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The General Aggression Model

Johnie J Allen[1], Craig A Anderson[1] and Brad J Bushman[2,3]

The General Aggression Model (GAM) is a comprehensive, integrative, framework for understanding aggression. It considers the role of social, cognitive, personality, developmental, and biological factors on aggression. Proximate processes of GAM detail how person and situation factors influence cognitions, feelings, and arousal, which in turn affect appraisal and decision processes, which in turn influence aggressive or nonaggressive behavioral outcomes. Each cycle of the proximate processes serves as a learning trial that affects the development and accessibility of aggressive knowledge structures. Distal processes of GAM detail how biological and persistent environmental factors can influence personality through changes in knowledge structures. GAM has been applied to understand aggression in many contexts including media violence effects, domestic violence, intergroup violence, temperature effects, pain effects, and the effects of global climate change.

Addresses
[1] Iowa State University, W-112 Lagomarcino Hall, 901 Stange Rd, Ames, IA 50011, USA
[2] The Ohio State University, 3016 Derby Hall, 154 N. Oval Mall, Columbus, OH 43210, USA
[3] VU University Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands

Corresponding author: Allen, Johnie J (jallen@iastate.edu)

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Introduction

Many theories have been proposed to explain human aggression—defined as any behavior intended to harm a target who is motivated to avoid that harm [1•]. The General Aggression Model (GAM) is one of the most comprehensive and widely used theories for understanding aggression. The present review describes the current state of knowledge of GAM, and briefly outlines recent applications of GAM and possibilities for future directions.

The General Aggression Model

GAM is a comprehensive, integrative framework for understanding human aggression. It considers the role of social, cognitive, developmental, and biological factors on aggression [1•,2••,3,4,5••]. GAM includes elements from many domain-specific theories of aggression, including: cognitive neoassociation theory [6,7], social learning theory [8,9], script theory [10,11], excitation transfer theory [12], and social interaction theory [13]. By unifying these theories into one coherent whole, GAM provides a broad framework for understanding aggression in many contexts.

GAM posits that human aggression is heavily influenced by knowledge structures, which affect a wide variety of social-cognitive phenomena including perception, interpretation, decision, and behaviors [14–18]. Some of the most important knowledge structures include beliefs and attitudes (*e.g.*, believing aggression is normal, evaluating it positively), perceptual schemata (*e.g.*, perceiving ambiguous events as hostile), expectation schemata (*e.g.*, expecting aggression from others), and behavioral scripts (*e.g.*, believing that conflicts should be resolved with aggression) [2••]. These knowledge structures are developed through experience and can influence perception at multiple levels, ranging from simple perception of objects to complex perception of social events. Knowledge structures can also become automatized with repeated practice (as is the case with scripts), and can include both cognitive and affective components. For example, anger is strongly linked with hostile attribution biases (the tendency to interpret ambiguous events as hostile) [19].

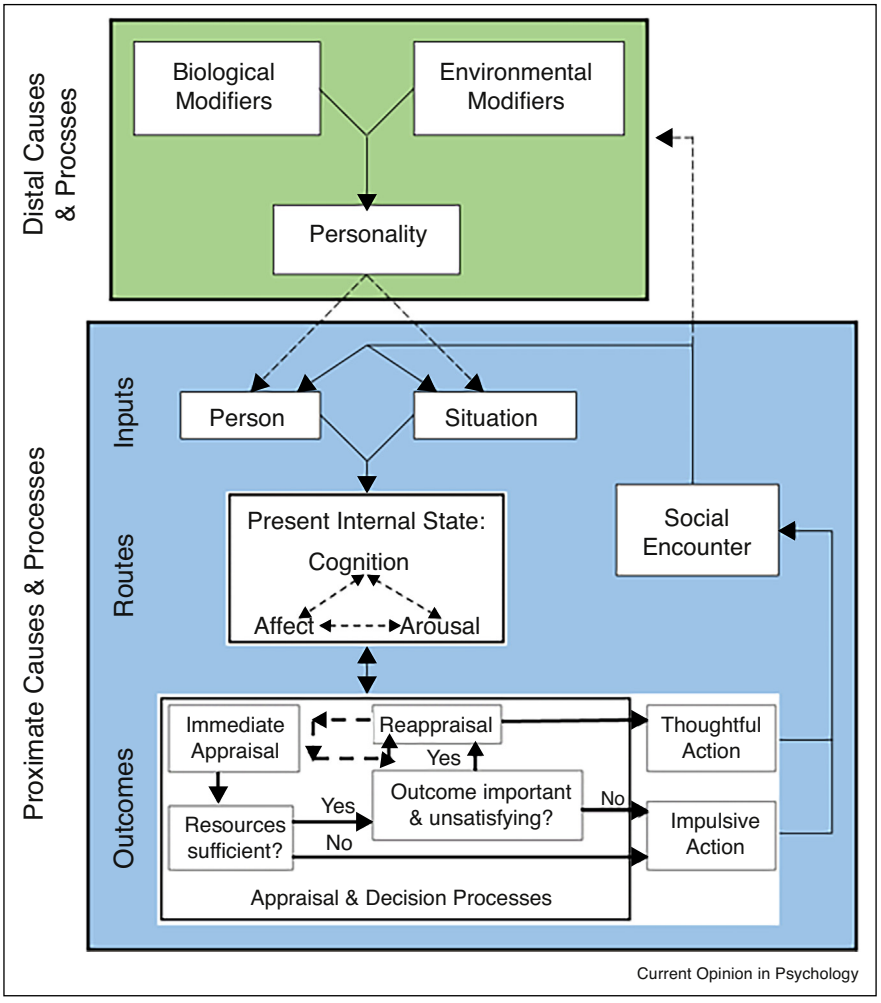
Proximate processes

GAM is separated into two major aspects: proximate and distal processes (see Figure 1). The proximate processes explain individual episodes of aggression using three stages: inputs, routes, and outcomes. Inputs influence a person's present internal state, which in turn affects appraisal and decision processes, which in turn influence aggressive and nonaggressive outcomes. Importantly, each episode of aggression (or non-aggression) serves as a learning trial that can influence the development of aggressive knowledge structures (and thereby *personality*) over time.

Stage one: inputs

The first stage of the proximate processes outlines how person and situation factors increase or decrease the likelihood of aggression through their influence on present internal state variables (*i.e.*, cognition, affect, and arousal) in stage two. Input variables that increase the

Figure 1



The General Aggression Model (GAM): proximate and distal causes and processes. With permission from Ref. [56].

likelihood of aggression are considered risk factors, whereas those that decrease the likelihood of aggression are considered protective factors.

Person factors are any individual differences that may influence how a person responds to a situation. These factors tend to be fairly stable over time and across situations as long as the person consistently uses the same knowledge structures [9]. Through this lens, personality can be considered the summary of a person's knowledge structures. Aggressive knowledge structures make aggression more likely. Many person factors have been identified as risk factors for aggression. These include (but are not limited to): unstable high self-esteem and narcissism, aggressive self-image, long-term goals supportive of aggression, high self-efficacy for aggressive behavior, normative acceptance of aggression, positive attitudes toward aggression, hostile attribution biases, aggressive behavioral scripts, moral justification of violence, dehumanization, displacement of responsibility, high trait anger, certain personality disorders, low self-control, high neuroticism, low agreeableness, and low conscientiousness [1•,3,20]. For example, people with hostile attribution, perception, and expectation biases are more aggressive than people without those biases [21,22]. Many of the risk factors that have been identified serve as protective factors when reversed. For example, negative attitudes toward aggression, low neuroticism, high agreeableness, and high conscientiousness would all make aggression less likely.

Situation factors are aspects of the situation that may influence whether aggression occurs. Many situation factors have been identified that increase the likelihood of aggression. These include (but are not limited to): social stress, social rejection, provocation, frustration, bad moods, exercise, alcohol intoxication, violent media, pain or discomfort, ego depletion, anonymity, hot