

### Morbid Curiosity, Disgust Sensitivity, Threat, and Interest in Coronavirus

Neither trait morbid curiosity ( $p = .092$ ) nor disgust sensitivity ( $p = .089$ ) were significantly related to general interest in Coronavirus. Disgust sensitivity was also unrelated to morbid interest in Coronavirus ( $p = .520$ ). However, morbid curiosity was significantly positively correlated with morbid interest in Coronavirus ( $p < .001$ ; Figure 2.2).

New models were constructed with disgust sensitivity, morbid curiosity, and how threatened the participant felt by Coronavirus as predictors. Of these three predictors, only how threatened the participant felt by Coronavirus predicted general interest in Coronavirus ( $p < .001$ ). However, both morbid curiosity ( $B = 0.98$ ,  $SE = 0.14$ ,  $p < .001$ ) and how threatened the participant felt by Coronavirus ( $B = 0.26$ ,  $SE = 0.08$ ,  $p = .002$ ) predicted morbid interest in Coronavirus. See Table 3 for all regression statistics.

**Table 3.3.**

Linear regression models controlling for sex and age.

<b>Morbid Curiosity and Media Interests</b>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Interest in pandemic/virus media compared to usual	0.38	0.17	2.20	<b>.030*</b>
Interest in scary/supernatural media compared to usual	0.71	0.13	5.43	<b>&lt; .001***</b>
Interest in mystery/thriller media compared to usual	0.37	0.13	2.99	<b>.003**</b>
Interest in adventure/action media compared to usual	0.21	0.12	1.70	.091
Interest in comedy media compared to usual	0.14	0.13	1.06	.291
Interest in romance media compared to usual	0.04	0.13	0.28	.778
<b>Disgust sensitivity and Media Interests</b>				
Interest in pandemic/virus media compared to usual	0.07	0.28	0.25	.804
Interest in scary/supernatural media compared to usual	-0.30	0.23	-1.31	.193
Interest in mystery/thriller media compared to usual	-0.11	0.21	-0.55	.587
Interest in adventure/action media compared to usual	-0.51	0.20	-2.58	<b>.011*</b>
Interest in comedy media compared to usual	0.12	0.21	0.59	.559
Interest in romance media compared to usual	0.15	0.20	0.75	.456

### **Interest in Coronavirus - Separate Models**

Morbid interest ~ Morbid curiosity	0.93	0.14	6.81	< .001***
Morbid interest ~ Disgust sensitivity	0.17	0.26	0.65	.520
General interest ~ Morbid curiosity	0.15	0.10	1.49	.138
General interest ~ Disgust sensitivity	0.30	0.16	1.88	.063

### **Morbid Interest in Coronavirus - All Predictors in Model**

Morbid curiosity	0.98	0.14	7.17	< .001***
Disgust sensitivity	0.38	0.23	1.62	.108
Feeling threatened by Coronavirus	0.26	0.08	3.13	.002**

### **General Interest in Coronavirus - All Predictors in Model**

Morbid curiosity	0.13	0.09	1.36	.176
Disgust sensitivity	0.04	0.16	0.24	.813
Feeling threatened by Coronavirus	0.34	0.06	6.16	< .001***

*Note.* \*  $p < .050$ . \*\*  $p < .010$ . \*\*\*  $p < .001$ .

## Discussion

Pandemics provide a unique opportunity to study how individuals process and respond to cues of a novel threat in their environment. In the midst of the 2020 Coronavirus pandemic, participants in this study reported their interest in a variety of topics related to Coronavirus as well as their interest now, compared to usual, in six genres of movies and television. These reports were analyzed in relation to three main predictor variables: trait morbid curiosity, trait disgust sensitivity, and how threatened the participant felt by Coronavirus. The primary purpose of the study was to investigate how trait morbid curiosity was related to current interest in both morbid and general information about Coronavirus, whether this relationship was present when considering both factual and fictional information, and whether or not morbid curiosity was related to interest in threatening information more broadly.

Morbidly curious individuals reported more interest than non-morbidly curious individuals in learning specifically about the morbid aspects of the virus, such as seeing photos

of what Coronavirus does to the body. By promoting the seeking of factual information about the gritty details of a threat, morbid curiosity may lead some individuals to be more broadly informed about that threat. Interestingly, morbid curiosity was unrelated to how threatened one feels by Coronavirus. This may indicate that the psychological mechanisms behind morbid curiosity operate by increasing the seeking of morbid features rather than affecting how threatening they are perceived to be. Although increased feelings of threat toward Coronavirus led to more information gathering about it, this appeared to be independent from morbid curiosity. Even though morbid curiosity may be defined as an interest in threatening features of the world, the expression of morbidly curious behaviors might be unrelated to the degree of threat felt by the individual. Future studies should work to parse out the emotional and personality correlates of feeling morbidly curious about some phenomenon as a way to better understand the function and psychological mechanisms of morbid curiosity. In particular, why do morbidly curious individuals *specifically* seek out morbid information about some threat rather than information about the threat more broadly?

In addition to factual information, people can seek out simulated experiences of situations in the form of movies and TV shows. During the Coronavirus pandemic, morbidly curious participants in this study reported more interest than usual in pandemic movies and TV shows. One explanation for this finding is that the Coronavirus pandemic signified an imminent threat, leading individuals who were high in morbid curiosity to become particularly interested in gathering information about pandemics and viruses through fictional simulations. While this may explain why morbidly curious individuals were more interested in morbid information about Coronavirus and more interested in watching pandemic and virus films and TV shows, it does not explain why morbidly curious participants also reported greater interest in scary/supernatural

and mystery/thriller genres. Increased interest in these genres may imply that morbidly curious individuals felt more interested in information about threats more broadly in response to the increased salience of the Coronavirus threat. However, another possibility is that the broader interest in scary/supernatural and mystery/thriller genres among morbidly curious individuals during the pandemic is due to escapism. Because morbidly curious individuals are generally more tolerable of and even drawn toward morbid phenomena, they may find morbid entertainment more amenable as a form of escapism while they are quarantined at home, whereas those who are less morbidly curious may partake in escapism via other genres.

Another intriguing possibility is that participants may not have considered some popular horror films and TV shows, such as *28 Days Later* or *The Walking Dead*, to be in the pandemic/virus genre (but did consider them to be scary/supernatural) even though they provide cues of pathogen threat and information that could be relevant for a viral pandemic. The premise of both *28 Days Later* and *The Walking Dead*, among other zombie films, is what happens to humans individually and society more broadly during a dangerous viral outbreak. Both fictions include information about infection, gathering supplies, and how people will (or will not) work together during a deadly pandemic. Although these fictions are probably not categorized as pandemic or virus films by many people, they would be excellent simulations for understanding the dynamics of viral pandemics. Thus, the increased interest in horror and thriller genres among the morbidly curious may have been the result of some popular examples of horror and thriller genres tapping into the same psychological mechanisms as viral pandemic films like *Contagion* and *Outbreak*. Future studies might investigate whether or not horror and thriller films that specifically provide simulations of pandemics inspire greater interest among morbidly curious individuals during real-life pandemics. One specific genre that might see an increase in



interest is the zombie genre, since zombie outbreaks almost always occur in the form of a viral pandemic.

Finally, the importance of learning about the Coronavirus pandemic through news or fiction may have far outweighed the perceived costs for most people, not just for morbidly curious individuals. This could have led less morbidly curious individuals to also invest time in learning about the virus, resulting in a dampened association between general interest in Coronavirus and trait morbid curiosity. Since data collection was conducted three months after the beginning of the outbreak, it is also possible that morbidly curious participants had *already* satisfied their curiosity with pandemic-specific media, and thus their interest in watching more in the next week was not as high as it would have been earlier in the pandemic. Future studies should take advantage of longitudinal sampling to see how morbid curiosity relates to changes in media preferences in response to pandemics as well as other global and local events such as wars or increases in local crime. It will be interesting to see if morbid curiosity leads some individuals to seek out entertainment concerned specifically with the relevant threat, or, alternatively, to seek out threatening entertainment more broadly.

Another trait that might be predicted to have an influence on media preferences about a virus during a pandemic would be disgust sensitivity. However, in this study, disgust sensitivity was neither associated with general interest nor morbid interest in Coronavirus. This indicates that trait morbid curiosity may be a better predictor for disgusting and morbid news preferences than disgust sensitivity. Likewise, disgust sensitivity was unrelated to increased interest in pandemic films and TV shows, suggesting that changes in interest in that specific genre among some participants is better explained by morbid curiosity. Feeling threatened by Coronavirus was positively correlated with disgust sensitivity and more interest in both morbid and general

information about Coronavirus. However, greater disgust sensitivity was not significantly associated with interest in either general or morbid information about Coronavirus. This may mean that the psychological mechanisms underlying disgust sensitivity primarily act on behaviors other than information gathering, while those underlying perceived threat from disgust act more directly on information gathering. However, these speculations should be taken with caution. The threat measure was a single question that may not have captured the full breadth of how one does or does not feel threatened by Coronavirus. Future research should aim to further disentangle the relationship between disgust sensitivity, threat-perception, and morbid curiosity.

The present study only explored a small part of how trait morbid curiosity relates to media preferences, and several traits that might be related to morbid curiosity and relevant to media preferences were not included in the study. Two traits that should be analyzed in relation to morbid curiosity in future research are sensation seeking and novelty seeking. Sensation seeking is a well-established trait defined by the “seeking of varied, novel, complex, and intense sensations and experiences, and willingness to take physical, social, legal, and financial risks for the sake of such experience” (Zuckerman 1994, 27). One early study on morbid curiosity found that it was positively related to sensation seeking (Zuckerman and Litle 1986). However, a more recent study that relied on behavioral demonstrations of morbid curiosity found that the reported intensity of a negative image was unrelated to participants’ curiosity about the image, casting some doubt on the relationship between sensation seeking and morbid curiosity (Oosterwijk 2017). In a meta-review, Hoffner and Levine (2005) found that sensation seeking was significantly correlated with enjoyment of frightening and violent media, but the effect size was relatively small ( $r = .20$ ). In another study, thrill seeking, a trait related to sensation seeking, explained about 25% of the variance in scores on the Morbid Curiosity Scale (Scrivner 2021). In

the same study, openness to experience, a trait related to novelty seeking, only explained about 1% of the variance in trait morbid curiosity. While it seems clear that many morbid features of the world are often both sensational and novel, the relationship between trait morbid curiosity and trait sensation and novelty seeking remains unclear. Future research should investigate how these traits and others (such as anxiety and neuroticism) relate to morbid curiosity.

Another interesting avenue of research would be to investigate morbid curiosity and interest in other types of morbid entertainment, such as horror-themed video games or haunted attractions. Trait morbid curiosity may also play a role in tourism. In particular, individuals high in morbid curiosity may tend toward “thana-tourism” or “dark tourism” — attractions that relate to death and disaster (Podoshen, Venkatesh, Wallin, Andrzejewski, and Jin 2015). Finally, it is important to investigate how trait morbid curiosity relates to baseline interests as well as differences in reactivity — that is, do morbidly curious people simply have a higher baseline interest in morbid material, or, as this study suggests, is their morbid curiosity also more reactive to morbid events? Further exploration of how trait morbid curiosity relates to entertainment preferences could shed light on the psychology of this understudied trait and how it relates to broader human behaviors that involve death, including rituals, religions, and myths.

# CHAPTER 4.

## **Pandemic Practice: Horror Fans and Morbidly Curious Individuals Are More Psychologically Resilient During the COVID-19**

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## **Abstract**

One explanation for why people engage in frightening fictional experiences is that these experiences can act as simulations of actual experiences from which individuals can gather information and model possible worlds. Conducted during the COVID-19 pandemic, this study (n = 310) tested whether past and current engagement with thematically relevant media fictions, including horror and pandemic films, was associated with greater preparedness for and psychological resilience toward the pandemic. Since morbid curiosity has previously been associated with horror media use during the COVID-19 pandemic, we also tested whether trait morbid curiosity was associated with pandemic preparedness and psychological resilience during the COVID-19 pandemic. We found that fans of horror films exhibited greater resilience during the pandemic and that fans of “prepper” genres (alien-invasion, apocalyptic, and zombie films) exhibited both greater resilience and preparedness. We also found that trait morbid curiosity was associated with positive resilience and interest in pandemic films during the pandemic. Taken together, these results are consistent with the hypothesis that exposure to frightening fictions allow audiences to practice effective coping strategies that can be beneficial in real-world situations.

## Introduction

*“A good horror story is one that functions on a symbolic level, using fictional (and sometimes supernatural) events to help us understand our own deepest real fears.”* (King, 2011).

Intentionally exposing oneself to fearful situations is, on its face, a peculiar phenomenon. An empirically supported explanation for why people engage in frightening fictional experiences is that these experiences can act as simulations of actual experiences from which individuals can gather information and model possible worlds (Clasen, 2017; Clasen et al., 2018; Mar & Oatley, 2008; Morin et al., 2019). In a simulated experience, such as an oral story, a novel or a film, one can explore possible futures or phenomena, gathering information about what the real version of such an experience would look like, and learn how to prepare for analogous situations in the real world (Scalise Sugiyama, 2001).

In this way, engaging with imagined worlds through fiction is functionally analogous to various kinds of play. For example, rough-and-tumble play has been hypothesized to have evolved in part because it safely simulates dangerous situations (Boulton & Smith, 1992). Through engaging in rough-and-tumble play, animals can develop and practice the use of cognitive and motor skills required for facing actual dangerous confrontations in adulthood (Kniffin & Scalise Sugiyama, 2018; Scalise Sugiyama et al., 2018). Similarly, fitness-relevant information can be learned through cognitive play with stories (Johnson, et al., 2011; Morin et al., 2019; Scalise Sugiyama, 2005; Smith et al., 2007; van Krieken, 2018)

Take, for example, a film about a pandemic. A pandemic film gives viewers low-cost access to important information that is difficult or dangerous to come across in the real world. For example, how do other people act in the face of a pandemic? Are such events likely to

prompt cooperative or selfish behavior in others? How might one navigate the altered social landscape of a pandemic world? What does the world look like when institutions that act as cornerstones of everyday existence no longer operate as usual? Should a pandemic ever occur, this information could be quite valuable. The hypothesis that pandemic and apocalyptic fiction can provide adaptive simulations of catastrophic scenarios has been suggested theoretically (Clasen, 2019), but has not yet been empirically tested.

The most important part of many stories may not be their literal similarity to real life, but the meaning that can be extracted from them and applied to real world situations (Biesele, 1986). Although zombies do not exist and thus represent no real threat to humans, situations that occur in zombie movies may be analogous to situations that would occur in real-world events. The widespread chaos that occurs in zombie films is in many ways similar to the widespread chaos that can occur during real-world disasters. Thus, the information we obtain vicariously from an imagined zombie apocalypse may serve us in analogous situations in the real world (Clasen, 2017).

Simulation is useful because it can substantially reduce the cost of exploring, experiencing, and learning about some phenomenon, particularly if that phenomenon is dangerous. This shift in the cost-benefit ratio decreases the motivation required for one to explore the phenomenon in question. Likewise, stories with more relevance to the current state of the world are often more popular, reflecting the possible functional purpose of stories (Scalise Sugiyama, 2019). One recent example of this might be the massive surge in popularity of the film *Contagion* in the early weeks of the COVID-19 pandemic. Though the film was nearly a decade old, it quickly became one of the most streamed movies in America, presumably due to

the fact that it provides a realistic example of what happens during a viral pandemic (Mack, 2020).

Still, engaging with a mental simulation of a dangerous situation is not cost-free. Mental simulation of dangerous phenomena can bring about unpleasant emotions and comes with a non-trivial time-commitment. The extent to which an individual is motivated to learn about the dangerous situations in life may be described as morbid curiosity (Scrivner, in press; 2020). In line with the simulation account, Scrivner (in press) found that individuals high in trait morbid curiosity became much more interested in pandemic-themed films in the early weeks of the COVID-19 outbreak than less morbidly curious individuals. Through a greater propensity to gather information about dangerous phenomena, morbidly curious individuals may accrue a larger repertoire of knowledge and emotional coping strategies that would be useful in dangerous situations.

In addition to learning how to navigate dangerous situations through simulations, people may also learn to navigate their own emotions. Indeed, previous research has demonstrated that visitors in a commercial haunted house actively use a range of emotion regulation strategies to regulate fear levels and achieve maximum pleasure (Clasen et al., 2019). Presumably, frequent users of horror media often employ emotion regulation strategies, which may lead to improved emotional coping skills. In particular, voluntary use of horror entertainment may lead to less reliance on avoidance mechanisms in response to fear, which have been shown to be associated with poor psychological outcomes when used in response to certain fears, including viral outbreaks (Dillard, et al., 2018; Petzold et al., 2020). Horror fiction allows people to safely and frequently experience fear, which is typically experienced in the presence of real danger. By eliciting fear in a safe setting, horror fiction presents an opportunity for audiences to hone their



emotion regulation skills (Kerr et al., 2019; Lobel et al., 2016; Schartau et al., 2009). Emotion regulation skills have, in turn, been shown to be associated with increased psychological resilience (Mestre et al., 2017; Tugade & Fredrickson, 2004).

#### *Present Research*

Through engaging often with frightening fictional experiences, horror fans and morbidly curious individuals can gather information and practice emotion regulation skills that may benefit them in dangerous real-world scenarios. With regard to COVID-19, individuals who have spent more time simulating frightening or dystopian experiences in the past may experience less psychological distress during the pandemic. Likewise, those who are motivated to seek out dangerous information (i.e., the morbidly curious) may experience greater resilience during the pandemic.

In this study, we tested the hypothesis that morbidly curious individuals and horror fans exhibit greater psychological resilience during the COVID-19 pandemic. We also investigated whether or not those who watched more pandemic films specifically exhibited greater resilience and preparedness for the COVID-19 pandemic. While fiction can exist in several forms, we opted to study films since films are a particularly popular medium. We predicted that 1) horror fans would be more psychologically resilient during the COVID-19 pandemic, 2) those who score high in trait morbid curiosity would be more psychologically resilient during the pandemic, 3) watching more pandemic films would be associated with greater preparedness and psychological resilience during the COVID-19 pandemic.

## Method

### Participants

We recruited 322 US participants from Prolific for a study on Personality, Media, and Current Events. Participants were recruited in April 2020, about a month after COVID-19 was declared a global pandemic. Participants were recruited during this time because it was early in the pandemic, when there was still a lot of uncertainty about what was happening. The sample size required to detect a small effect size ( $r = .20$ ) with 95% power ( $\alpha = .05$ ) was 314; we recruited slightly more in anticipation that some may fail attention checks. Five participants were removed for failing attention checks. Since sex was used as a predictor in some analyses, participants who answered something other than male or female ( $n = 7$ ) were excluded from analyses ( $n_{\text{final}} = 310$ ).

### Measures

#### *Genre Questions*

Participants were asked to what extent they agreed (7-point scales, strongly disagree to strongly agree) with each of 10 statements that said, “I would consider myself a fan of \_\_\_\_\_ movies and TV shows.” The 10 types of movies and TV shows were horror, zombie, psychological thriller, supernatural, apocalyptic/post-apocalyptic, science fiction, alien-invasion, crime, comedy, and romance. Since simulations should work best when they present information relevant to real-world situations, we combined the genres where the imagined world is illustrative of the chaos that might occur in a real-world pandemic (zombie, apocalyptic/post-apocalyptic, and alien-invasion) into a “prepper genres” variable. Only the prepper and horror genre variables were of interest in the analysis; the other genre variables were used to mask the intent of the study. Participants were also asked to rate the extent to which they agreed (7-point

scales, strongly disagree to strongly agree) with a statement of generic enjoyment of video entertainment, “I enjoy watching movies and TV shows.” Since greater enjoyment of horror films could be a side effect of greater enjoyment for films in general, this item was used as a control in regression models.

#### *Pandemic-Specific Questions*

Participants were also asked about their past use of and current interest in pandemic movies. The past use question asked, “Which of the following best describes you?” Answer choice options were, “I have \_\_\_\_\_ pandemic films” (never seen; seen one or two; seen several; seen many). The current interest question asked, “Which of the following best describes you?” The answer choice options were, “Currently, I am \_\_\_\_\_ in pandemic films” (not interested; slightly interested; somewhat interested; very interested).

#### *Psychological Resilience*

Though some general event-resilience scales exist, they are not well-suited for studying psychological resilience to a pandemic. For example, the Impact of Events Scale revised (IES-R; Weiss & Marmar, 1996) is a widely-used measure of distress, but it is intended for use with singular events, such as a natural disaster or terrorist attack. The scale is not well-suited for a long-term event with a somewhat abstract threat (e.g., a pandemic). In this study, we operationalize resilience as the ability to have more positive experiences/emotional states (*positive resilience*) or fewer negative experiences/emotional states (*psychological distress*).

To properly assess this conceptualization of psychological resilience during the pandemic, we created a 13-item scale that we refer to as the Pandemic Psychological Resilience Scale (PPRS). Participants were instructed to rate on a 7-point scale (strongly disagree to strongly agree) how much they agreed or disagreed with each of 13 statements (Table 1).

### *Preparedness for the Pandemic*

In addition to helping cope with future difficult situations, simulations would presumably also help prepare for them. This means that the individual who simulated pandemic experiences more often through fiction might be better equipped to anticipate a pending pandemic, foresee its downstream effects, and prepare for it by obtaining the proper material resources in the early stages of the pandemic. To assess preparedness, participants rated on a 7-point scale (strongly disagree to strongly agree) how much they agreed or disagreed with each of the six statements (Table 2). A sixth statement (“I used what I've seen in movies or read in novels to help me know how to deal with the Coronavirus (COVID-19) pandemic”) was excluded from analysis because of its high degree of similarity to the prediction about using movies to prepare for pandemics

### *Morbid Curiosity*

Trait morbid curiosity was measured using the Morbid Curiosity Scale (Scrivner, 2020). Morbid curiosity has been defined as a trait that motivates a person to learn about dangerous or threatening phenomena (Scrivner, in press; 2020). The Morbid Curiosity Scale is a 24-item assessment that is used to measure trait morbid curiosity as well as the four sub-factors of morbid curiosity. Only the total score from the Morbid Curiosity Scale was calculated and used in analyses.

### *Five-Factor Model of Personality*

To control for general domains of personality in regression models, participants completed the Ten Item Personality Measure (TIPI; Gosling et al., 2003). The TIPI contains two items for each domain of the Five-Factor Model of personality (FFM). The TIPI has been evaluated for reliability and validity with respect to its convergence with the longer form questionnaires that measure the FFM (Ehrhart et al., 2009).

## Results

All data and analysis code used for this study are available on the Open Science Framework ([https://osf.io/x524h/?view\\_only=adc26f2047394fde83d04ca5f3d58212](https://osf.io/x524h/?view_only=adc26f2047394fde83d04ca5f3d58212)).

Descriptive statistics for main variables of interest can be found in Supplementary Table 11.

Zero-order correlations for all variables, including other genres, can be found in the OSF repository.

### Exploratory Factor Analysis on the PPRS and Preparedness Items

We first conducted exploratory factor analysis on the PPRS using the *psych* package in R (Revelle, 2017). Using Mahalanobis distance ( $X^2(13) = 34.53$ ), six outliers were detected and removed from further analysis ( $n_{\text{final}} = 304$ ). Bartlett's test indicated correlation adequacy ( $X^2(78) = 1731.01, p < .001$ ) and the Kaiser-Meyer-Olkin (KMO) test indicated that data were suitable for EFA ( $MSA = 0.89$ ). Visual inspection of a scree plot suggested two factors for the PPRS items. Maximum likelihood estimation was used with direct oblimin (oblique) rotation to examine factor structure. Using a factor loading criterion of .30, one item loaded on both factors and was removed from further analysis. After removing it, the model achieved simple structure (Table 1). The items grouped into two types of resilience: positive (*positive resilience*) and negative (*psychological distress*). Items that loaded onto the positive resilience factor assessed an individual's ability to experience positive emotional states and outlooks during the pandemic. Items that loaded onto the psychological distress factor pointed to a disruption in day-to-day life, such as higher than usual depression, anxiety, irritability, and sleeplessness. The two factors were negatively correlated ( $r = -.46$ ). With psychological distress reverse-coded, the scale as a whole demonstrated good internal reliability (Cronbach's  $a = .86$ ), as did each subscale (positive resilience  $a = .83$ ; psychological distress  $a = .82$ ).

Exploratory factor analysis was also conducted on the five preparedness scale items using the same method as described above. Using Mahalanobis distance ( $X^2(5) = 20.52$ ), one outlier was detected and removed from further analysis ( $n_{\text{final}} = 309$ ). Bartlett's test indicated correlation adequacy ( $X^2(10) = 395.29, p < .001$ ) and the Kaiser-Meyer-Olkin (KMO) test indicated that data were suitable for EFA ( $MSA = 0.69$ ). A scree plot suggested a single factor for preparedness, with each item loading onto the factor at 0.30 or higher (Table 2). The scale demonstrated adequate internal reliability ( $\alpha = .73$ ).

#### Test-Retest Reliability of the PPRS

In order to obtain further information about the reliability of the PPRS, we invited all of the original participants ( $n = 322$ ) to complete a second survey containing the PPRS questions one month after the first survey. A total of 255 participants completed the second survey for a retention rate of 79%. Three participants were removed for failing an attention check. After combining the datasets and removing anyone who failed an attention check in either survey, 244 participants remained. Participants' scores on the positive resilience and psychological distress subscales at one month correlated strongly with their initial scores ( $r = .70$  and  $.77$ , respectively), providing further evidence that the PPRS is a reliable measure of psychological resilience during a pandemic.

**Table 4.1.**  
Factor loadings of the 12-item PPRS.

Items	Factor Loadings	
	Positive	Negative
During the pandemic, I have been more depressed than usual.	-0.09	<b>0.81</b>
Compared to how I usually feel, I have been more nervous and anxious during the pandemic.	0.03	<b>0.72</b>

I am more irritable than usual.	0.07	<b>0.83</b>
I haven't been sleeping well since the pandemic started.	-0.09	<b>0.52</b>
Despite troubles, I have been able to find things to laugh about.	<b>.46</b>	-0.20
I have been able to find things to enjoy during the pandemic.	<b>0.40</b>	-0.19
I feel positive about the future.	<b>0.58</b>	-0.10
I have found some aspects of the pandemic to be interesting.	<b>0.44</b>	0.02
I believe in my ability to get through these difficult times.	<b>0.95</b>	0.05
I know that I can get through these uncertain times.	<b>0.90</b>	0.01
Life has felt meaningful during the pandemic.	<b>0.35</b>	-0.19
<hr/>		
Cronbach's alpha	0.83	0.82
Inter-item Correlation ( <i>M</i> )	0.39	0.53

*Note.* Bold numbers indicate a factor loading > .30.

**Table 4.2.**  
Factor loadings of the 5 items in the preparedness scale.

Items	Factor loadings
I was mentally prepared for a pandemic like the Coronavirus (COVID-19) pandemic.	0.31
I was able to predict how bad things would get due to the Coronavirus (COVID-19) pandemic before things really took off.	0.58
The magnitude of the consequences of the Coronavirus (COVID-19) outbreak took me by surprise. (-)	0.85
I knew early on which items I should buy in preparation for a pandemic like the Coronavirus (COVID-19) pandemic.	0.34
I never could have imagined that a viral outbreak would have consequences like the Coronavirus (COVID-19) outbreak. (-)	0.79
<hr/>	
Cronbach's alpha	0.73

We conducted multiple regression models to test the relationship between each genre and our main outcomes of interest: positive resilience, psychological distress, and preparedness. Nine control variables were included in each genre model: sex, age, income, how much the participant said they enjoyed watching movies and TV shows in general, and each TIPI dimension.

#### Horror Fans

Being a horror fan was unrelated to positive resilience ( $b = 0.03$ ,  $SE = 0.02$ ,  $t = 1.21$ ,  $p = .225$ ) and preparedness ( $b = 0.05$ ,  $SE = 0.06$ ,  $t = 1.50$ ,  $p = .134$ ). However, consistent with our predictions, horror fandom was significantly associated with lower psychological distress ( $b = -0.10$ ,  $SE = 0.03$ ,  $t = -2.77$ ,  $p = .006$ ; Table 3).

#### Prepper Genre Fans

As predicted, fans of prepper genres (zombie, apocalyptic/post-apocalyptic, and alien-invasion) were significantly more prepared for the pandemic ( $b = 0.11$ ,  $SE = 0.04$ ,  $t = 2.48$ ,  $p = .014$ ) and experienced fewer negative disruptions in their life during the pandemic ( $b = -0.11$ ,  $SE = -0.05$ ,  $t = -2.18$ ,  $p = .030$ ; Table 3). However, being a fan of prepper genres was unrelated to positive resilience ( $b = 0.05$ ,  $SE = 0.03$ ,  $t = 1.66$ ,  $p = .098$ ).

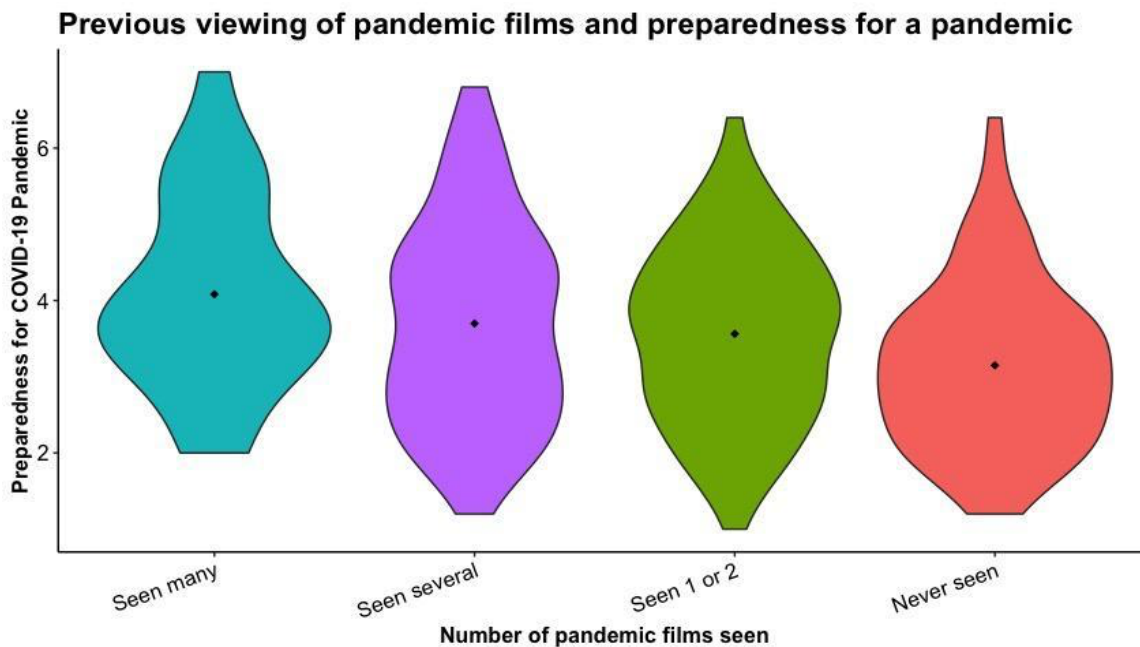
#### Consumption of Pandemic Films

When considering past use of pandemic films, 72 participants said they had never seen one, 143 said they had seen one or two, 73 said they had seen several, and 22 said they had seen many. An ANCOVA controlling for TIPI, sex, age, and income indicated that use of pandemic films in the past was significantly related to preparedness for the pandemic ( $F(3, 298) = 4.73$ ,  $p = .003$ ). A Tukey's HSD test revealed that participants who had never seen a pandemic film felt



significantly less prepared for the pandemic than those who had seen several ( $p_{\text{adj}} = .025$ ) or many ( $p_{\text{adj}} = .006$ ) pandemic films (Figure 2.1). Contrary to our predictions, past use of pandemic films was not related to psychological distress ( $F(3, 298) = 1.95, p_{\text{adj}} = .122$ ) or positive resilience ( $F(3, 298) = 0.46, p_{\text{adj}} = .711$ ).

When considering their current interest in pandemic films, 123 participants said they were not interested, 89 said they were slightly interested, 66 said they were moderately interested, and 32 said they were very interested. An ANCOVA including the same controls as the past use model indicated that current interest in pandemic films was significantly associated with positive resilience ( $F(3, 298) = 4.00, p = .008$ ), but not psychological distress ( $F(3, 298) = 1.24, p = .297$ ) or preparedness ( $F(3, 298) = 0.812, p = .488$ ). A Tukey's HSD test revealed that participants who currently had a moderate interest in pandemic films had greater positive resilience during the pandemic than those who had no current interest ( $p_{\text{adj}} = .008$ ).



**Figure 4.1.** Pandemic film use and preparedness for COVID-19 pandemic.

## Morbid Curiosity

The Morbid Curiosity Scale demonstrated strong internal reliability ( $\alpha = .92$ ). Regression models were conducted for the three main outcomes of interest while controlling for sex, age, income, and TIPI scores. Analyses revealed that morbidly curious individuals experienced significantly greater positive resilience during the pandemic ( $b = 0.20, SE = 0.05, t = 3.74, p < .001$ ; Table 3). There was no significant relationship between trait morbid curiosity and psychological distress ( $b = -0.06, SE = 0.08, t = -0.70, p = .483$ ) or between trait morbid curiosity and preparedness ( $b = 0.02, SE = 0.08, t = 0.20, p = .841$ ).

**Table 4.3.**

Models for horror fandom, prepper genre fandom, and morbid curiosity.

Outcomes	Horror Fan			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Positive Resilience	0.03	0.02	1.21	.225
Psychological Distress	-0.10	0.03	-2.77	<b>.006</b>
Preparedness	0.05	0.06	1.50	.134
Outcomes	Prepper Genre Fan			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Positive Resilience	0.05	0.03	1.66	.098
Psychological Distress	-0.11	-0.05	-2.18	<b>.030</b>
Preparedness	0.11	0.04	2.48	<b>.014</b>
Outcomes	Morbid Curiosity			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Positive Resilience	0.20	0.05	3.74	<b>&lt;.001</b>
Psychological Distress	-0.06	0.08	-0.70	.483
Preparedness	0.02	0.08	0.20	.841

Controlling for sex, age, income, and TIPI scores, ANCOVA results indicated that morbid curiosity was significantly associated with past use of pandemic films ( $F(3, 298) = 3.32, p = .020$ ). Tukey's HSD revealed that those who had seen many pandemic films were significantly more morbidly curious than those who had never seen pandemic films ( $p_{adj} = .014$ ).

Current interest in pandemic films was also significantly associated with trait morbid curiosity ( $F(3, 298) = 8.92, p < .001$ ). Tukey's HSD indicated that those who were currently very interested in pandemic films were significantly more morbidly curious than those who currently had no interest ( $p_{adj} < .001$ ) or a slight interest ( $p_{adj} = .033$ ) in pandemic films. Additionally, those who were currently moderately interested in pandemic films were more morbidly curious than those who had no current interest in pandemic films ( $p_{adj} < .001$ ).

## Discussion

What can we learn from a scary movie? Although most people go into a scary movie with the intention of being entertained rather than learning something, scary stories present ample learning opportunities. Fiction allows the audience to explore an imagined version of the world at very little cost. Through fiction, people can learn how to escape dangerous predators, navigate novel social situations, and practice their mind-reading and emotion regulation skills. In this study, we show that people who engaged more frequently with frightening fictional phenomena, such as horror fans and the morbidly curious, displayed more robust psychological resilience during the COVID-19 pandemic. Moreover, watching films that deal with the social upheaval that might occur during a pandemic was associated with greater reported preparedness for the COVID-19 pandemic.

One reason that horror use may correlate with less psychological distress is that horror fiction allows its audience to practice grappling with negative emotions in a safe setting. Through fearing the murderer or monster on the screen, audiences have an opportunity to practice emotion regulation skills. Experiencing negative emotions in a safe setting, such as during a horror film, might help individuals hone strategies for dealing with fear and more calmly deal with fear-eliciting situations in real life (Gross, 1998; Shurick et al., 2012).

Our design does not rule out the possibility that another trait (or set of traits) is influencing both horror fandom and psychological distress. For example, sensation-seeking is tied to a desire for greater arousal and associated with enjoyment of horror media (though the latter relationship is somewhat inconsistent. For review, see Martin, 2019). However, it is unclear how sensation seeking would lead to increased positive resilience or preparedness for a pandemic. Moreover, the models used in our study do control for several individual differences, including general enjoyment of films and TV shows, sex, age, extraversion, conscientiousness, emotional stability, agreeableness, and openness.

Interestingly, morbid curiosity and horror fandom predicted divergent types of psychological resilience. While horror fandom predicted less psychological distress, morbidly curious individuals experienced greater positive resilience. A history of watching horror films may help build emotion regulation skills that can be utilized to ameliorate the psychological distress that accompanies dysphoric events, but it might not offer strategies for enjoying life in the midst of negative experiences. Instead of psychological buffering, morbid curiosity seems to promote positive resilience - i.e., positive experiences in the face of threatening stimuli. Presumably, this occurs through a psychological shift in the cost-benefit ratio of approaching a potentially dangerous stimulus. The morbidly curious individual may not see the pandemic as a terrible negative event (or at least not *only* as that). Instead, the morbidly curious individual may see the pandemic as an opportunity of sorts.

An analogy might be made in a hypothetical situation where two people stumble upon a dead body. The first person, who is *not* morbidly curious, may look upon the body in horror and immediately shift their attention elsewhere. The second person, a morbidly curious individual, would instead look upon the body with amazement, their eyes glued to the corpse and their

cognitive resources fully allocated to inspecting the body. Likewise, the morbidly curious individual may find ways to have positive experiences during the pandemic because the pandemic is perceived as interesting. If the pandemic was perceived as less of a threat due to morbid curiosity, then it might be expected that morbidly curious individuals would experience less psychological distress. The lack of a relationship between these two variables suggests that morbid curiosity may lead to an increase in the perceived benefit of exploring a dangerous phenomenon rather than a decrease in the perceived threat of the phenomenon.

Although our study does show that horror and prepper genre fans display better psychological resilience in the face of the pandemic, it is still a correlational study. While we control for several individual differences in our models to try to target the effect of horror or prepper genre fandom, further research is needed to determine the exact nature of the causality. It is unclear that simply watching more horror or prepper genre films would increase psychological resilience across the board. It may also be the case that, for some individuals, watching more pandemic-themed movies could actually increase anxiety and psychological distress. The possible mechanisms underlying benefits (or detriments) of frightening entertainment on psychological resilience is a promising avenue for future research.

## Conclusions

While the COVID-19 pandemic has affected nearly everyone in one way or another, certain people seem to be handling the psychological effects better than others. We tested the idea that experience with particular kinds of fiction, namely, horror and pandemic fiction, would be associated with better preparedness for and psychological resilience during the COVID-19 pandemic. Our findings support the idea that fiction can be a useful simulation of both specific scenarios – in the case of pandemic films – and generally fearful scenarios – in the case of horror

films. Experience with these simulations may benefit the user through preparation and practice of both specific skills relevant to particular situations and more general skills associated with emotion regulation. We also found that morbid curiosity, a personality trait that has been previously associated with interest in horror (Scrivner, in press), was associated with greater positive resilience during the COVID-19 pandemic. Importantly, these effects were significant even when controlling for age, sex, income, and general factors of personality. In sum, the current study provides evidence that individual differences in both media preferences and personality are associated with resilience during the COVID-19 pandemic.

# CHAPTER 5.

## General Discussion

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### **A Foundation for Studying Morbid Curiosity**

Human cultures across the world and throughout time are infused with the macabre. Religions everywhere speak of dark and evil deities and spirits. The Romans filled coliseums for the express purpose of violent entertainment. Eighteenth century English peasants regularly gathered by the thousands to observe public executions. True crime podcasts and horror movies are some of the most successful media of our time. Yet, despite its clear manifestation in human culture and behavior, psychological research on morbid curiosity is surprisingly sparse. In this dissertation, I laid the theoretical and empirical groundwork for studying the psychological nature of morbid curiosity.

In Chapter 1, I offered a theoretical foundation for understanding morbid curiosity in humans. I argued that the psychological root of our morbidly curious behavior can be traced to an interaction between mechanisms for threat management, curiosity, and imagination. A simple, reactionary form of morbid curiosity can be seen in many animals. Predator inspection is a prime example of this phylogenetically old form of morbid curiosity. The base of this behavior lies in the tradeoff between the benefits acquired from inspection (e.g., predator information) and the potential costs of inspection (injury or death). This tradeoff is moderated by the Fight-Flight-Freeze System (FFFS) and Behavioral Activation System (BAS). The BAS drives information

seeking through the activation of curiosity. When danger is perceived to be high, fear is elicited by the FFFS. When curiosity and fear are in conflict, the Behavioral Inhibition System (BIS) is activated, causing the animal to increase its arousal, attention, and information gathering. During BIS activation, dangerous stimuli are weighted more heavily, biasing the animal toward avoidance. Morbid curiosity is relatively uncommon in most animals because the potential cost of learning information about threats is high. However, the ability to engage in morbid curiosity has exploded humans, where the ability to imagine possible futures allows us to prospectively consider dangerous situations. By imagining dangerous situations, humans drive down the perception of danger (low FFFS activation) and keep the expected benefit of learning high (high BAS activation).

In Chapter 2, I presented a set of studies in which I created and validated a psychometric tool for measuring individual differences in morbid curiosity. Using the theoretical foundation from Chapter 1, items centered around morbidly curious behaviors were generated and subjected to exploratory factor analysis. A four-factor solution to the morbid curiosity scale was obtained.

The first factor captured curiosity about the minds of dangerous people. At the heart of this factor was a tendency to be curious about the motivations and behaviors of potentially dangerous people. Hostile conspecifics have long been a potential danger to humans, especially when those conspecifics employ deception. It may not be immediately obvious if the person you are talking to is a serial killer, but knowing something about serial killers' behaviors and motivations may give you an advantage in identifying them. Dangerous people pose a problem in social groups. Psychological mechanisms for detecting them have likely evolved, similar to cheater detection mechanisms.



The second factor was paranormal. Curiosity about the paranormal involves a curiosity about potentially threatening phenomena that are relatively uncommon and whose cause is difficult to ascertain. The predisposition to believe in and feel the need to manage paranormal threats may rely on the same cognitive mechanisms as managing threats from potentially dangerous conspecifics. Singh (2021) has argued that beliefs in mystical harm, which may be analogous to paranormal harm, act on psychological mechanisms that evolved to promote vigilance against hostile enemies (see also Saalfeld et al., 2017). Moreover, Singh (2021) contended that belief in mystical harm will be intensified when events are impactful and unexplainable. Hence, unexplainable potential threats (i.e., paranormal threats) are likely to be targets for threat vigilance, curiosity, and imagination.

The third factor was violence. Rather than centering around the motivations and behaviors of hostile conspecifics, interpersonal violence is about the actual violence they enact. What does a fistfight look like? What about if the enemy has a weapon? Knowledge about violence is costly to learn through experience. Given the recurrent threat of violence throughout human history, the payoff from learning about violent interactions before they happen to you can be huge. Knowing something about violent encounters could help you effectively escape or defend yourself if these situations were to transpire.

The fourth factor that emerged was body violation. Morbid curiosity about violations of the body involves learning the limitations of the body, the basics about injuries, and general (mal)functioning of the human body. Injuries are often the result of predators or hostile conspecifics, but they can also occur from other sources such as illness or accidents. Knowing something about the consequences of being a victim of particular threats (i.e., what the injury looks like) can help us accurately gauge how dangerous those threats are. Moreover, awareness

of how the body functions when it is injured can provide insight into how to deal with injuries. While the value of learning about body violations is high, it incurs psychological costs that other domains of morbid curiosity are less affected by. Injuries to the body produce elements of disgust that promote avoidance behavior. This means that, by their very nature, body violation stimuli will produce somewhat stronger avoidance behaviors than other facets of morbid curiosity, even when imagined or fictional. The addition of disgusting elements likely makes this factor more emotionally evocative than the others.

### **Morbidly Curious Personalities**

Study 2 in Chapter 2 looked at how morbid curiosity related to other measures of personality and individual differences. Morbidly curious people tended to be young, rebellious, thrill-seekers, and socially curious. Frequency of horror media use demonstrated a stronger correlation with trait morbid curiosity than any other individual difference that was measured ( $r = .56$ ). Still, no measure accounted for more than about 25% of the variance in morbid curiosity scores, and a model with all measured variables only account for half of the variance. This suggests that the Morbid Curiosity Scale is measuring a distinct individual difference.

Morbidly curious people scored high on “dark” traits such as psychopathy, Machiavellianism, and HEXACO’s honesty-humility (reverse-scored). Though morbidly curious participants scored high on the Psychopathic Personality Inventory (PPI) Machiavellian facet and the total score, they scored low on the coldheartedness facet of the PPI. Coldheartedness refers to a lack of guilt or regard to others’ emotions. This finding is at odds with the notion that people can only enjoy morbidly curious topics such as horror movies if they are unempathetic. The claim that horror fans are unempathetic stems from a 2005 meta-analysis on enjoyment of mediated fright and violence (Hoffner & Levine, 2005). The authors report a small but

significant negative correlation between empathy (empathic concern) and enjoyment of mediated fright and violence ( $r = -.15$ ). However, this meta-analysis had several limitations. First, it only included six studies that looked at empathy and enjoyment or preference for horror, all of which only included teens or college students. The two studies that reported the strongest correlation looked at enjoyment of graphic violence such as torture and horror clips that ended with brutal murders and no resolution. In other words, as Hoffner and Levine suggest, these studies test more for enjoyment of victimization. Importantly, when these two studies were removed from analysis, there was no significant correlation between empathy and enjoyment of horror and violence.

Still, it stands to reason that empathy could promote avoidance in the face of morbid stimuli. Recent work provides some clarity on the mixed findings with empathy and morbidly curious behaviors. People with high levels of dark personality traits (dark tetrad; psychopathy, Machiavellianism, narcissism, and sadism) are traditionally conceptualized as lacking empathy. However, using person-centered analysis (i.e., latent profile analysis), Heym et al. (2020) recently found evidence that some people exhibit both cognitive and affective empathy in the presence of dark traits. A follow-up study by Scrivner et al. (in prep) verified the existence of the so-called “dark empaths.” When compared against other profiles, morbid curiosity was highest in participants that were either dark personalities (i.e., high dark tetrad, low empathy) or dark empaths. Participants whose profiles did not include high scores on the dark traits (e.g., high empathy with average dark traits or average empathy with average dark traits) did not score high in morbid curiosity. In other words, all morbidly curious people had dark traits, but some morbidly curious people also had high empathy. Overall in the sample, morbid curiosity was

slightly positively correlated with affective empathy ( $r = .13$ ) and was unrelated to cognitive empathy ( $r = .00$ ).

The discovery of dark empathths could have implications for understanding the development and expression of pathological versus nonpathological forms of morbid curiosity. It may be the case that high morbid curiosity itself is unlikely to be pathological, but high morbid curiosity combined with low empathy is conducive to pathological behavior. A clear example of this can be seen by comparing the serial killer with the person who loves true crime novels and tv shows. Both people engage in morbidly curious behaviors. However, the serial killer lacks empathy, and has no restraints on his morbid curiosity. To satiate his morbid curiosity, he may create *real* morbid situations. The true crime fan is happy enough satisfying his morbid curiosity through fiction. This is not necessarily because he is less morbidly curious; rather, he possesses counter-goals such as empathy and regard for others' lives that inhibit violent behavior.

The morbidly curious serial killer lacks inhibition that the true crime aficionado has. The neurological basis of this inhibition may be seen in studies reporting low FFFS (punishment sensitivity system) and low BIS (goal conflict resolution system) activity in psychopaths (Broerman et al., 2014; Corr, 2010). Primary psychopathy is characterized by a lack of fear (low FFFS) and anxiety (Low BIS) and is believed to arise from congenital deficits in emotion processing. Low FFFS activity in incarcerated offenders has been shown to mediate the relationship between high coldheartedness (which is low in the average morbidly curious person, see Table 1.2) and aggressive externalizing behavior (Johnson et al., 2014). A lack of empathy and fear combined with high reward sensitivity and low impulsivity leaves little room for inhibition against seeking out and expressing morbid curiosity through violence.

## **Morbidly Curious Preferences and Behaviors**

Studies 3 and 4 in Chapter 2 demonstrated that trait morbid curiosity remained stable over the course of several weeks. Study 3 showed that morbidly curious people displayed a preference not just for horror media, but for multiple genres where threat is a central theme including apocalyptic, crime, thriller and threat-oriented sci-fi such as alien-invasion films. Study 4 tested whether or not the Morbid Curiosity Scale could predict morbidly curious behaviors. Participants were faced with 16 sets of choices between morbid and matched non-morbid stimuli. Participants who scored high in trait morbid curiosity chose the morbid stimuli much more often than those low in morbid curiosity ( $r = .73$ ).

Chapter 3 presented a study on morbid curiosity in the early months of the COVID-19 pandemic. The pandemic offered a unique opportunity to test how morbidly curious people react to a novel threat in their environment. Participants were asked about their interest in a variety of movie genres in the current moment compared to how it usually is. Results showed that morbidly curious participants were much more interested in scary/supernatural, mystery/thriller, and pandemic/virus films than they were before the pandemic. Current interest in adventure/action, comedy, and romance remained unchanged from pre-pandemic interest. Disgust sensitivity, another threat-related measure, was unrelated to interest in scary/supernatural, mystery/thriller, or pandemic/virus films.

Morbidly curious people were also more interested in learning about the morbid aspects of Coronavirus (e.g., learning what Coronavirus does to the body) than they were general facts about Coronavirus (e.g., how is Coronavirus influencing policy).

Together, the four studies in Chapter 2 and the study in Chapter 3 provided strong empirical development and validation of the Morbid Curiosity Scale as a measure of trait morbid curiosity.

The studies demonstrate the centrality of threat to morbid curiosity and demonstrate that morbidly curious people have threat-focused preferences and engage in threat-focused information gathering.

## **Morbid Curiosity and Resilience**

Chapter 4 presented another study conducted during the early months of the COVID-19 pandemic. The study focused on the potential effects of being morbidly curious on psychological resilience in the face of a novel threat. Much like the adaptiveness of simple morbid curiosity (e.g., predator inspection), the complex, human form of morbid curiosity may also provide adaptive advantages through learning about threats and how to manage them. It is plausible that some people learn emotion-regulation strategies for dealing with threats when they routinely practice these emotion regulation strategies in fictional contexts (e.g., through horror movies). When watching a horror movie, people regulate their fear and anxiety in order to maximize their enjoyment. This practice in upregulating and downregulating how much fear and anxiety is experienced may inadvertently build more generalizable skills for psychological resilience.

We found that morbidly curious people were more psychologically resilient during the early months of the COVID-19 pandemic than non-morbidly curious people. This was true when looking at both trait morbid curiosity measured with the Morbid Curiosity Scale and when looking at horror film fandom as a proxy for morbid curiosity. People who watched more movies with world-ending or world-changing themes (e.g., alien invasion, zombie, and apocalyptic) also reported greater preparedness for the COVID-19 pandemic. Finally, those who had never seen a pandemic movie felt significantly less prepared than those who had seen several pandemic films. Importantly, all findings were robust to controlling for age, sex, income, and Big Five

personality traits. These results are consistent with the idea that morbid curiosity can provide advantages for dealing with novel threats.

### **Different Paths to Morbid Curiosity?**

Although it has been studied as a single trait, there might be different routes to morbid curiosity. Morbid curiosity can presumably occur either when BAS is higher than FFFS in response to a morbid situation or when BIS is active in response to a morbid situation. These two paths to morbid curiosity may represent different kinds of morbidly curious people. Those who engage in morbidly curious behavior because FFFS activation is low and BAS activation is high might be engaging in morbid curiosity for the thrill; the feeling of escaping a potentially dangerous situation produces a feel-good rush. BIS-activated morbid curiosity promotes anxiety and information gathering. This route may produce more fearful and careful approaches to threat where the individual is not seeking out extreme thrills. Instead, the BIS activated morbid curiosity may represent more epistemic fascination.

These two hypothesized types of morbidly curious people map onto previously identified “types” of horror fans: adrenaline junkies and white knucklers (Clasen et al., 2019; Robinson et al., 2014; Scrivner et al., 2022). Adrenaline junkies tend to upregulate their fear when they engage with horror for entertainment while white knucklers tend to downregulate their fear. Scrivner et al. (2022) investigated the psychological benefits that visitors at a haunted attraction reported from the experience. Adrenaline junkies reported feeling good after the haunt, while white knucklers reported that they learned something about themselves or developed as a person. When prompted about what they learned or how they developed, visitors mentioned learning the limits of their fears and that they could handle more than they thought. Experiencing and playing with fear in a safe context let the white knucklers explore their fears and gave the adrenaline

junkies an opportunity to safely experience and enjoy extreme sensations. Safely experiencing fear and anxiety in the form of play may allow people to learn how to become resilient to frightening or anxiety-inducing situations (e.g., see Dodd and Lester, 2021 and Sandseter & Kennair, 2011).

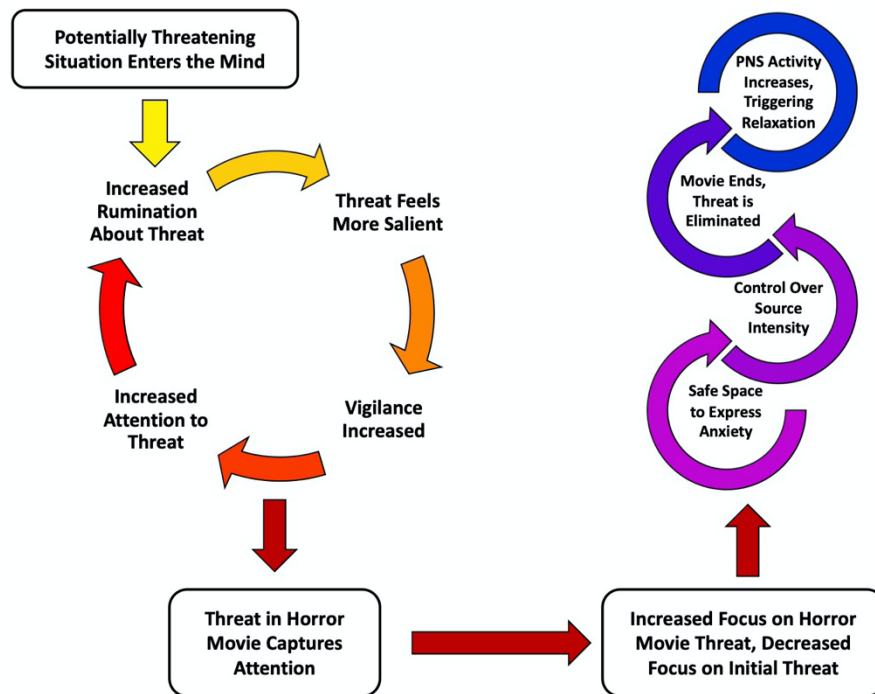
### **Possible Clinical Implications**

If morbid curiosity lets more fearful or anxious people explore their fears and build resilience, it may be important to consider how morbid curiosity can be used in therapeutic contexts. Scary elements in video games have already been leveraged specifically as learning tools for the treatment of anxiety symptoms (Schoneveld et al., 2016) and can be as effective as cognitive behavioral therapy in reducing anxiety symptoms (Schoneveld et al., 2018; 2020). Scrivner & Christensen (2021) recently presented a framework for why engaging in morbid curiosity through the horror genre may entice anxious viewers and offer accessible and effective treatment for anxiety. Despite the fact that horror aims to elicit fear and anxiety in its audience, some horror fans report using horror to help alleviate their anxiety (e.g., Grisafi, 2016; Turner, 2017). The following paragraphs briefly explain the framework from Scrivner & Christensen (2021).

Horror plots may be inherently alluring to some individuals who experience elevated anxiety. Threat-related attention biases, which are effectively triggered by horror movies, are exaggerated among populations with clinical and subclinical anxiety. Typically, the central figure or theme in a horror film is some type of threat — a killer, monster, or other dangerous figure. The prominence of threat to horror films serves as an attentional attractor, particularly among people with anxiety. In the same way that anxiety may lead someone to fixate on a real-world threat, it can more easily immerse them into the threat-focused plot of a horror film.



Once tuned into the plot, people with anxiety can feel free to express the emotions that they are experiencing. Though they often stifle their anxiety in real-world situations, horror provides an appropriate context for viewers to experience and express feelings of anxiety and fear. Many people with anxiety fear their own responses to anxiety, leading to maladaptive avoidance behaviors and preventing them from improving their ability to regulate negative emotions. Horror movies offer a space for anxious people to express anxiety and practice regulating it without fear of social exclusion.



**Figure 5.1.** Conceptual model for how horror could help alleviate symptoms of anxiety.

The horror movie may also become a new source of anxiety for the viewer, supplanting the real-world source that is causing anxiety and rumination. This shift in the source of anxiety offers at least three benefits. First, it can provide emotional clarity for the viewer by offering an identifiable source of anxiety. For those with generalized anxiety in particular, the reason they

are feeling anxious can be elusive. Finding a direct source for anxiety, such as a monster or murderer in a horror movie, can be relieving. Second, sourcing the anxiety in the movie allows the viewer to take control of their anxiety and regulate it in a variety of ways that are ineffective when the anxiety is not rooted in a movie. For example, viewers can turn down the volume, watch with the lights on, or cover their eyes if the source of anxiety (the monster in the movie) is too overwhelming. This allows viewers to keep their anxiety just at the cusp of what they can handle and would allow them to slowly practice and improve their emotion regulation (for a similar argument with learning, see work on Vygotsky's zone of proximal development) Finally, viewers can experience a sense of relief when the film ends, removing the source of the anxiety. This sense of relief could be a neurobiologically-based euphoria that stems from parasympathetic nervous system activation and the release of endocannabinoids and endorphins after a stressful experience. Taken together, these factors may explain why people with anxiety sometimes consume horror films and how this experience may temporarily reduce feelings of anxiety (Figure 3.1).

When implemented under the supervision of a licensed therapist, horror may be ideally suited as “practice” material for clients who would benefit from developing a more adaptive relationship with the experience of anxiety and learning how to challenge maladaptive thoughts. Horror media is designed to be entertaining, engaging, and emotionally evocative. Consequently, clients may view such homework assignments as enjoyable and approachable. Horror content also offers easily identifiable emotional content and sources that allow the client to learn how to approach and tolerate negative affect. It also provides a less-threatening context for clients to learn skills to evaluate the validity of thoughts, cognitively restructure, practice negative emotion regulation, and consider how they would cope with realistic worries.

The next steps for research in this area would be to evaluate how effectively horror content serves these goals. This would involve systematically testing the feasibility (e.g., client satisfaction, engagement) and effectiveness (e.g., changes in emotional, physiological, and behavioral outcomes) of using horror media within the structure of cognitive-behavioral or exposure interventions. Analogue studies could be used to examine evidence for mechanisms of change (e.g., if horror media can be used to increase emotional clarity), with extension to clinical populations to test treatment effects. This could be accomplished through the use of single-case experimental designs and, if preliminary efficacy is established, randomized controlled trials in which clients are randomized to receive horror-based techniques within their treatment.

## **Conclusions**

This dissertation provides the initial groundwork for the psychological study of morbid curiosity. A biologically grounded theory of morbid curiosity is presented alongside the development of the new Morbid Curiosity Scale, a psychometric tool for measuring individual differences in morbid curiosity. Subsequent studies provided validity for the scale across a range of situations. Strong correlations with social curiosity, thrill-seeking, and horror fandom provided convergent validity while the lack of a relationship between morbid curiosity and fandom for comedy, action, and romance provides discriminate validity. Criterion validity was achieved by showing that the scores on the Morbid Curiosity Scale strongly predicted morbid choices in a behavioral paradigm and interest in morbid news about COVID-19. Finally, morbidly curious people were shown to be more psychologically resilient to a novel threat, suggesting that morbid curiosity might in fact provide psychologically adaptive benefits through learning how to handle threatening situations.

Human behavior and cultural practices are infused with morbid curiosity. A rigorous study of morbid curiosity could prove beneficial for many different topics across a range of disciplines. In anthropology, a better understanding of morbid curiosity could shed light on why certain rituals are performed when threats are perceived to be imminent. In clinical psychology, morbid curiosity could be leveraged to provide new pathways for treating anxiety. Criminology and forensic psychology might investigate morbid curiosity as a possible motivation behind certain violent crimes or behaviors of psychopathic offenders. In social psychology, morbid curiosity might provide a theoretical foundation for understanding the spread of conspiracy theories. In tourism and business studies, an understanding of morbid curiosity could be leveraged to improve products and maximize on the “dark tourism” movement. In education, individual differences in morbid curiosity might predict vocational choice and satisfaction. Finally, literature scholars might find that a proper understanding of morbid curiosity can dissolve the paradox of horror once and for all.

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# Supplementary Material

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## Chapter 2 Supplementary Material

### Study 1a Method and Participants

An initial pool of 24 items was generated. Eleven items from the Curiosity About Morbid Events scale (Zuckerman & Litle, 1986) were *included* in the pool and other items were constructed based on the hypothesis that morbid curiosity would encompass an interest in events that feature violence and horror. Participants from Amazon Mechanical Turk (MTurk;  $n = 206$ ) rated their agreement or disagreement with each item from 1 (strongly disagree) to 7 (strongly agree). After removing ten participants who did not answer every question and four outliers identified using Mahalanobis distance ( $X^2(24) = 51.18$ ), 192 participants remained in the exploratory factor analysis sample.

### Study 1a Results

The pool of items for the first iteration of the scale can be found in Supplementary Table 1. A scree plot and parallel analysis suggested two factors. After removing items with communalities less than 0.20, items that did not load, and items that loaded onto more than one factor in a stepwise fashion, a three-factor model consisting of 15 items emerged. However, two of the factors only had two items and the third factor did not have a clear topical trend. Roughly,

the two smaller factors were about the human body and horror movies, while the larger one was a mix of items relating to violence, death, and gore.

### **Study 1b Method and Participants**

To further investigate the factor structure, the pool of items was modified. Eleven items were kept and/or slightly modified from the first iteration of the scale and 13 new items were added. Based on exploratory factor analysis of the first iteration of the scale, five broad categories were investigated in the second iteration: dangerous people, death, violence, supernatural, and the body. New participants from MTurk ( $n = 206$ ) rated their agreement or disagreement with each item from 1 (strongly disagree) to 7 (strongly agree).

### **Study 1b Results**

The pool of items for the second iteration of the scale can be found in Supplementary Table 2. After removing four participants who did not answer every question and two outliers identified using Mahalanobis distance ( $\chi^2(24) = 51.18$ ), 200 participants remained in the exploratory factor analysis sample. A scree plot and parallel analysis suggested two factors. After removing items with communalities less than 0.20 and items that loaded onto more than one factor in a stepwise fashion, a three-factor model consisting of 17 items emerged. One factor consisted of four body-related items, one contained supernatural and dangerous people items, and the third contained death, supernatural, and body items. Based on this factor analysis, body, supernatural, dangerous people, and death seemed to be the salient factors.

## Study 1c Method and Participants

Seventeen items from the previous iteration were included alongside 19 new items. The 36 items fell broadly into four categories: violations of the body, death of a person, minds of dangerous people, and supernatural. New participants from MTurk ( $n = 243$ ) rated their agreement or disagreement with each item from 1 (strongly disagree) to 6 (strongly agree). A 6-point scale was used in order to remove the neutral option. Given the extreme nature of the questions, it is unlikely that many participants truly feel neutral, and some may select neutral as a way to not answer a question about a situation that could be considered morally questionable (e.g., attending an execution). After removing two participants who did not answer every question and six outliers identified using Mahalanobis distance ( $X^2(36) = 67.99$ ), 235 participants remained in the exploratory factor analysis sample.

## Study 1c Results

The pool of items for the third iteration of the scale can be found in Supplementary Table 3. A scree plot and parallel analysis suggested four factors. After removing items with communalities less than 0.20, items that did not load onto a factor, and items that loaded onto more than one factor in a stepwise fashion, a three-factor model consisting of 24 items emerged. Items relating to the minds of dangerous people loaded onto a single factor as did supernatural items. The third factor was a mix of body violations and death. One thing that appeared to be distinct in the items from factor three was whether or not the item was about the body itself or a violent act. Moreover, each of the items appeared to be about a type of threat – either to the body, from another person, or from a supernatural source. More specifically, the items appeared to reflect an interest in learning about these threats either through witnessing them, reading about

them, or otherwise learning about them, but not necessarily by engaging with them more intimately (e.g., performing the action personally). In light of this, a fourth version of the scale was created.

## Supplementary Tables

### Supplementary Table 1.

Study 1a items.

- 1 I think it could be interesting to tour a house where a serial killer murdered his victims
- 2 I think horror movies are usually entertaining
- 3 I would be curious to see how an autopsy is performed
- 4 I would be interested in seeing a new horror movie
- 5 If I could travel back in time to Ancient Rome, I would be curious enough to attend a gladiatorial fight.
- 6 I would be interested in visiting a place where many people died in a tragic event
- 7 I would be curious to see what some toxic substances do to the body
- 8 I would never want to investigate a supposedly haunted place
- 9 I am curious about crime and enjoy reading detailed news accounts about murders and other violent crimes
- 10 I would be interested in visiting a museum that contained shrunken heads and skeletons
- 11 Although I don't want people to get hurt, violent accidents are sometimes interesting to see
- 12 I would not be able to look at a serious injury like a gunshot wound
- 13 If given the opportunity, I would attend the execution of a criminal
- 14 I would be interested in interviewing a serial killer
- 15 News reports about violence, no matter how gory, are sometimes necessary so that people do not have any illusions about these topics
- 16 I would not be interested in watching a documentary about a mass suicide in a cult
- 17 I would never want to look at a dead person
- 18 I would find it interesting to watch a major surgical operation being performed
- 19 I prefer the violence in films and television shows to be uncensored, even if it is gory
- 20 Under no circumstances would I be interested in seeing a video of a person being killed
- 21 If I came across a gruesome video online, I would be curious enough to click on it

- 22 I would never be interested in participating in a supposedly supernatural event such as a séance or playing with a Ouija board
  - 23 When I see a serious car accident on the road I typically slow down to see what has happened
  - 24 I often find scary or creepy things interesting
- 

**Supplementary Table 2.**

Study 1b items.

- 1 I would not be interested in touring a house where a serial killer murdered his victims.
  - 2 I think the supernatural is an interesting topic.
  - 3 I would be curious to see how an autopsy is performed
  - 4 I would be interested in seeing a new horror movie
  - 5 If a famous killer published a book about his life, I would be interested in reading it.
  - 6 I would not want to own a human skull under any circumstances
  - 7 Under no circumstances would I be interested in seeing a video of a person being killed
  - 8 I would be interested in learning about shrunken heads
  - 9 I am curious about crime and enjoy reading detailed news accounts about murders and other violent crimes
  - 10 I would be interested in seeing how limb amputation works
  - 11 I would never be interested in visiting a place that is supposed to be haunted
  - 12 I would not want to look at a serious injury like a gunshot wound
  - 13 I would never be interested in visiting a place where many people were murdered
  - 14 I would be interested in interviewing a serial killer
  - 15 If there was a fatal car wreck on the side of the road and the police were already present, I would try to catch a glimpse of the body
  - 16 I find the Occult interesting
  - 17 I am curious about the different ways people can die
  - 18 I would never want to watch a major surgical operation being performed
  - 19 I would be interested in attending an exorcism
  - 20 I would be curious to see what some toxic substances do to the body
  - 21 If I came across a video of a gruesome murder online, I would be curious enough to click on it
  - 22 I am not interested in seeing what kind of damage a grenade would do to the human body
  - 23 If I lived in Medieval Europe, I would be interested in attending a public execution
  - 24 I find crime shows interesting
-

### Supplementary Table 3.

Study 1c items.

- 1 I am not interested in seeing what kind of damage a grenade would do to the human body.
- 2 If a head transplant was possible, I would want to watch the procedure.
- 3 If a famous killer published a book about his life, I would be interested in reading it.
- 4 I think the supernatural is an interesting topic.
- 5 Under no circumstances would I be interested in seeing a video of a person being killed.
- 6 I would be curious to see how an autopsy is performed.
- 7 I find crime shows boring.
- 8 I would be interested in attending or watching a video of an exorcism.
- 9 If I came across a video of a gruesome murder online, I would be curious enough to click on it.
- 10 I would be curious to see what some toxic substances do to the body.
- 11 I am curious about crime and enjoy reading detailed news accounts about murders and other violent crimes.
- 12 I find the Occult interesting.
- 13 If there was a fatal car wreck on the road and the police were already present, I would try to catch a glimpse of the body.
- 14 I would never want to watch a major surgical operation being performed.
- 15 I would be interested in watching a documentary on motives behind real murders.
- 16 Under no circumstances would I be interested in visiting a place that is supposed to be haunted.
- 17 If I lived in Medieval Europe, I would be interested in attending a public execution.
- 18 I am interested in seeing how limb amputation works.
- 19 My favorite part of a crime show is learning about why the killer did what he did.
- 20 I would be interested in visiting a museum of shrunken heads.
- 21 I am not easily disgusted by gore.
- 22 I think extreme or painful rituals are interesting to learn about.
- 23 If I had to be part of a jury, I would want the suspect on trial to be a serial killer.
- 24 A documentary on Voodoo would interest me.
- 25 I am curious about the ways that people can die.
- 26 I would like to see how bodies are prepared for funerals
- 27 I am intrigued by villains and evil characters in stories.
- 28 If I found an ancient book on demons, I would want to look inside.
- 29 If I lived in Ancient Rome, I would be interested in attending a gladiatorial fight.
- 30 I think the preservation of bodies, like those used in taxidermy, is interesting.
- 31 If I was given the choice to play a good character or an evil character in a game, I would play the evil character.
- 32 Dark magic is more interesting to me than other kinds of magic.

- 33 I do not find the human body very interesting.  
 34 Being a homicide detective would not be very interesting.  
 35 If I had to choose a character for a video game, I would pick a melee over spell-caster.  
 36 If I saw a street fight break out, and knew I could not intervene, I would try to watch it.
- 

**Supplementary Table 4.**

Items removed from the 29-item pool in Study 1d.

- 1 Under no circumstances would I be interested in seeing a video of a person being murdered.  
 2 If a famous killer published a book about his life, I would be interested in reading it.  
 3 I would never want to watch a major surgical operation being performed.  
 4 Under no circumstances would I be interested in visiting a place that is supposed to be haunted.  
 5 Ghosts and/or spirits are probably real.
- 

**Supplementary Table 5.**

Regression model for violence subscale in Study 2.

<b>Individual Difference</b>	<b><math>\beta</math></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>
Stress Tolerance (FDC)	0.17	0.05	3.11	.002
Overt Social Curiosity (FDC)	0.11	0.05	2.41	.017
Honesty-Humility (HEXACO)	-0.10	0.05	-2.02	.045
Conscientiousness (HEXACO)	-0.12	0.05	-2.13	.034
Animal Reminder Disgust (DSR)	-0.11	0.05	-2.46	.014
Fearlessness (PPI)	0.16	0.06	2.83	.005
Rebellious Nonconformity (PPI)	0.25	0.06	4.12	<.001
Stress Immunity (PPI)	-0.15	0.05	-2.80	.005
Sex	-0.24	0.05	-5.17	<.001
Age	-0.10	0.05	-2.27	.024

*Note.* Model adjusted  $r^2 = .48$ . FDC = Five-Dimensional Curiosity Scale, DSR = Disgust Scale Revised,

PPI = Psychopathic Personality Inventory. Negative relationship for sex indicates male-skewed.

**Supplementary Table 6.**

Regression model for body violation subscale in Study 2.

<b>Individual Difference</b>	<b><math>\beta</math></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>
Joyous Exploration (FDC)	0.12	0.05	2.50	.013

Honesty-Humility (HEXACO)	-0.12	0.05	-2.34	.020
Extraversion (HEXACO)	0.16	0.05	3.02	.003
Agreeableness (HEXACO)	0.13	0.04	2.87	.004
Animal Reminder Disgust (DSR)	-0.26	0.04	-5.74	<.001
Fearlessness (PPI)	0.18	0.06	3.09	.002
Rebellious Nonconformity (PPI)	0.19	0.06	3.18	.002
Stress Immunity (PPI)	-0.27	0.05	-5.39	<.001
Sex	-0.10	0.05	-2.14	.033
Age	-0.12	0.05	-2.71	.007

Note. Model adjusted  $r^2 = .47$ . FDC = Five-Dimensional Curiosity Scale, DSR = Disgust Scale Revised,

PPI = Psychopathic Personality Inventory. Negative relationship for sex indicates male-skewed.

### Supplementary Table 7.

Regression model for minds of dangerous people subscale in Study 2.

Individual Difference	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
Joyous Exploration (FDC)	0.16	0.05	2.90	.004
Honesty-Humility (HEXACO)	-0.18	0.06	-3.03	.003
Animal Reminder Disgust (DSR)	-0.20	0.05	-4.07	<.001
Rebellious Nonconformity (PPI)	0.20	0.06	3.30	.001
Coldheartedness (PPI)	-0.16	0.05	-3.01	.003

Note. Model adjusted  $r^2 = .22$ . FDC = Five-Dimensional Curiosity Scale, DSR = Disgust Scale Revised,

PPI = Psychopathic Personality Inventory. Negative relationship for sex indicates male-skewed.

### Supplementary Table 8.

Regression model for paranormal danger subscale in Study 2.

Individual Difference	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
Overt Social Curiosity (FDC)	0.15	0.05	2.98	.003
Honesty-Humility (HEXACO)	-0.21	0.05	-3.90	<.001
Openness to Experience (HEXACO)	0.17	0.05	3.59	<.001
Animal Reminder Disgust (DSR)	-0.17	0.05	-3.52	<.001
Rebellious Nonconformity (PPI)	0.31	0.06	5.49	<.001
Stress Immunity (PPI)	-0.13	0.05	-2.73	.007



Note. Model adjusted  $r^2 = .35$ . FDC = Five-Dimensional Curiosity Scale, DSR = Disgust Scale Revised, PPI = Psychopathic Personality Inventory. Negative relationship for sex indicates male-skewed.

**Supplementary Table 9.**

Regression model for Morbid Curiosity and Big Five personality (TIPI).

<b>Genre</b>	<b><math>\beta</math></b>	<b><i>SE</i></b>	<b><i>t</i></b>	<b><i>p</i></b>
Emotionality	-0.06	0.06	-1.05	.295
Conscientiousness	-0.10	0.06	1.69	.093
Agreeableness	-0.17	0.06	-2.85	.005
Extraversion	0.03	0.06	0.51	.608
Openness	0.04	0.06	0.67	.501

**Supplementary Table 10.**

Genre and TIPI zero-order correlations with the Morbid Curiosity Scale and subscales.

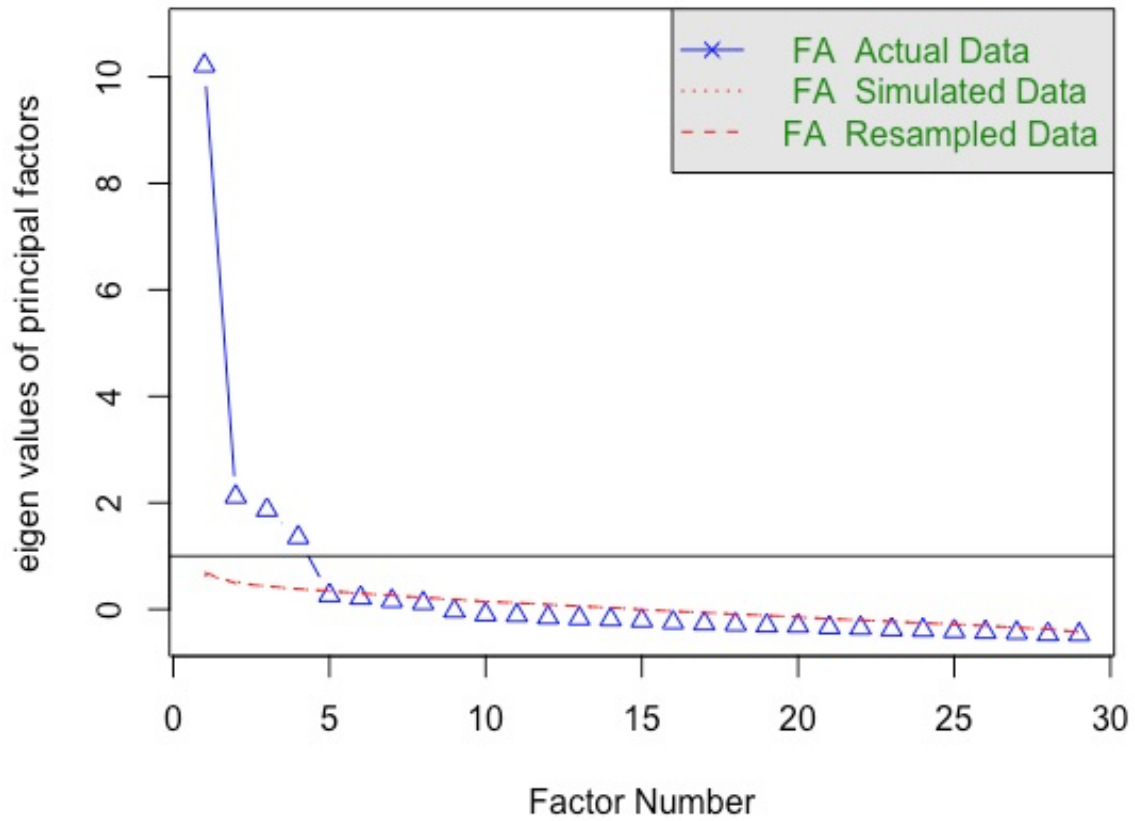
<b>Personality / Individual Difference Measure</b>	<b>Minds Subscale</b>	<b>Paranormal Subscale</b>	<b>Body Subscale</b>	<b>Violence Subscale</b>	<b>Morbid Curiosity</b>
<b>Film Genres</b>					
Horror	.42	.45	.32	.29	.49
Crime	.62	.30	.29	.20	.48
Supernatural	.22	.55	.20	.26	.40
Thriller	.44	.30	.23	.23	.40
Apocalyptic	.28	.28	.24	.32	.37
Zombie	.24	.29	.16	.34	.34
Alien	.10	.26	.15	.26	.25
Science Fiction	-.05	.14	.02	.22	.10
Comedy	.13	.04	-.01	.06	.07
Romance	.03	.06	.01	-.16	-.02
<b>TIPI</b>					
Extraversion	.03	-.04	-.04	.02	-.01
Openness to Experience	-.08	.14	-.06	-.06	-.02
Emotional Stability	-.16	-.19	-.15	.09	-.14

Conscientiousness	-.03	-.12	-.19	-.16	-.16
Agreeableness	-.04	-.12	-.20	-.27	-.20

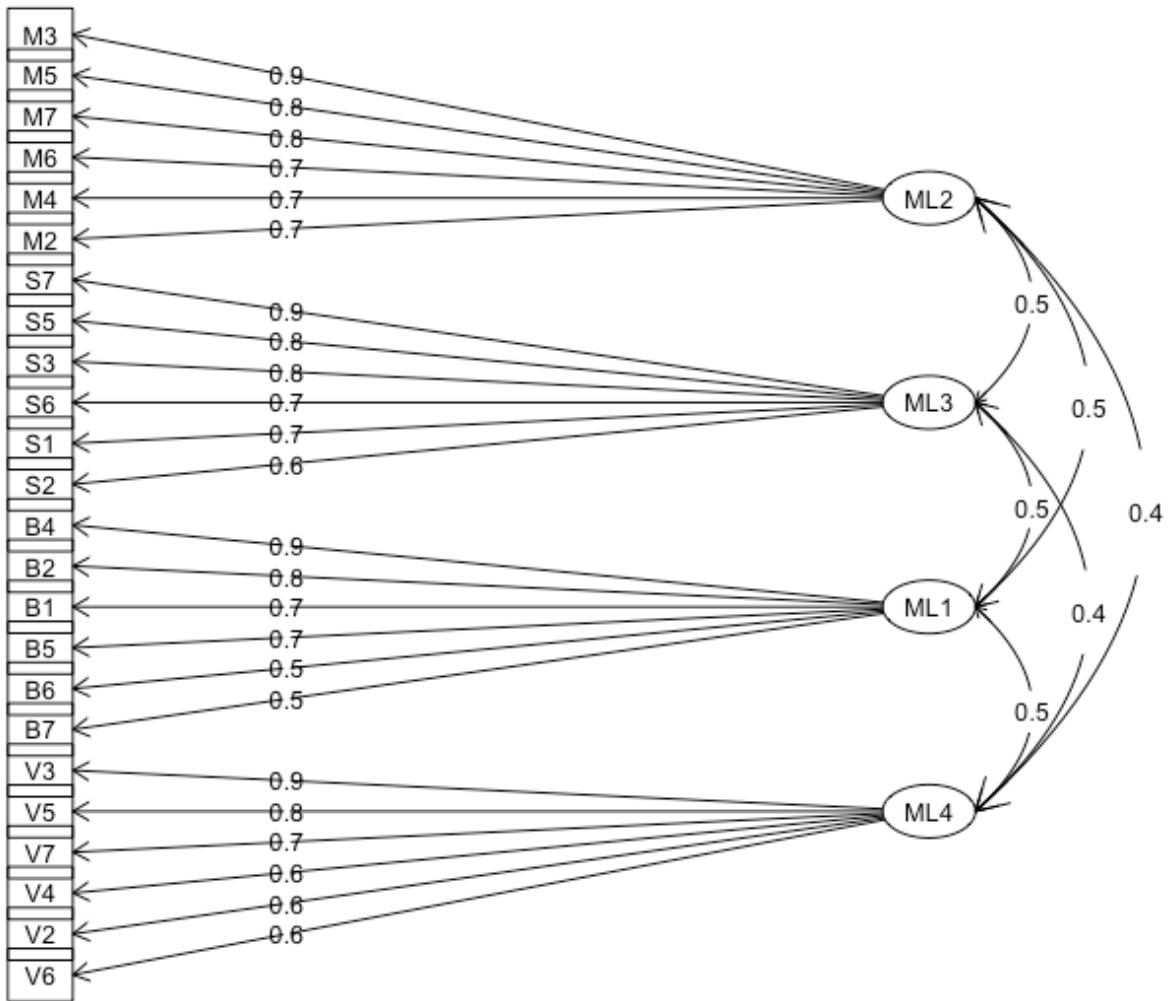
*Note.* Sex was coded as 1 for male and 2 for female, so negative correlations indicated male-skewed correlations. Scale abbreviations are as follows: PPI – Psychopathic Personality Inventory short form revised; FDC – Five-Dimensional Curiosity Scale; DSR – Disgust Sensitivity Revised.

# Supplementary Figures

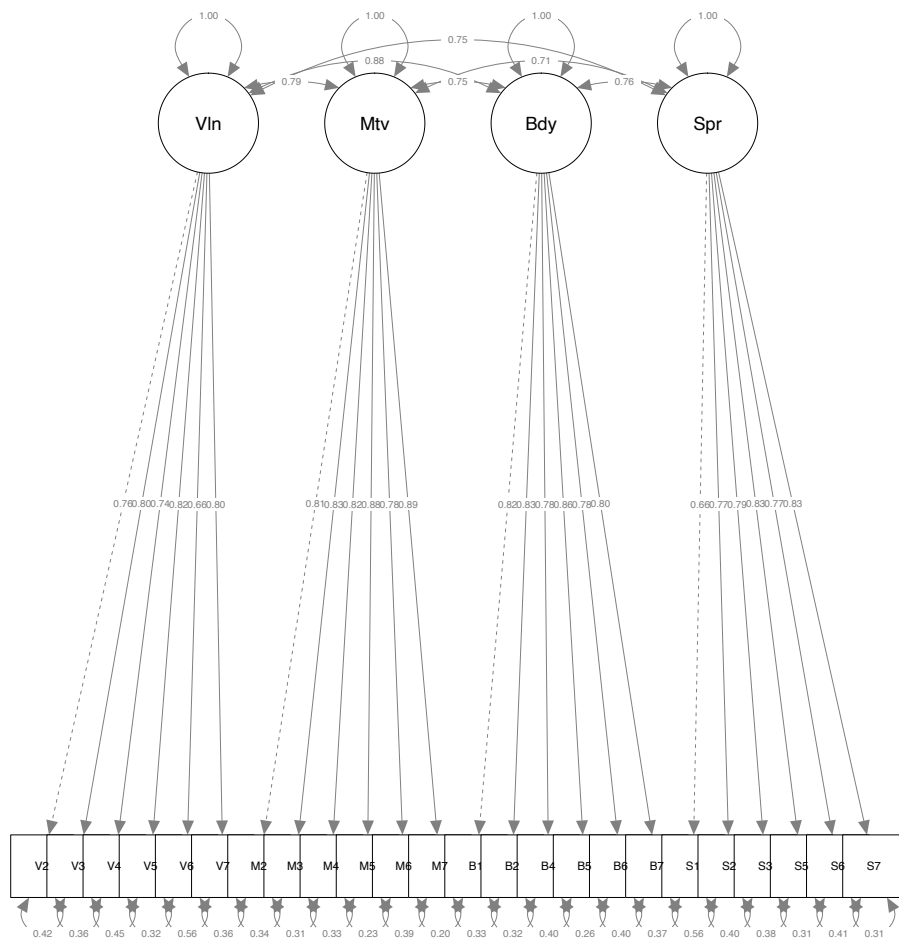
## Parallel Analysis Scree Plots



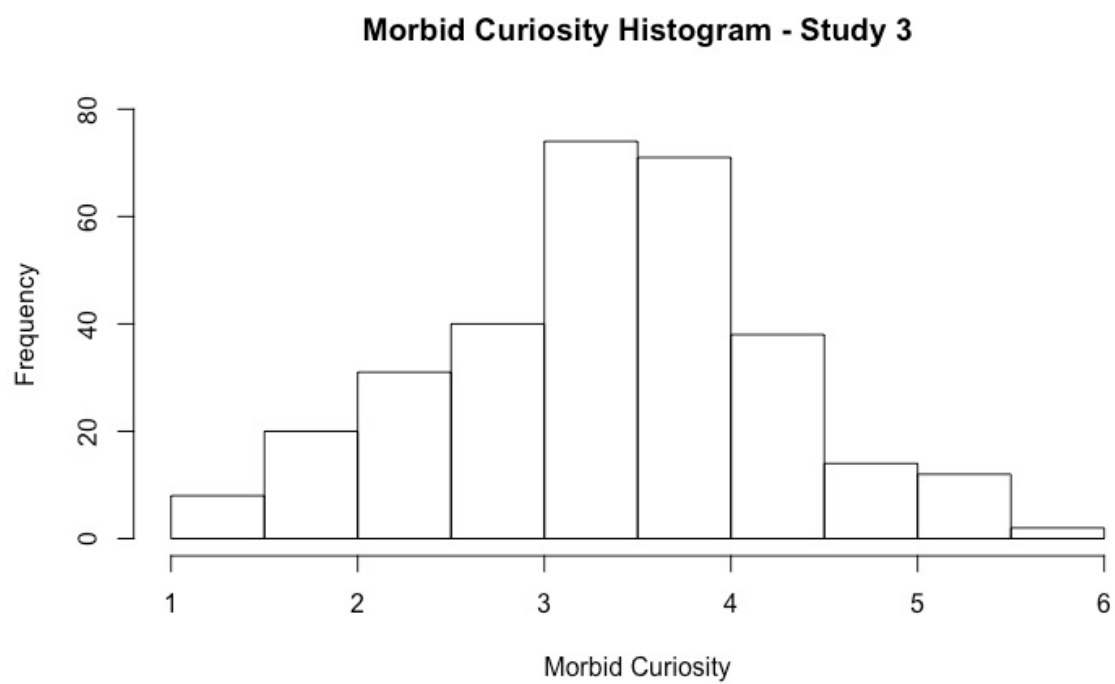
**Supplementary Figure 1.** Scree plot indicating a four-factor structure of the Morbid Curiosity Scale from Study 1.



**Supplementary Figure 2.** Factor structure of the 24-item Morbid Curiosity Scale from Study 1.



**Supplementary Figure 3.** Four-factor CFA model for the Morbid Curiosity Scale in Study 2.



**Supplementary Figure 4.** Histogram of scores on the Morbid Curiosity Scale in Study 3.



**Supplementary Figure 5.** Histogram of scores on the Morbid Curiosity Scale retest in Study 3.

## Chapter 4 Supplementary Materials

### Supplementary Tables

#### Supplementary Table 11.

Descriptive statistics for main variables of interest.

	<u>Traits</u>		
<b>Measure</b>		<b><i>M</i></b>	<b><i>SD</i></b>
Morbid Curiosity		3.36	0.92
Negative Resilience		4.25	1.44
Positive Resilience		5.21	0.91
Agreeableness		4.91	1.25
Conscientiousness		4.98	1.29
Emotionality		4.17	1.48
Extraversion		3.31	1.65
Openness		5.10	1.12

	<u>Genres</u>		
<b>Measure</b>		<b><i>M</i></b>	<b><i>SD</i></b>
Alien-invasion		3.91	1.88
Apocalyptic/Post-Apocalyptic		4.61	1.85
Comedy		5.85	1.29
Crime		4.91	1.69
Horror		3.89	2.19
Prepper		4.08	1.63
Romance		4.10	1.83
Supernatural		4.55	1.85
Thriller		5.09	1.69
Zombie		3.72	1.96