Is Psychological Catharsis Beneficial or Harmful? —The Psychological Intervention Effects and Potential Harms of Catharsis

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Abstract

Classic catharsis theory holds that venting can effectively alleviate angry emotions and aggressive impulses; however, extensive experimental research on the effects of direct, indirect, and targeted catharsis on aggressiveness has revealed the potential harmfulness of catharsis and its underlying mechanisms, showing that catharsis not only fails to reduce anger but may actually increase aggressiveness through cognitive processing and other factors. Despite this, the public continues to favor catharsis as a seemingly convenient emotion regulation strategy, as illustrated by the fact that catharsis equipment has become standard configuration in psychological counseling institutions. This not only reflects people' s one-sided understanding of psychological catharsis, but also reveals the lack of scientific rigor and standardization in the current construction of China' s social psychological service system. Future research should focus on the potential problems and solutions associated with the widespread use of catharsis equipment as a modern psychological intervention method.

Full Text

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Abstract

Classic catharsis theory posits that venting can effectively alleviate anger and aggressive impulses. However, numerous experimental studies examining the effects of direct, indirect, and targeted catharsis on aggression have revealed the potential harmfulness of catharsis and its underlying mechanisms. Rather than reducing anger, catharsis actually increases aggression through factors such as cognitive processing. Nevertheless, the public continues to favor this seemingly convenient emotion regulation strategy, as evidenced by the fact that catharsis equipment has become standard configuration in psychological counseling institutions. This phenomenon not only reflects people' s one-sided understanding of psychological catharsis but also reveals the lack of scientific standardization in the construction of China' s current social psychological service system. Future research should focus on the potential problems and solutions associated with the widespread use of catharsis equipment as a modern psychological intervention method.

Keywords: Catharsis; Emotion Regulation; Anger; Aggression

1 Introduction

Catharsis, derived from the ancient Greek word *kátharsis* meaning purification or cleansing, was first conceptualized as emotional purgation over a thousand years ago in Aristotle's poetic theory. Aristotle proposed that watching tragedies could provide audiences with intense emotional experiences of fear and pity, thereby achieving emotional catharsis and restoring inner balance to cultivate wise and reasonable individuals (Aristotle, 1951). At the end of the nineteenth century, Breuer and Freud formally introduced the concept of catharsis into psychotherapy, arguing that repressed emotions accumulate within individuals and cause psychological disorders such as hysteria or phobias, and that recalling traumatic events—especially re-experiencing the associated emotions—could fundamentally eliminate these symptoms (Erdelyi, 1985; Freud & Breuer, 1957). Subsequently, Freud' s therapeutic ideas were applied to aggression research, with researchers encouraging people to relieve anger and aggressive impulses through catharsis (Denzler & Förster, 2012).

According to our survey of a major domestic psychological equipment supplier, catharsis devices have become standard equipment in the hardware configuration of contemporary psychological counseling rooms, widely distributed in schools, hospitals, judicial institutions, military units, communities, enterprises, public institutions, party and government organs, and psychological education institutions, primarily to help people release negative emotions such as anger. In our random sample of 228 domestic psychological counseling rooms (see Figure 1 [Figure 1: see original paper]), approximately 40% had dedicated emotion catharsis rooms, and about 48% were equipped with catharsis devices (punching bags, human-shaped dummies, catharsis walls, catharsis floors, intelligent catharsis systems, etc.). Notably, among units that had not yet purchased

catharsis equipment, nearly 79% of counseling room staff expressed a desire to acquire such devices. These survey results collectively reflect the widespread demand for catharsis equipment in mental health service work.

In fact, since its inception, catharsis theory has been questioned as incompatible with Thorndike' s general learning principles. In 1973, Bandura strongly called for suspending the use of catharsis theory in psychotherapy, and subsequently, the theory faced severe criticism from researchers of social learning theory and social cognitive models of aggression (Anderson & Bushman, 2002b; Bandura, 1973; Breuer & Elson, 2017; Bushman, 2018; Crick & Dodge, 1994; Rowell Huesmann, 1988). Nevertheless, the public still appears to favor the "psychological catharsis" recommended by mainstream media and bestsellers as a seemingly convenient emotion regulation method. Various types of catharsis equipment frequently appear in psychotherapy rooms, such as sandbags, catharsis walls, catharsis bats, and catharsis balls. This phenomenon not only reflects the public' s one-sided understanding of psychological catharsis but also reveals the potential lack of scientific standardization in China' s current social psychological service system construction. This paper aims to overview and analyze potential problems in the use of catharsis equipment in psychological counseling rooms based on relevant theories and empirical research on catharsis.

Figure 1. Survey Results of Psychological Counseling Room Configuration

Note: Panel A shows the distribution proportion of various functional areas in psychological counseling rooms; Panel B shows the configuration proportion of various equipment in counseling rooms; Panel C shows the demand proportion for configuring catharsis equipment among units that have not yet purchased such devices.

2.1 Hydraulic Model

Freud' s concept of emotional catharsis forms the theoretical basis of the hydraulic model of anger, which posits that anger accumulates within individuals like hydraulic pressure in a closed environment until it is released in some manner (Geen & Quanty, 1977). Scheff (2001) explained this view from an evolutionary perspective, arguing that emotions are natural bodily responses and ways of processing painful experiences. Crying itself is an instinct—infants are born with the ability to cry, which requires no learning; what we learn is the ability to inhibit crying. Such emotional suppression has significant negative effects on both individuals and society. In the educational process, children are often taught to control emotional reactions and suppress instinctual needs, usually through punishment, resulting in most people accumulating large amounts of repressed emotions accompanied by physiological tension of which they are barely aware. Scheff concluded that repressed emotions interfere with individuals' thinking and perceptual processes and affect their ability to cooperate socially and tolerate others' intense emotions (Scheff, 2001). In essence, the core idea of the hydraulic model is that accumulated anger will produce more severe consequences, and

that anger should be released rather than suppressed. Modern catharsis theory builds upon this foundation, viewing catharsis as a way to relieve psychological pressure from angry emotions.

2.2 Frustration-Aggression Hypothesis

The frustration-aggression hypothesis developed by the Yale research team was the first theory to formally apply the concept of catharsis to aggression research. This theory posits that frustration resulting from blocked goal-directed behavior is often accompanied by aggressive behavioral outcomes—that is, frustration always leads to aggressive behavior (Dollard, Miller, Doob, Mowrer, & Sears, 1939). Frustration produces instigation toward many different responses, and when aggressive instigation is strongest, aggressive behavior follows. If instigation toward aggressive behavior can be reduced, the likelihood of subsequent aggressive behavior will also decrease (Miller, 1941). Accordingly, the frustration-aggression hypothesis proposes two effective ways to reduce aggressive instigation: first, directly attacking the actual object that instigated the aggressive behavior, and second, displacing aggression onto a new target, such as venting work frustrations on friends, or running several miles and playing basketball to consume inner tension and aggression (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000).

2.3 Ethological Model

The ethological model established by the renowned Austrian psychologist and zoologist Lorenz attributes human and animal behavior to four instinctual drives: hunger, reproduction, escape, and aggression (Buss, 1961; Lorenz, 1963/1983). According to this model, individual behavior is not determined by a single instinct but is a mixed product of the interaction among these four instincts, which are all necessary for the survival and evolution of organisms and species. Consistent with Darwin' s survival of the fittest, Lorenz argued that aggression is not only a behavioral response caused by external factors but also one of humanity' s most powerful, innate instincts that increases the likelihood of human survival. In this sense, humans continuously accumulate aggressive energy. However, organisms have limited capacity, just as a reservoir cannot store water indefinitely. Excess accumulated aggressive energy must be released at some point, determined primarily by the total accumulated aggressive energy and the intensity of external stimuli. When less aggressive energy has accumulated, a relatively strong external stimulus is needed to release it; when sufficient aggressive energy has accumulated, only weak or even no external stimulus is needed to release it. When an individual' s stored aggressive energy is depleted, they are unlikely to engage in aggressive behavior.

2.4 Classic Experiments on Catharsis Theory

Early research on aggressive catharsis was deeply influenced by psychodynamic theory and the drive concept in the frustration-aggression hypothesis. Worchel (1957) conducted the first experimental study examining the effects of anger expression on aggressive arousal or tension following frustration (Worchel, 1957). In the experiment, the experimenter deliberately gave extremely negative feedback on an intelligence test to induce frustration and anger in participants. Participants in the experimental condition were then asked to verbally express their feelings, while those in the control condition had no expression opportunity. Finally, participants completed two memory tasks, and their subjective stress levels were measured before and after task completion. The results showed that participants in the experimental condition performed significantly better on the memory tasks than those in the control condition. Combined with tension measurements, the researchers inferred that expressing angry emotions could reduce aggressive tension and help participants complete the memory tasks. Although Worchel' s study supported the catharsis effect, his indirect assessment of aggressive arousal was questioned (Geen & Quanty, 1977).

Subsequently, Hokanson's research team conducted a series of studies concluding that, at least in some circumstances, aggressive catharsis could reduce physiological responses associated with anger and aggression (Hokanson, 1961, 1974; Hokanson & Burgess, 1962a, 1962b; Hokanson, Burgess, & Cohen, 1963; Hokanson & Edelman, 1966). In one study, the experimenter continuously interfered with participants' countdown tasks and complained about their poor performance, stating that their data were unusable to induce frustration and anger. The experimenter' s identity was manipulated as either a student or a professor. Some participants were then given the opportunity to administer electric shocks to the experimenter (catharsis condition), while others were not (no-catharsis condition). Participants' blood pressure was measured after both the anger induction and catharsis phases. The results showed that when the experimenter was a student, participants in the catharsis condition had significantly lower blood pressure than those in the no-catharsis condition, but this effect was not found when the experimenter was a professor, possibly because participants feared retaliation from a high-status experimenter (Hokanson & Shetler, 1961).

Although some studies have replicated the finding that catharsis can reduce physiological arousal associated with anger (Geen, Stonner, & Shope, 1975; Hokanson & Edelman, 1966; Verona & Sullivan, 2008), early research on the effects of catharsis on subsequent aggressive behavior did not yield consistent conclusions. For example, in one experiment by Thibaut and Coules (1952), participants who could immediately express hostility toward someone who provoked them showed more friendliness than those who had no opportunity to express hostility. However, in another experiment by the same researchers, when a 3-minute interval was introduced between the insult and the retaliation opportunity, they could not replicate the first experiment' s results (Thibaut & Coules, 1952).

3 Empirical Research on the Harmfulness of Catharsis

In fact, a large body of empirical research has clearly exposed problems with catharsis theory. Shortly after Bandura (1973) called for terminating catharsis therapy, Geen and Quanty (1977) published an influential review of catharsis research, concluding that venting anger does not reduce but rather increases aggressive behavior. This conclusion has been supported by a series of experimental studies by Bushman and colleagues, which found that cathartic activities are often aggressive in nature and thus trigger hostile thoughts, emotional experiences, and behavioral tendencies associated with aggression, which in turn lead to more anger and aggressive impulses (Berkowitz, 1984; Bushman, 2002; Bushman, Baumeister, & Stack, 1999; Geen & Quanty, 1977; Tice & Baumeister, 1993). According to classic catharsis theory, any form of aggressive catharsis can release angry emotions and reduce aggressive behavior. Catharsis forms can be summarized into three main types: first, direct catharsis, which involves attacking substitute persons or objects; second, indirect catharsis, which involves imagining aggressive behavior; and third, targeted catharsis, which involves retaliatory behavior directed at the source of anger. The following sections introduce experimental evidence for the harmfulness of catharsis from the perspective of these three forms.

3.1 Effects of Direct Catharsis on Aggression

Hornberger (1959) provided the first direct evidence for the harmfulness of catharsis. This study used the essay evaluation paradigm, in which insulting peer evaluations were used to anger participants. Half of the participants then hammered nails for 10 minutes as a cathartic behavior, while the other half had no opportunity to vent their anger. Subsequently, all participants were given the opportunity to aggress against their peer. If catharsis theory were correct, the nail-hammering behavior should have reduced subsequent aggression—that is, the nail-hammering group should have shown lower aggression than the do-nothing group. The results showed the opposite: the nail-hammering catharsis group exhibited more, not less, aggression (Hornberger, 1959). In a study by Mallick and McCandless (1966), an experimenter arranged for a peer to block participants' task completion to provoke them. Some participants then completed a shooting task with a toy gun, with a dartboard bearing a photo similar to the peer. The results found that this substitute catharsis had no effect on reducing subsequent hostile feelings or aggressive behavior (Mallick & Mccandless, 1966).

A field experiment further revealed that verbal aggression against others increases individuals' aggressive behavior. This study designated laid-off employees as angry participants and those who left their jobs for other reasons as non-angry participants. They were induced to verbally attack the company, their superiors, or themselves, or to participate in a neutral topic discussion. The results showed that angry participants' verbal attacks against a specific target increased their subsequent verbal attack tendencies toward the same tar-

get (Ebbesen, Duncan, & Konecni, 1975). The most influential experimental research on the harmfulness of catharsis has been conducted by Bushman and colleagues (Bushman & Baumeister, 1998; Bushman, Baumeister, & Phillips, 2001; Bushman et al., 1999; Gollwitzer & Bushman, 2012; Parlamis, 2012). To examine the influence of media messages supporting catharsis on people's choice of anger regulation methods and whether catharsis reduces anger, Bushman et al. (1999) conducted a systematic experimental study. In Experiment 1, 360 college students were randomly assigned to three groups: the first group read an authoritative article supporting catharsis theory, the second group read an authoritative article opposing catharsis theory, and the third group read an article unrelated to catharsis. Subsequently, half of the participants in each group were angered using the essay evaluation paradigm, in which they received insulting evaluations from a peer, while the other half received neutral evaluations and were not angered. Participants then ranked ten activities, such as playing cards, reading stories, watching comedies, and punching a sandbag. The results showed that angered participants who had read the pro-catharsis article expressed greater desire to punch a sandbag in their subsequent activity choices, while those who had read the anti-catharsis article did not show this tendency. In other words, media support for catharsis theory guides people toward aggressive methods for regulating anger.

In Experiment 2, 700 participants were angered through the essay evaluation paradigm and then assigned to either punch a sandbag or not engage in sandbag punching. Finally, participants competed in a reaction-time task against the peer who had previously angered them. The task measured aggression levels by recording the intensity and duration of noise blasts participants set for their peer. The results showed that the cathartic activity not only failed to reduce hostility but actually increased aggression. Bushman (2001) replicated and extended these conclusions in another experiment. In this study, 600 college students were angered through the essay evaluation paradigm and randomly assigned to three groups: one group received a rumination manipulation, in which they punched a sandbag while imagining it as the peer who had angered them; another group received a distraction manipulation, in which they also punched a sandbag but imagined it as a fitness exercise; the control group sat quietly for two minutes. All participants then completed a subjective hostility scale and played a competitive reaction-time game against their peer to measure subjective anger and aggressive behavior levels. The results showed that the rumination group had significantly higher anger and aggression levels than both the distraction and control groups, while no significant differences existed between the distraction and control groups. In other words, doing nothing was more effective than direct catharsis in regulating anger, contradicting catharsis theory.

3.2 Effects of Indirect Catharsis on Aggression

Traditional catharsis theory suggests that watching others fight can release observers' anger and reduce their aggressive tendencies. However, experimental studies conducted across various age groups have repeatedly demonstrated that, under certain circumstances, indirect cathartic activities such as observing others' violence or imagining oneself committing violent acts can increase individuals' aggression (Bandura, 1965; Bandura & Walters, 1963; Geen & Berkowitz, 1967). Berkowitz conducted a series of studies on this topic. In one experiment, angered college student participants watched a film clip in which the protagonist suffered a violent attack. Some participants were induced to believe the protagonist was a good person who was unjustly beaten, while others were induced to believe the protagonist was an unsympathetic character who deserved the beating. The results showed that people exhibited stronger aggression after watching a film that justified the violent behavior. Berkowitz' s (1970) another experiment further supported this finding. In this experiment, the experimenter first induced participants to justify the violent behavior in a film, then angered them, and subsequently required participants to watch the violent film from a specific perspective: one group imagined themselves as the perpetrator in the film, another group imagined themselves as judges, and the control group engaged in no role imagination. The results showed that participants who imagined themselves as perpetrators exhibited the most aggressive behavior (Berkowitz, 1970). Evidently, watching villains receive their deserved punishment or imagining oneself punishing villains not only fails to eliminate anger but actually increases aggressive behavioral tendencies.

Indirect catharsis includes not only watching violent media but also listening to music with violent lyrics. Although people tend to focus on melody rather than lyrics when hearing violent songs, empirical research has shown that aggressive words can prime aggressive thoughts, aggressive cognition, and even aggressive behavior, and this effect occurs even when individuals are not consciously aware of the aggressive words. Therefore, it is necessary to pay attention to the potential harmfulness of violent songs (Anderson, Benjamin Jr, & Bartholow, 1998; Anderson, Carnagey, & Eubanks, 2003; Bargh, Chen, & Burrows, 1996). Anderson et al. (2003) examined the effects of listening to songs with violent lyrics on aggression and found that, even when individuals were not angered, violent rock songs significantly increased their subjective hostility compared to non-violent rock songs and made them more likely to interpret ambiguous words as aggressive. Additionally, when listening to songs that combined aggression and humor, the negative experience primed by the violent component and the positive experience primed by the humorous component had canceling effects, resulting in no significant difference in hostility between listening to violent yet humorous songs and not listening to any songs (Anderson et al., 2003). Furthermore, violent video games also constitute a form of indirect catharsis. A large body of social psychology experiments has demonstrated that long-term exposure to violent video games produces a series of negative effects. Violent video games

contain numerous behaviors such as shooting, stabbing, punching, and kicking characters, which promote the development of aggressive beliefs, attitudes, and low levels of prosocial and helping behavior (Anderson, 2004; Anderson & Bushman, 2001; Anderson & Carnagey, 2004; Anderson et al., 2010).

3.3 Effects of Targeted Catharsis on Aggression

Förster et al. (2005) found that achieving aggressive goals can inhibit aggressive thoughts. In their experiment, participants were randomly assigned to three groups: the first group responded to aggressive words presented on a screen (goal completion group), the second group was also asked to report aggressive words but no aggressive words appeared (goal incompletion group), and the third group was presented with non-aggressive words without a specific task (control group). The results showed that after completing the word task, the goal completion group had significantly lower aggressive thoughts than the other two groups. Denzler et al. (2009) subsequently conducted a series of experiments using story scenarios that directly set aggressive goals as harming others, replicating the effect of aggressive goal achievement on reducing aggression (Denzler, Förster, & Liberman, 2009). In Experiment 1, during the first phase, experimental group participants were asked to imagine from the protagonist' s perspective that their partner was having an affair with their best friend, thereby activating their goal to retaliate against the friend, while control group participants imagined that their friend was preparing a birthday surprise for them. In the second phase, experimental group participants continued to imagine from the protagonist' s perspective that they had committed violent acts against their friend, while control group participants continued to imagine the birthday surprise. In the third phase, experimental group participants could stab a doll symbolizing the friend in the story as symbolic revenge, while control group participants could either stab or simply look at the doll. After each phase, participants completed a lexical decision task to test their aggressive thought levels. The results showed that after the first phase, the experimental group had significantly higher aggressive thoughts than the control group, but after the second and third phases, the experimental group' s aggressive thoughts significantly decreased. These results indicate that establishing aggressive goals increases aggressive thoughts, but when aggressive goals are imagined or symbolically achieved, aggressive thoughts are inhibited.

Experiment 2 replicated and extended Experiment 1' s results. Compared to Experiment 1, it added direct assessment of aggressive behavior after goal achievement by recording the number of positive and negative pictures participants selected for others. The results showed that the experimental group selected more positive pictures for others than the control group, indicating that participants who achieved aggressive goals tended to exhibit less aggressive behavior. The results of Experiments 1 and 2 together suggest that implementing aggressive behavior when aggressive goals are activated can reduce subsequent aggressive tendencies. Experiment 3 further found that even when aggressive goals are

activated, not any aggressive behavior can inhibit individuals' aggressive tendencies unless the aggressive behavior is clearly directed at the source of anger. Experiment 3 used the same story scenario to activate participants' goal to retaliate against a friend, but if participants subsequently attacked not the friend directly but an inanimate substitute (such as a sandbag) or another unrelated person, their aggressive tendencies actually increased.

Even so, researchers do not recommend targeted catharsis as an effective means of reducing aggression. One point that cannot be ignored is that, according to the law of effect and principles of positive reinforcement, catharsis only works in the short term; if people use catharsis long-term, it actually increases aggression (Denzler & Förster, 2012). Additionally, while experimental settings can manipulate the achievement of aggressive goals, targeted catharsis is difficult to realize in real life. On the one hand, directly attacking people or things that provoke oneself is usually not permitted from legal or moral perspectives. On the other hand, the achievement of aggressive goals often depends on more complex factors involving subjective judgment. For example, the understanding hypothesis of aggressive goals suggests that people' s retaliatory actions after being provoked are intended to make the provocateur understand their mistakes (Gollwitzer, 2009). Gollwitzer and Denzler' s (2009) research supported this hypothesis. The experiment used peers' unfair distribution behavior to anger participants, after which participants could arrange for peers to complete an unpleasant task of evaluating negative pictures as retaliation. Participants then received messages from their peers: some saw messages indicating the peer did not understand why they had to do the unpleasant task (non-understanding condition), while others saw messages indicating the peer understood that their unfair distribution behavior had caused the punishment (understanding condition). The results showed that aggressive thoughts significantly decreased in the understanding condition but not in the non-understanding condition, indicating that only when the provocateur understands the reason for punishment can the retaliator achieve their goal and reduce their aggressive thoughts (Gollwitzer & Denzler, 2009).

4.1 Social Learning Theory

According to Thorndike' s law of effect in stimulus-response learning theory, learning only occurs when a response produces some effect on the environment. If the response result is satisfying, learning occurs; if the response result is annoying, the behavioral response weakens. In other words, the greater the degree of satisfaction or discomfort, the more the stimulus-response association is strengthened or weakened (Thorndike, 1932). Therefore, positive feedback from aggressive behavior, whether external (such as monetary rewards) or internal (such as inner satisfaction), will increase the likelihood of people engaging in aggressive behavior in the future. Bandura' s (1973) social learning theory builds upon the law of effect, proposing that human learning activities mainly occur through observing others' behaviors in specific situations, examining the rein-

forcement others receive, and imitating others' demonstrations (Bandura, Ross, & Ross, 1961). Social learning theory of aggression assumes that aggression is a learned behavior primarily acquired through observing and imitating others or social reinforcement. For example, when children initially observe an aggressive model who is punished, they rarely show aggressive behavior, but when the model is rewarded, children show more aggressive behavior (Bandura & Walters, 1963). Schaefer (2005) and colleagues summarized empirical research on catharsis in children' s aggression and concluded that if play therapists allow children to engage in aggressive play without attempting to guide children' s self or superego control of aggression, the likelihood of children showing aggressive behavior both inside and outside the playroom will increase in the future (Schaefer & Mattei, 2005).

4.2 Social Cognitive Model

Social cognitive models of aggression mainly include social information processing theory, cognitive neoassociation theory, general aggression model, integrative cognitive model, etc. Their commonality lies in emphasizing the role of information processing in aggressive behavior (Anderson & Bushman, 2002b; Berkowitz, 1990; Crick & Dodge, 1994; Dodge & Crick, 1990; Rowell Huesmann, 1988).

4.2.1 Social Information Processing Theory

This theory posits that what determines individual behavior is not only situational stimuli but, more importantly, how individuals process and interpret these stimuli. Individuals' cognitive processing and interpretation of hostile situational stimuli determine their reactions in that situation (Crick & Dodge, 1994; Dodge & Crick, 1990). Huesmann' s (1988) script theory suggests that children show aggressive behavior because they have learned scripts that guide their future behavior. Once formed, aggressive scripts are difficult to change, and repeated reinforcement increases the likelihood of aggressive behavior occurring. This process continues until these behaviors become fixed in aggressive schemas that persist into adulthood. For example, when individuals are exposed to violent video games, they form a series of memory scripts highly correlated with violent behaviors in the games, which are stored in the brain. As exposure to violent video games increases, these violence-related scripts are repeatedly rehearsed and strengthened in the brain, eventually being applied to real-life situations and resulting in corresponding violent behavior (Rowell Huesmann, 1988). Berkowitz' s cognitive neoassociation theory, influenced by script theory, focuses on examining the connections between cognition, emotion, behavior, and internal tendencies, emphasizing that previously learned aggressive scripts fixed in aggressive schemas are activated when encountering hostile situations, producing aggressive behavior. Specifically, aggression-related thoughts, emotions, and behaviors form an associative network in memory. Activation of hostile thoughts can trigger a complex association combining aggressive ideas,

emotions, and behavioral impulses. For example, seeing weapons can accelerate the activation of aggression-related memories, thereby increasing aggressive tendencies (Berkowitz, 1990, 1993).

4.2.2 General Aggression Model

Based on integrating multiple theories, Anderson and Bushman (2002) proposed the General Aggression Model, which suggests that personal and situational factors jointly influence cognitive processes to produce aggressive behavior. These factors are called input variables, and aggressive behavior largely results from the learning, activation, and application of aggression-related knowledge structures in memory. The General Aggression Model provides theoretical explanations for the effects of violent video games on players' aggressive behavior, proposing two mechanisms: short-term effects and long-term effects (Anderson & Bushman, 2002a). The short-term effect model emphasizes the impact of environmental stimuli on individuals after brief exposure. When violent video game experience is input as an environmental variable, individuals' internal states—including cognitive, emotional, and physiological arousal variables—may change, affecting their situation assessment and behavioral decision-making, thereby influencing behavior. The long-term effect model suggests that repeated exposure to violent video game stimuli increases the aggressive components of players' schemas related to beliefs, attitudes, expectations, and perceptions, leading to desensitization to aggression and ultimately increasing players' aggressive personality.

4.2.3 Integrative Cognitive Model

This model integrates relevant theories of social cognitive models to form a unified cognitive model explaining the internal cognitive mechanisms from hostile situational stimuli to angry and reactive aggressive behavior. It emphasizes the functions of three cognitive processing components: hostile interpretation, ruminative attention, and effortful control (Wilkowski & Robinson, 2008, 2010). Rumination refers to a response pattern of repeatedly processing and persistently attending to negative moods, their causes and consequences, and related self-evaluations (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Rusting & Nolen-Hoeksema, 1998). Rumination on hostile interpretations of situational stimuli enhances hostile interpretation, thereby amplifying anger experiences and increasing the likelihood of reactive aggression. Once individuals engage in rumination, their anger and reactive aggression tendencies persist and strengthen (Bushman, 2002; Rusting & Nolen-Hoeksema, 1998). Social cognitive research extending the rumination process has found that anger and reactive aggression are consequently prolonged and intensified (Bushman, 2002; Rusting & Nolen-Hoeksema, 1998). Numerous studies using self-report surveys (Caprara, 1986; Denson, Pedersen, & Miller, 2006; Gerin et al., 2006) and laboratory experiments (Denson et al., 2006) support this conclusion, and literature on rumination and emotional responses also suggests that rumination strengthens anger

(Bushman, 2002; Rusting & Nolen-Hoeksema, 1998). Particularly, individuals with high trait anger show clear preference for selective attention to hostile information, which facilitates rumination related to hostile information and makes it difficult for them to disengage from hostile thoughts (Putman, Hermans, & van Honk, 2004; Wilkowski & Robinson, 2008). Furthermore, unlike catharsis theory' s emphasis on releasing negative emotions, the integrative cognitive model views effortful control as an effective means to counter anger and reactive aggression tendencies. Effortful control is a primary form of self-regulation, representing the ability to inhibit dominant responses to complete subordinate responses, detect errors, and execute planned tasks, reflecting the efficacy of executive attention (Rothbart, 2007; Rothbart & Rueda, 2005). Through effortful control, individuals can re-examine hostile situations, regulate sustained attention to hostile interpretations, and ultimately influence behavioral outcomes by inhibiting the expression of anger and aggressive behavior (Eisenberg et al., 2007).

4.3 A Goal Model of Catharsis

Denzler and Förster' s (2012) goal model of catharsis assumes that the achievement of aggressive goals depends on the accessibility function of hostile thoughts, where accessibility refers to faster retrieval of information from long-term memory. If an individual wants to attack a certain target, aggression-related constructs in memory will be highly activated before goal achievement, but after achieving the aggressive goal, the accessibility function of hostile thoughts will be inhibited and aggressive behavior will decrease. Only aggressive behavior that achieves goals can reduce individuals' subsequent aggression. For example, if someone' s goal is to harm Person A, harming Person B or unrelated others will not reduce their aggression. The goal model of catharsis differs from previous theories supporting or questioning catharsis in several ways: First, it does not rely on specific aggressive drives (frustration-aggression model), capacities (ethological model), or instinctual conflicts (Freud' s psychoanalytic theory). Second, and most importantly, unlike traditional catharsis theory that assumes any aggressive behavior can reduce subsequent aggression, this model specifies that only when individuals achieve aggressive goals will their aggression decrease. Aggressive behaviors without goal achievement, such as competitive sports, cannot reduce aggression and may instead increase aggression by activating hostile thoughts, consistent with the views of social cognitive models (e.g., script theory, General Aggression Model). The key conclusion revealed by the goal model of catharsis is that angry individuals must direct aggressive catharsis at the specific object that caused their anger, and the catharsis must cause substantial harm to the aggressive target in the venters' view, without causing other negative consequences such as retaliatory events. Only under these conditions might cathartic behavior reduce subsequent anger and aggressive responses; cathartic behaviors that do not meet these conditions have potential harms of increasing aggressive tendencies (Konečni, 2016).

5 Summary and Outlook

Traditional catharsis theory encourages people to vent anger through aggressive behavior. However, a large body of empirical research has revealed that aggressive catharsis not only fails to reduce but actually increases anger and violent tendencies in both adults and children. Unfortunately, scientific research confirming the harmfulness of catharsis has not prevented the blind promotion of catharsis concepts and equipment. The general public, mainstream media, and magazines still widely endorse venting as a way to release negative emotions. The variety of psychological catharsis equipment has become increasingly diverse. In addition to common hitting-type catharsis tools, many businesses have begun using virtual reality technology to induce users to release emotions through game-like tasks or to construct virtual characters for verbal and behavioral venting. As catharsis equipment is developed and widely applied, several issues require attention and resolution in the future.

First, using catharsis equipment to vent anger can lead individuals to engage in direct, indirect, or targeted catharsis activities, thereby increasing their aggressive tendencies. Psychological catharsis rooms are typically equipped with sandbags, rubber dummies, catharsis walls, catharsis floors, and scream-sound mufflers. When visitors use these devices to release angry emotions or aggressive impulses, this is essentially a process of direct catharsis—for example, imagining the rubber dummy as the object that provoked them while punching it. Indirect catharsis can be achieved in catharsis rooms by watching violent images, listening to violent music, or imagining or watching violent behavior. For instance, when using intelligent interactive catharsis instruments, visitors do not need to attack physical objects but instead imagine themselves as the perpetrator of aggression in virtual violent scenes, achieving human-computer interactive emotional catharsis through infrared sensing technology. Whether direct or indirect, aggressive catharsis activities strengthen individuals' ruminative attention to angry emotions, promote the formation and consolidation of individuals' aggressive cognitive schemas, and may even increase the risk of developing an aggressive personality. This is particularly concerning for adolescents in critical periods of value formation, as encouraging the use of catharsis equipment to release anger may lead them to adopt crude, simple methods of hitting, smashing, and shouting to solve problems or even displace anger onto others when encountering difficulties, frustrations, or conflicts, rather than objectively recognizing their own problems and handling emotions appropriately. In prison systems, some detention centers also have psychological catharsis rooms where agitated inmates can release emotions by punching sandbags or stepping on balloons. For these groups that likely already have high aggressive tendencies, whether catharsis activities will exacerbate their aggressive personality is also a question requiring careful consideration. Furthermore, although some researchers have found that targeted catharsis directed at the source of anger has some short-term effect in reducing aggression, unlike direct and indirect catharsis that displaces anger onto inanimate objects or imagined perpetrators, targeted catharsis activ-

ities cannot be realized in catharsis rooms. For example, visitors cannot inflict substantial retaliation on provocateurs. More importantly, targeted catharsis activities in real life are highly likely to cross moral, ethical, and even legal boundaries, ultimately harming social harmony and stability in the long run.

Second, this study does not completely negate the functions of catharsis equipment. Previous theories and experimental research have mainly confirmed that catharsis aimed at relieving anger increases subsequent aggression. Future research should systematically examine the effects of psychological catharsis in regulating other negative emotions or psychological disorders, as well as how to scientifically guide people to use catharsis equipment appropriately in mental health service work. Finally, scientific allocation of psychological counseling equipment is an important component of improving the social psychological service system. However, intervention methods that have been proven ineffective or even potentially harmful in scientific research are still widely adopted and implemented in practice, which essentially reflects the disconnect between current mental health services and scientific research. The translation of research findings into practice may face various obstacles from audience groups, application markets, policy environments, and even researchers themselves and their institutions. Therefore, in the process of moving from pure research to complex application, researchers, funders, and users should all maintain open minds, cross original disciplinary and departmental boundaries, adopt a problem-oriented approach, and establish collaborative research and working relationships.

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