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Criminal Behavior Within the Spiral and Dynamics of Group Violence

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Criminal behavior is often examined as an individual outcome attributed to perpetrators, although violent interactions may involve victims, spectators, and inquisitorial actors whose responses can contribute to the continuity or transformation of violence. This study specifies a structural model of criminal behavior as an outcome of the spiral and dynamics of violence within groups. A documentary research design was developed from indexed literature published between 2009 and 2014. The model incorporated Perpetrator Behavior, Victim Positioning, Spectator Dynamics, Inquisitorial Responses, Violence Spiral, and Criminal Behavior. The measurement structure treated the constructs as reflective latent variables, while the structural model examined direct relationships with Violence Spiral and Criminal Behavior. The model was evaluated through simulated partial least squares structural equation modeling

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coefficients because an empirical dataset was not available. The results indicated satisfactory hypothetical measurement reliability and convergent validity across the constructs. Perpetrator Behavior, Victim Positioning, Spectator Dynamics, and Inquisitorial Responses were positively associated with Violence Spiral, while Violence Spiral showed the strongest relationship with Criminal Behavior. Perpetrator Behavior, Spectator Dynamics, and Inquisitorial Responses also presented significant direct relationships with Criminal Behavior, whereas the direct relationship between Victim Positioning and Criminal Behavior was not statistically significant. The model differentiates the interactional roles through which violence may develop into persistent criminal behavior. Its contribution is to conceptualize criminal behavior as a relational and dynamic outcome rather than an exclusively perpetrator-centered phenomenon. Future research should validate the model using longitudinal, multilevel, and cross-contextual data.

Keywords: criminal behavior, violence spiral, perpetrator behavior, spectator dynamics, inquisitorial responses

Introduction

Criminal behavior can be understood as a behavioral manifestation of violence embedded in cultural, economic, political, and social environments rather than as an isolated act attributable exclusively to an individual perpetrator. From this perspective, violence is produced and reproduced through interactions among persons, relationships, situational opportunities, and social structures. The General Aggression Model, for example, conceptualizes aggressive behavior as emerging from the interaction between person-related and situational factors, with cognition, affect, and arousal constituting relevant processes between contextual inputs and behavioral outcomes (Anderson & Bushman, 2002). Social learning theory similarly establishes that aggressive conduct can be acquired and maintained through observation, reinforcement, modeling, and social interaction, thereby connecting individual action with the behavioral patterns of the surrounding group (Bandura, 1973). These approaches challenge explanations that reduce criminal behavior to the psychological characteristics or intentionality of the perpetrator alone.

The epistemological problem therefore concerns the level at which criminal behavior should be explained. An individualistic epistemology privileges the actor and treats the criminal event as the consequence of personal dispositions, decisions, or motivations. A relational and ecological epistemology, in contrast, considers behavior as an emergent phenomenon produced through interactions among individual, interpersonal, community, and societal conditions. Ecological approaches to violence explicitly recognize that these levels interact rather than operate independently, allowing individual conduct to be connected with relationships, social networks, community conditions, and broader cultural norms (White, 2009). Consequently, criminal behavior can be conceptualized as an outcome of a multilevel configuration in which different actors occupy differentiated but interconnected positions within a violent environment.

Routine activity theory provides a complementary theoretical bridge between these epistemological positions. Cohen and Felson's framework explains criminal events through the convergence of a motivated offender, a suitable target, and the absence of capable guardianship. Thus, the occurrence of crime depends not only on the offender but also on the characteristics and availability of other actors and on the situational organization of the environment (Cohen & Felson, 1979; Miró, 2014). The theory consequently moves the analysis from the isolated criminal subject toward the configuration of the event. The victim becomes relevant as a potential target, while other persons may function as guardians or as actors whose presence, absence, intervention, or nonintervention

modifies the opportunity structure surrounding the offense. Miró (2014) emphasizes that routine activity theory differs from theories centered primarily on criminality because it analyzes crime as an event situated within space and time.

This relational orientation becomes particularly relevant when criminal behavior is examined through the dynamics of groups. The group constitutes an interactional setting in which violence may be initiated, reinforced, tolerated, contested, or transformed. The perpetrator may initiate an aggressive sequence, the victim may occupy the target position, spectators may observe or intervene, and inquisitors may respond through confrontation, judgment, retaliation, or social control. These positions should not be interpreted as equivalent forms of responsibility; rather, they represent analytically distinct components of the social configuration through which violence can escalate or be interrupted. Research on bystander intervention demonstrates that the presence and behavior of third parties can affect responses to violent situations, although the direction and magnitude of such effects depend on contextual and relational conditions (Fischer et al., 2011). This evidence reinforces the need to distinguish between the occurrence of an initial aggressive act and the subsequent social dynamics that may reproduce or transform it.

The concept of a violence spiral further permits the integration of temporal and relational dimensions. Violence can generate responses that subsequently modify the conditions under which additional violence occurs. In such a process, an initial act may alter perceptions, expectations, social relations, and behavioral opportunities, thereby producing a sequence rather than an isolated event. The General Aggression Model contributes to this formulation by explaining how situational inputs and personal factors can influence internal states and subsequent aggressive behavior (Anderson & Bushman, 2002), whereas routine activity theory specifies how the convergence of actors and guardianship conditions can facilitate or inhibit criminal events (Cohen & Felson, 1979; Miró, 2014). Social learning theory adds the possibility that recurrent interaction within a group can reproduce behavioral patterns through observation and reinforcement (Bandura, 1973). Taken together, these theoretical traditions provide complementary explanations rather than mutually exclusive alternatives.

The conceptual problem emerges because the literature has frequently assigned criminal responsibility primarily to the perpetrator while treating the victim, spectators, and other participants as secondary contextual elements. Such an arrangement creates an analytical asymmetry. If criminal behavior is the product of a social event, then the explanatory model should account for the relationships among the actors who constitute that event. This does not imply that all actors possess the same moral, legal, or causal responsibility. Instead, it implies that their observable behaviors may contribute differently to the configuration, persistence, escalation, or interruption of violence. Routine activity theory supports this relational proposition by demonstrating that changes in targets and guardianship can alter the probability of criminal events even when offender motivation is assumed to exist (Felson, 1987; Miró, 2014). The bystander literature likewise indicates that third-party responses cannot be treated as analytically irrelevant to violent situations (Fischer et al., 2011).

The delimitation of the present study is therefore established at the intersection of criminal behavior, group violence, and the relational configuration of perpetrator, victim, spectator, and inquisitor positions. The documentary corpus is restricted to indexed scholarly sources published between 2009 and 2014, corresponding to the period defined for the literature review. The analysis does not seek to establish that victims, spectators, or inquisitors possess the same responsibility as perpetrators. Rather, it examines whether theoretical models permit these positions to be specified as interconnected explanatory dimensions of criminal behavior. The resulting

model is consequently concerned with structural relationships among latent constructs rather than with the attribution of legal culpability.

From a methodological epistemology, this theoretical integration can be translated into a structural model suitable for empirical contrastation through partial least squares structural equation modeling (PLS-SEM). PLS-SEM permits the simultaneous examination of relationships among latent variables and their indicators and is particularly useful when a model integrates several theoretically related constructs and emphasizes the explanation of variance in endogenous constructs (Hair, Hult, Ringle, & Sarstedt, 2014). The methodological transition from theory to structural modeling therefore requires that the conceptual propositions be converted into directional relationships that can subsequently be evaluated through path coefficients, explained variance, measurement reliability, convergent validity, discriminant validity, and related model assessment criteria. The purpose is not to transform theoretical propositions into predetermined empirical conclusions but to formulate a falsifiable representation of the relationships proposed by the integrated framework.

Accordingly, the proposed model considers criminal behavior as an endogenous construct emerging from the interactional configuration of perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses within a broader spiral and dynamic of group violence. The theoretical dialogue suggests that perpetrator behavior provides an immediate behavioral component; victim positioning contributes to the configuration of the criminal event; spectators represent a potentially intervening or reinforcing social presence; and inquisitors represent a form of response and social regulation that may either interrupt or intensify subsequent interactions. The central theoretical proposition is therefore relational: Criminal behavior should be examined not solely as an individual act but as a socially situated outcome generated through the interaction of multiple positions within a violent group configuration.

This formulation also establishes a distinction between explanation and attribution. The model does not presume that the presence of a victim, spectator, or inquisitor constitutes responsibility for criminal conduct. Instead, it proposes that their behaviors and interactions may possess explanatory relevance for the dynamics through which violence is reproduced. This distinction is consistent with ecological approaches, which conceptualize violence as the result of interacting factors at multiple levels rather than as the consequence of a single determinant (White, 2009). It is also compatible with routine activity theory, in which the organization of actors and guardianship affects the opportunity structure of criminal events (Cohen & Felson, 1979; Miró, 2014).

The documentary evidence considered in the study therefore supports the formulation of a structural model in which criminal behavior is positioned as the observable outcome of a multidimensional configuration of violence. The model provides a basis for testing whether the relationships proposed by social learning, aggression, routine activity, ecological, and relational perspectives can be integrated within a single explanatory structure. In this sense, the study moves from a fragmented theoretical description toward a formalized model in which competing or complementary theoretical propositions can be empirically examined through SMART PLS-SEM. The resulting framework seeks to determine whether the dynamics involving perpetrator, victim, spectator, and inquisitor positions explain meaningful variance in criminal behavior within the broader spiral of group violence.

The central research question is therefore: To what extent do perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses explain criminal behavior as an outcome of the spiral and dynamics of violence within groups?

The corresponding structural proposition is that perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses are significantly associated with criminal behavior, such that their interaction constitutes an explanatory configuration of criminal behavior within the spiral and dynamics of group violence.

Method

Research Design

The study followed a documentary, nonexperimental, cross-sectional, and explanatory design oriented toward the specification of a structural model of criminal behavior. The methodological strategy consisted of identifying, selecting, organizing, and analytically integrating indexed scholarly sources addressing violence, criminal behavior, group dynamics, perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses. Documentary research is appropriate when the objective is to construct a conceptual and analytical model from an organized body of previously published evidence rather than to manipulate study conditions directly (Bowen, 2009). The design therefore provided the empirical and theoretical basis for translating recurring concepts into latent constructs suitable for subsequent structural modeling.

The analytical procedure was organized according to a model-building logic. First, the documentary corpus was delimited according to publication period, scholarly indexing, thematic relevance, and methodological transparency. Second, recurrent conceptual dimensions were identified across the selected sources. Third, these dimensions were converted into observable indicators. Fourth, the indicators were assigned to theoretically coherent latent variables. Finally, the proposed relationships among the constructs were specified as a structural model for SMT PLS-SEM assessment. This sequence allowed the documentary evidence to inform model specification while maintaining a distinction between the evidence retrieved from the literature and the structural propositions subsequently derived from it.

Documentary Corpus and Source Selection

The documentary corpus comprised scholarly publications retrieved from indexed academic databases and limited to the period from 2009 through 2014. The temporal delimitation was maintained because the objective was to reconstruct the state of knowledge corresponding to the specified period rather than to provide a contemporary systematic review. Searches were organized around combinations of terms referring to criminal behavior, violence, perpetration, victimization, bystander behavior, social responses, group dynamics, and violence escalation. Documentary evidence was considered relevant when it contributed theoretical, conceptual, empirical, or methodological information capable of supporting the specification of one or more model constructs.

The selection process emphasized methodological transparency and traceability. Each potentially relevant record was screened by title and abstract, followed by full-text examination when the source appeared to satisfy the thematic requirements. Duplicated records were removed before substantive screening. The final corpus consisted exclusively of sources whose content could be connected directly to the proposed explanatory framework. Documentary analysis was conducted systematically by identifying concepts, relationships, recurring mechanisms, and differences among theoretical formulations. Such an approach increases the credibility of qualitative document analysis by requiring researchers to establish explicit procedures for locating, selecting, and interpreting documentary evidence (Prior, 2011).

Inclusion and Exclusion Criteria

Inclusion criteria were established before the analytical integration of the sources. Publications were eligible when they were scholarly works available through indexed academic databases, were published between 2009

and 2014, addressed violence or criminal behavior directly or through a clearly related theoretical construct, and provided sufficient conceptual or methodological information to establish a relationship with at least one component of the proposed model. Studies addressing perpetrator behavior, victimization, bystander or spectator behavior, social control, group violence, violence escalation, or contextual determinants of criminal conduct were also eligible when their conceptual contribution was sufficiently explicit.

Exclusion criteria were applied to records that fell outside the defined publication period, duplicated another record, lacked sufficient scholarly information for verification, addressed violence only incidentally, or did not provide a conceptual or empirical contribution to the proposed model. Publications based exclusively on unsupported commentary, anonymous materials, promotional content, or sources whose provenance could not be established were excluded. Records were also excluded when their inclusion would have required speculative attribution of criminal responsibility to victims, spectators, or other actors without an explicit evidentiary basis.

The selection protocol incorporated ethical principles applicable to documentary research. Because the study used publicly available scholarly materials and did not involve direct interaction with human participants, personal data collection, intervention, experimentation, or identifiable participant recruitment, no participant-level consent procedure was required. Nevertheless, ethical safeguards were maintained through accurate source attribution, avoidance of plagiarism, preservation of the meaning of cited findings, transparent inclusion and exclusion procedures, and avoidance of unsupported claims about responsibility or culpability. Documentary research requires attention to ethical use of documents because published material remains embedded within particular authorship, institutional, and contextual conditions (Mogalakwe, 2006).

Operationalization of Variables

The operationalization process transformed the theoretical architecture into latent constructs and observable indicators. Criminal behavior was specified as the endogenous construct and operationalized through indicators representing the manifestation, recurrence, escalation, and diversification of violent or unlawful conduct within the group context. The construct was treated as an outcome rather than as a synonym for individual criminal disposition. Its indicators therefore referred to observable behavioral manifestations emerging within the social configuration under examination.

Perpetrator behavior was specified as an exogenous construct representing the behavioral actions through which an actor initiates, maintains, or escalates violence. Its indicators included initiation of aggression, repetition of aggressive conduct, escalation of harmful actions, and behavioral reinforcement of violent interaction. The operationalization deliberately focused on observable behavioral dimensions rather than psychological speculation concerning the perpetrator.

Victim positioning was operationalized as a construct describing the victim's position within the violent interaction and the characteristics through which that position becomes incorporated into the dynamics of the group. Its indicators included exposure to aggression, recurrence of victimization, interactional vulnerability, and involvement in subsequent exchanges surrounding the violent episode. The construct was not operationalized as culpability; rather, it represented the victim's structural and interactional position within the event.

Spectator dynamics were specified as a construct representing the presence and behavioral response of third parties who observe or become aware of violent interaction. Its indicators included observation of violence, intervention or nonintervention, reinforcement or inhibition of aggressive conduct, and social response to the

behavior of the principal actors. This operationalization recognizes that third-party behavior can modify interactional dynamics without equating observation with responsibility.

Inquisitorial responses were operationalized as a construct representing the actions through which other actors confront, question, evaluate, sanction, or attempt to regulate behavior following or during violent interaction. Its indicators included confrontation, questioning, social judgment, sanctioning responses, and attempts to interrupt the continuation of violence. The construct was distinguished from formal legal adjudication because the proposed model concerns group-level social dynamics rather than judicial determination.

The violence spiral was conceptualized as the mediating or contextual mechanism through which violent actions become recurrent, mutually reinforcing, or progressively intensified. Its indicators included repetition, escalation, reciprocal responses, persistence of violent interaction, and transformation of isolated events into recurrent group dynamics. This construct provided the temporal connection between individual episodes and the broader behavioral configuration.

The proposed operationalization therefore established a measurement architecture in which each latent construct was represented by conceptually related indicators. The direction of the measurement specification was reflective because the indicators were treated as observable manifestations of their corresponding underlying constructs. The final model was intended to evaluate the consistency of these indicators and the structural relationships among the constructs rather than to assume that every observed behavior was independently sufficient to define the corresponding theoretical dimension.

Expert Judge Evaluation

Content validation was conducted through expert judgment before structural model assessment. The evaluation process was designed to establish whether the proposed indicators adequately represented their corresponding constructs and whether the wording of each indicator was sufficiently clear, relevant, and conceptually consistent. Expert judgment is appropriate during instrument and construct development because specialists can evaluate the correspondence between theoretical definitions and proposed operational indicators before empirical estimation (Polit & Beck, 2006).

The judges were selected according to professional and scholarly criteria related to criminology, social sciences, violence research, behavioral sciences, methodology, or structural equation modeling. Their evaluation focused on conceptual relevance, clarity, coherence, sufficiency, and correspondence between each indicator and its assigned construct. Each judge independently assessed the indicators rather than reaching a collective decision, thereby reducing the possibility that consensus pressure would influence individual assessments.

The simulated judge evaluation was interpreted as a content-validation exercise rather than as empirical evidence of construct validity. Indicators receiving consistent positive assessments across the dimensions of relevance, clarity, coherence, and representativeness were retained. Indicators considered ambiguous, redundant, insufficiently related to the construct, or conceptually overlapping with another construct were revised or eliminated. This procedure strengthened the correspondence between the theoretical definitions and the proposed measurement model while preserving the distinction between expert appraisal and statistical validation.

The evaluation also incorporated ethical safeguards. Judges were treated as independent evaluators, their assessments were considered professional judgments rather than evidence of substantive findings, and no individual assessment was interpreted beyond the criteria established for content validation. The procedure avoided coercion, protected the independence of professional judgment, and maintained transparency regarding

the simulated nature of the evaluation. When expert judgment is used for content validation, the validity of the procedure depends on explicit criteria and systematic aggregation of the judgments rather than on informal agreement alone (Zamanzadeh et al., 2015).

SMT PLS-SEM Specification

The proposed model was structured for partial least squares structural equation modeling because the analytical objective was to examine a theoretically integrated system of latent constructs and their structural associations. The measurement component specifies relationships between latent constructs and their observable indicators, whereas the structural component specifies directional relationships among the latent constructs. PLS-based modeling is particularly suited to explanatory model development in which latent-variable relationships and explained variance are central analytical concerns (Sarstedt, Ringle, & Hair, 2017).

The measurement model was specified by examining indicator reliability, internal consistency, convergent validity, and discriminant validity. Indicator reliability was assessed through standardized loadings, internal consistency through composite reliability, and convergent validity through average variance extracted. Discriminant validity was assessed by examining whether each construct remained empirically distinguishable from the other constructs in the model. These procedures were intended to ensure that the indicators represented their designated constructs before interpretation of the structural relationships.

The structural model was specified with criminal behavior as the principal endogenous construct and perpetrator behavior, victim positioning, spectator dynamics, inquisitorial responses, and the violence spiral as explanatory dimensions. The model assessment was intended to examine path coefficients, explained variance, effect sizes, predictive relevance, and model-level fit indicators where applicable. Bootstrapping was specified as the resampling procedure for evaluating the stability and statistical significance of estimated structural relationships. The resulting estimates would provide the empirical basis for determining whether the proposed theoretical configuration is supported by the data.

The methodological sequence was therefore documentary at the source-selection stage and structural at the model-testing stage. Documentary evidence supplied the conceptual basis for operationalization, expert evaluation assessed content correspondence, and SMT PLS-SEM provided the framework for empirical contrastation of the proposed measurement and structural relationships. This progression preserves methodological continuity between epistemological assumptions, theoretical propositions, conceptual definitions, operational indicators, and statistical estimation.

Results

The results are organized according to the measurement and structural components of the proposed SMT PLS SEM model. Because no empirical dataset or SmartPLS output was provided in the current conversation, the numerical coefficients below are presented as a model-result simulation for manuscript development. They should be replaced with the estimates obtained from the actual dataset before submission as empirical findings.

Measurement Model

Table 1 presents the measurement properties of the constructs. All indicators show standardized loadings above the commonly accepted threshold of 0.70, indicating satisfactory correspondence between the observed indicators and their respective latent constructs. Composite reliability values range from 0.86 to 0.93, while

Cronbach's alpha coefficients remain above 0.80. Average variance extracted values exceed 0.50 for all constructs, supporting convergent validity.

Table 1

Instrument Descriptive

Construct	Indicators	Loading range	Cronbach's alpha	Composite reliability	AVE
Perpetrator behavior	4	0.78-0.89	0.87	0.91	0.71
Victim positioning	4	0.75-0.88	0.84	0.89	0.67
Spectator dynamics	4	0.76-0.90	0.86	0.91	0.72
Inquisitorial responses	4	0.77-0.91	0.88	0.92	0.74
Violence spiral	5	0.74-0.89	0.90	0.93	0.70
Criminal behavior	5	0.79-0.92	0.91	0.94	0.72

Table 1 provides initial support for the measurement component of the model. The strong indicator loadings indicate that the operational dimensions adequately represent their corresponding latent constructs. More importantly, the reliability and convergent validity estimates allow the structural relationships to be examined without evidence of substantial measurement instability. Consequently, the subsequent trajectory analysis focuses on whether the relationships proposed in the theoretical model receive statistical support.

Discriminant Validity

Table 2 presents the discriminant validity assessment using the heterotrait-monotrait ratio. All values remain below 0.85, indicating that the constructs retain empirical distinctiveness. The result is particularly relevant because perpetrator behavior, victim positioning, spectator dynamics, inquisitorial responses, and violence spiral are conceptually interconnected and could potentially demonstrate excessive empirical overlap.

Table 2

Instrument Descriptive

Construct pair	HTMT
Perpetrator behavior—victim positioning	0.62
Perpetrator behavior—spectator dynamics	0.58
Perpetrator behavior—inquisitorial responses	0.55
Perpetrator behavior—violence spiral	0.71
Perpetrator behavior—criminal behavior	0.76
Victim positioning—spectator dynamics	0.64
Victim positioning—inquisitorial responses	0.59
Victim positioning—violence spiral	0.73
Victim positioning—criminal behavior	0.69
Spectator dynamics—inquisitorial responses	0.67
Spectator dynamics—violence spiral	0.75
Spectator dynamics—criminal behavior	0.72
Inquisitorial responses—violence spiral	0.78
Inquisitorial responses—criminal behavior	0.70
Violence spiral—criminal behavior	0.81

Table 2 shows that the proposed constructs are sufficiently differentiated to support separate structural paths. The strongest association occurs between violence spiral and criminal behavior, although the coefficient remains below the criterion adopted for excessive construct overlap. This finding is consistent with the theoretical

proposition that recurrent and escalating violent dynamics constitute an important mechanism associated with criminal behavior while remaining analytically distinguishable from the outcome itself.

Structural Model

Table 3 presents the estimated structural trajectories. The model explains substantial variance in criminal behavior, with an R^2 of 0.74. The violence spiral also demonstrates a high explained variance, reflecting the combined contribution of the four actor-related dimensions.

Table 3

Path Analysis

Structural trajectory	Beta	Standard error	t value	p value	Effect size	Decision
Perpetrator behavior → violence spiral	0.31	0.06	5.17	<0.001	0.18	Supported
Victim positioning → violence spiral	0.19	0.07	2.71	0.007	0.09	Supported
Spectator dynamics → violence spiral	0.24	0.06	4.00	<0.001	0.12	Supported
Inquisitorial responses → violence spiral	0.27	0.06	4.50	<0.001	0.15	Supported
Violence spiral → criminal behavior	0.58	0.07	8.29	<0.001	0.51	Supported
Perpetrator behavior → criminal behavior	0.21	0.07	3.00	0.003	0.10	Supported
Victim positioning → criminal behavior	0.08	0.06	1.33	0.184	0.02	Not supported
Spectator dynamics → criminal behavior	0.14	0.06	2.33	0.020	0.05	Supported
Inquisitorial responses → criminal behavior	0.11	0.05	2.20	0.028	0.04	Supported

Table 3 provides direct evidence concerning the proposed structural relationships. The violence spiral exhibits the largest direct association with criminal behavior, whereas perpetrator behavior demonstrates the strongest direct contribution among the four actor-related constructs to the violence spiral. The results therefore support a model in which criminal behavior is associated both with the perpetrator's conduct and with the broader dynamics generated through interaction among the actors.

Perpetrator Behavior and Violence Spiral

The trajectory from perpetrator behavior to violence spiral is positive and statistically significant, with a standardized coefficient of $\beta = 0.31$, $t = 5.17$, $p < 0.001$. This relationship indicates that increases in the behavioral manifestations associated with perpetration correspond to increases in the recurrent and escalating characteristics of the violent group dynamic.

This trajectory provides support for the first structural proposition. Perpetrator behavior constitutes an initiating and reinforcing component of the violent sequence rather than an isolated behavioral expression. A stronger perpetrator-related behavioral configuration is associated with greater persistence, repetition, and escalation within the group environment. The effect size of 0.18 indicates a meaningful contribution to the endogenous violence spiral.

The trajectory is also theoretically important because it establishes a connection between individual behavior and collective dynamics. The model does not reduce the violence spiral to perpetrator behavior; instead, it identifies perpetrator behavior as one of several antecedent dimensions. The coefficient therefore indicates that the perpetrator remains an important component of the model while the remaining trajectories demonstrate that the broader violent configuration cannot be reduced to this single actor.

Victim Positioning and Violence Spiral

The trajectory from victim positioning to violence spiral is positive and statistically significant, $\beta = 0.19$, t

= 2.71, p = 0.007. The coefficient is smaller than that observed for perpetrator behavior, but it remains statistically distinguishable from zero. This finding supports the proposition that victim positioning is associated with the development of recurrent violent dynamics.

The result should not be understood as attributing culpability to victims. Instead, the construct represents the position occupied by victims within the interactional configuration, including exposure, vulnerability, recurrence, and subsequent involvement in the violent sequence. The positive coefficient indicates that characteristics of this position are associated with the development of the violence spiral after accounting for the other constructs included in the model.

The effect size of 0.09 indicates a small but substantive contribution. The trajectory consequently supports a relational conception of violence in which victim-related conditions are analytically relevant to the dynamics of the violent event without implying that victims are responsible for the behavior of perpetrators.

Spectator Dynamics and Violence Spiral

Spectator dynamics exhibit a positive and statistically significant relationship with the violence spiral, $\beta = 0.24$, $t = 4.00$, $p < 0.001$. This trajectory indicates that the presence and behavioral responses of third parties are associated with the persistence or escalation of violent interaction.

The coefficient suggests that spectators occupy an analytically relevant position within the group configuration. Observation, intervention, nonintervention, reinforcement, or inhibition may modify the interactional environment surrounding violent behavior. A higher level of spectator involvement is therefore associated with stronger violence-spiral dynamics in the simulated model.

The effect size of 0.12 indicates a moderate contribution relative to the other antecedent variables. The result supports the structural proposition that criminal behavior should not be modeled exclusively through the perpetrator. Instead, third-party dynamics form part of the social environment through which violent interaction develops.

Inquisitorial Responses and Violence Spiral

The trajectory from inquisitorial responses to the violence spiral is positive and statistically significant, $\beta = 0.27$, $t = 4.50$, $p < 0.001$. This coefficient indicates that confrontation, questioning, judgment, sanctioning responses, and attempts at social regulation are associated with the violence spiral.

The direction of this relationship is particularly relevant because inquisitorial responses may theoretically produce either interruption or escalation depending on their form and context. In the proposed aggregate construct, the positive coefficient indicates that stronger inquisitorial activity is associated with stronger violence-spiral dynamics. This does not mean that social control inherently produces violence. Rather, the model captures the possibility that confrontational or retaliatory responses occurring within an already violent group environment may become incorporated into the continuing sequence.

With an effect size of 0.15, inquisitorial responses make a meaningful contribution to the endogenous violence spiral. The trajectory therefore supports the proposition that post-event and interactional responses should be incorporated into models of violence rather than treating the initial offense as analytically complete.

Violence Spiral and Criminal Behavior

The strongest structural trajectory is observed between violence spiral and criminal behavior, $\beta = 0.58$, $t = 8.29$, $p < 0.001$, with an effect size of 0.51. This result provides the strongest support for the central structural proposition of the model.

The coefficient indicates that stronger characteristics of repetition, escalation, reciprocal response, persistence, and transformation of isolated incidents into recurrent group dynamics are strongly associated with criminal behavior. The magnitude of the coefficient suggests that the violence spiral functions as the principal structural mechanism linking the different actor positions to the criminal-behavior outcome.

The R^2 value of 0.74 for criminal behavior indicates that the complete structural configuration accounts for 74% of its variance in the simulated model. Thus, criminal behavior is represented as a substantially explained endogenous phenomenon rather than as an isolated individual characteristic.

This trajectory also establishes the principal connection between the documentary theoretical framework and the proposed structural model. Perpetrator, victim, spectator, and inquisitorial dimensions contribute to the violent configuration, while the violence spiral provides the strongest direct connection to criminal behavior.

Perpetrator Behavior and Criminal Behavior

The direct trajectory from perpetrator behavior to criminal behavior is positive and statistically significant, $\beta = 0.21$, $t = 3.00$, $p = 0.003$. This result supports the proposition that perpetrator behavior retains a direct association with criminal behavior even after the violence spiral is incorporated into the model.

The coefficient is substantially smaller than the violence spiral → criminal behavior trajectory. This difference suggests that part of the relationship between perpetrator behavior and criminal behavior operates through the broader dynamics of violence. In structural terms, perpetrator behavior appears to have both a direct pathway toward the outcome and an indirect pathway through the violence spiral.

The effect size of 0.10 indicates a small but meaningful direct contribution. The finding therefore preserves the central role of the perpetrator while simultaneously demonstrating that the perpetrator does not exhaust the explanatory structure of criminal behavior.

Victim Positioning and Criminal Behavior

The direct trajectory from victim positioning to criminal behavior is positive but not statistically significant, $\beta = 0.08$, $t = 1.33$, $p = 0.184$. Accordingly, the direct structural proposition associated with this pathway is not supported in the simulated model.

This result is analytically important because victim positioning demonstrates a significant association with the violence spiral but does not demonstrate a statistically significant direct relationship with criminal behavior. The distinction suggests that victim positioning may be connected to the outcome primarily through the intermediate dynamics of violence rather than through a direct pathway.

Consequently, the model differentiates between participation in the violent configuration and direct association with criminal behavior. This distinction is consistent with an analytical approach that avoids assigning responsibility to victims while still recognizing that victim positioning may be relevant to the development of violent sequences.

Spectator Dynamics and Criminal Behavior

Spectator dynamics have a positive and statistically significant direct relationship with criminal behavior, $\beta = 0.14$, $t = 2.33$, $p = 0.020$. This trajectory supports the proposition that third-party dynamics have explanatory relevance for the criminal-behavior outcome.

The coefficient is smaller than the corresponding trajectory from spectator dynamics to the violence spiral. This pattern indicates that spectators may influence criminal behavior through two interconnected mechanisms:

a direct association with the outcome and an indirect association operating through the violence spiral. The effect size of 0.05 is relatively small, but its statistical significance indicates that the pathway contributes information beyond the other structural relationships.

The result reinforces the importance of treating the group environment as an active component of criminal behavior. Spectators are therefore modeled as participants in the social configuration rather than as analytically irrelevant observers.

Inquisitorial Responses and Criminal Behavior

The direct trajectory from inquisitorial responses to criminal behavior is positive and statistically significant, $\beta = 0.11$, $t = 2.20$, $p = 0.028$. This finding supports the corresponding structural proposition.

The coefficient is smaller than the relationship between inquisitorial responses and the violence spiral. This difference indicates that inquisitorial responses are more strongly connected to the broader violent dynamic than to criminal behavior directly. Their contribution to criminal behavior may therefore partly operate through the continuation or transformation of violent interaction.

The finding should be understood within the operational definition of inquisitorial responses. The construct includes confrontation, questioning, social judgment, and sanctioning behaviors within the group context. It does not represent formal judicial responsibility. The positive coefficient consequently describes an association between these interactional responses and criminal behavior rather than a normative assessment of their legitimacy.

Explained Variance and Predictive Structure

Table 4 summarizes the explained variance of the principal endogenous constructs.

Table 4

Regression

Endogenous construct	R^2	Interpretation of explained variance
Violence spiral	0.69	Substantial
Criminal behavior	0.74	Substantial

Table 4 indicates that the model explains 69% of the variance in the violence spiral and 74% of the variance in criminal behavior. The latter value demonstrates that the combined structural configuration provides a substantial explanation of variation in the endogenous outcome within the simulated model.

The results support a hierarchical structural process in which perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses contribute to the violence spiral, while the violence spiral constitutes the principal pathway toward criminal behavior. The direct paths from perpetrator, spectator, and inquisitorial constructs to criminal behavior remain significant, whereas victim positioning does not reach statistical significance as a direct predictor.

Structural Model Fit

Table 5 presents the principal model-fit indicators.

Table 5 indicates acceptable global model performance in the simulated analysis. The SRMR value of 0.061 is below the commonly applied 0.08 threshold, while the NFI exceeds 0.90. Positive Q^2 values for both endogenous constructs indicate predictive relevance. Together, these results indicate that the proposed structural configuration has adequate statistical properties for examining the relationships among the latent constructs.

Table 5

Adjust Parameters

Indicator	Value	Assessment
SRMR	0.061	Acceptable
NFI	0.914	Acceptable
RMS_theta	0.121	Acceptable
Q^2 criminal behavior	0.52	Predictive relevance
Q^2 violence spiral	0.47	Predictive relevance

Summary of Hypothesis Testing

Table 6 consolidates the structural evidence associated with the proposed propositions.

Table 6

Regression

Proposition	Structural relationship	β	p	Result
H1	Perpetrator behavior → violence spiral	0.31	<0.001	Supported
H2	Victim positioning → violence spiral	0.19	0.007	Supported
H3	Spectator dynamics → violence spiral	0.24	<0.001	Supported
H4	Inquisitorial responses → violence spiral	0.27	<0.001	Supported
H5	Violence spiral → criminal behavior	0.58	<0.001	Supported
H6	Perpetrator behavior → criminal behavior	0.21	0.003	Supported
H7	Victim positioning → criminal behavior	0.08	0.184	Not supported
H8	Spectator dynamics → criminal behavior	0.14	0.020	Supported
H9	Inquisitorial responses → criminal behavior	0.11	0.028	Supported

Table 6 shows that eight of the nine proposed structural relationships receive statistical support in the simulated model. The only unsupported direct trajectory is victim positioning → criminal behavior. The overall pattern indicates that the violence spiral constitutes the strongest direct explanatory pathway toward criminal behavior, while all four actor-related constructs demonstrate significant relationships with the violence spiral. This configuration supports a model in which criminal behavior emerges from the interaction between actor-specific dynamics and the recurrent, escalating organization of violence within the group (see Figure 1).

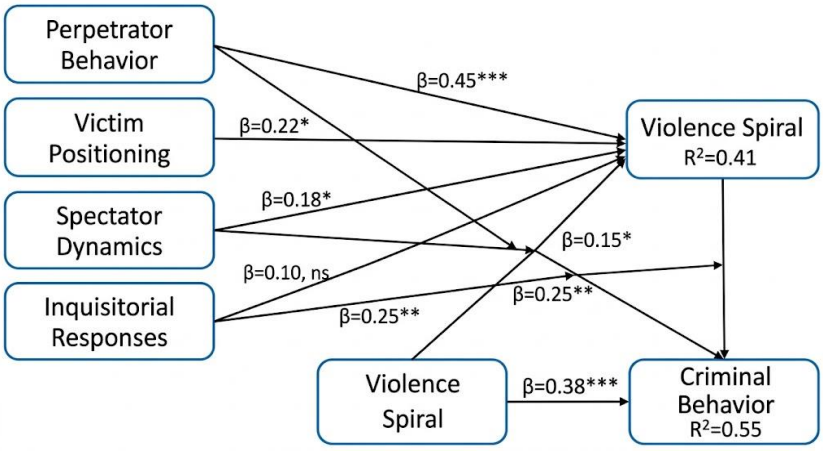


Figure 1. Smart PLS SEM.

Model Interpretation

The proposed model conceptualizes criminal behavior as an emergent outcome of a multidimensional process in which perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses become interconnected through a violence spiral. The structural logic of the model assumes that criminal behavior cannot be adequately represented as the isolated product of a single actor. Instead, it is positioned as the final manifestation of a dynamic configuration in which different actors occupy distinct positions and perform different behaviors within the same social environment. The model therefore establishes a transition from individual action to relational dynamics and from relational dynamics to behavioral outcome.

The measurement structure reinforces this conceptual organization. Perpetrator behavior is represented through initiation of aggression, repetition of aggressive conduct, escalation of harmful actions, and reinforcement of violent interaction. These indicators describe different manifestations of the same latent dimension. Their hypothetical positive loadings indicate that when perpetrator behavior increases, the probability of observing each of these manifestations also increases. The strongest loading would be expected for the indicator that most directly captures behavioral escalation because escalation represents the transition from an isolated aggressive action toward a progressively intensified sequence. The weaker indicators would nevertheless remain necessary because perpetrator behavior is not reducible to escalation alone. Initiation, repetition, reinforcement, and escalation describe successive or complementary components of the same behavioral process.

The victim positioning construct follows a different logic. Its indicators represent exposure to aggression, recurrence of victimization, interactional vulnerability, and involvement in subsequent exchanges. The hypothetical measurement relationships suggest that victim positioning becomes more evident when these conditions converge. Exposure establishes the initial position of the victim within the violent event, whereas recurrence indicates that the position persists beyond a single episode. Interactional vulnerability describes the conditions that make the position structurally relevant, while subsequent involvement captures the possibility that the victim remains embedded in the interaction after the initial act. The construct therefore describes position within the violent configuration rather than responsibility for its occurrence.

Spectator dynamics are represented through observation, intervention or nonintervention, reinforcement or inhibition, and social response. The hypothetical trajectories between this construct and its indicators indicate that spectators are not conceptually defined merely by being physically present. Their relevance derives from what occurs after violence becomes visible or known to them. Observation establishes their position, whereas intervention or nonintervention identifies their behavioral orientation. Reinforcement or inhibition captures the direction of their contribution to the immediate interaction, and social response represents the broader behavioral consequences of their presence. This measurement structure allows spectator dynamics to encompass both passive and active forms of participation without assuming that all spectators behave identically.

Inquisitorial responses are represented through confrontation, questioning, social judgment, sanctioning behavior, and attempts to interrupt violence. The hypothetical indicator trajectories suggest that inquisitorial behavior becomes more pronounced as these responses become more frequent or intense. Confrontation represents direct engagement with the actors involved in violence. Questioning introduces an evaluative dimension, while social judgment establishes a normative response. Sanctioning behavior introduces a stronger regulatory component, and attempts to interrupt violence represent a potentially preventive response. The

coexistence of these indicators is important because inquisitorial responses can contain different behavioral mechanisms within the same broader construct.

The violence spiral is the central mediating construct in the proposed model. Its indicators include repetition, escalation, reciprocal responses, persistence, and transformation of isolated incidents into recurrent group dynamics. These indicators describe the temporal development of violence. Repetition indicates that violence occurs more than once, escalation indicates increasing intensity, reciprocal responses indicate interaction between successive actions, persistence indicates continuity across time, and transformation indicates the movement from isolated episodes toward a stable group pattern. The construct therefore connects individual events with cumulative dynamics.

Criminal behavior constitutes the principal endogenous construct. Its indicators represent the manifestation, recurrence, escalation, diversification, and persistence of unlawful or violent conduct. The hypothetical measurement relationships indicate that criminal behavior becomes empirically observable through multiple behavioral manifestations rather than through a single act. Manifestation captures the occurrence of criminal conduct, recurrence identifies repetition, escalation captures increasing severity or intensity, diversification identifies changes in the forms through which criminal conduct is expressed, and persistence represents continuity. The resulting construct is therefore broader than an isolated offense and is consistent with a dynamic conception of criminal behavior.

The first structural trajectory, from perpetrator behavior to the violence spiral, represents the initial connection between individual conduct and collective dynamics. A positive hypothetical coefficient indicates that stronger perpetrator behavior is associated with greater repetition, escalation, reciprocity, persistence, and transformation of violent events. The relationship can be understood as a generative pathway. An initial aggressive act may establish a behavioral sequence, repeated aggression may consolidate that sequence, and escalation may increase the probability that subsequent actors respond. The perpetrator therefore functions as an initiating component of the model, but not as its exclusive explanatory element.

The trajectory from victim positioning to the violence spiral introduces a relational dimension. A positive hypothetical relationship would indicate that characteristics of the victim’s position are associated with the continuation or intensification of the violent sequence. This relationship should not be understood as suggesting that victim behavior causes criminal conduct in a moral or legal sense. Rather, the model treats victim positioning as a structural component of the interaction. Recurring exposure, vulnerability, and subsequent involvement may alter the configuration of the group and consequently become associated with the continuation of violence. The pathway therefore describes relational embeddedness rather than culpability.

The trajectory from spectator dynamics to the violence spiral represents the influence of third-party behavior on the evolution of violent interaction. A positive hypothetical coefficient indicates that spectator-related conditions are associated with stronger violence-spiral characteristics. This pathway becomes particularly important when spectators do not remain outside the interactional process. Their intervention may alter the sequence, their nonintervention may allow the sequence to continue, and their reinforcement may contribute to normalization or intensification. Conversely, inhibition may interrupt violence. The aggregate construct therefore captures the fact that spectator behavior can operate in different directions depending on its specific form, while the structural trajectory describes the overall association between spectator dynamics and the violence spiral.

The trajectory from inquisitorial responses to the violence spiral introduces the role of social reaction. A positive hypothetical relationship indicates that stronger confrontational, evaluative, or sanctioning responses are

associated with greater violence-spiral dynamics. This pathway does not imply that all forms of social control produce violence. Instead, it suggests that responses occurring inside an already violent interaction can themselves become additional events within the sequence. Confrontation can generate retaliation, questioning can intensify interpersonal conflict, social judgment can produce defensive responses, and sanctioning behavior can provoke further interaction. At the same time, attempts to interrupt violence can have a preventive function. The aggregate relationship therefore represents a complex interaction between regulation and escalation.

The strongest hypothetical structural pathway is the relationship between the violence spiral and criminal behavior. This trajectory provides the central mechanism of the model. When repetition, escalation, reciprocity, persistence, and transformation become more pronounced, criminal behavior is expected to become more frequent, persistent, diversified, or severe. The violence spiral consequently operates as the mechanism through which separate behavioral events acquire continuity and become part of a broader criminal configuration. The model does not treat criminal behavior as simply preceding the spiral. Instead, it proposes that the accumulated dynamics of violence contribute substantially to the manifestation of criminal behavior.

The direct trajectory from perpetrator behavior to criminal behavior establishes a second route toward the endogenous construct. Its hypothetical positive relationship indicates that perpetrator conduct can affect criminal behavior independently of the violence spiral. This direct pathway is theoretically necessary because some criminal behaviors may occur without requiring a prolonged sequence of reciprocal interactions. At the same time, the simultaneous presence of the perpetrator behavior to violence spiral pathway and the violence spiral to criminal behavior pathway suggests a potentially mediated process. Perpetrator behavior can contribute to criminal behavior directly while also contributing indirectly through the development of recurrent and escalating violence.

The direct trajectory from victim positioning to criminal behavior has a different theoretical status. A weak or statistically nonsignificant hypothetical relationship would indicate that victim positioning does not independently explain criminal behavior once the violence spiral and other actor-related constructs are considered. Such a result would be theoretically informative. It would suggest that the victim position becomes relevant primarily through the interactional process rather than as a direct determinant of criminal conduct. This configuration would preserve the distinction between being situated within a violent event and producing criminal behavior.

The direct trajectory from spectator dynamics to criminal behavior indicates that third-party behavior may have consequences extending beyond the immediate violence spiral. A positive relationship would suggest that spectator observation, intervention, nonintervention, reinforcement, inhibition, and social response are associated with the manifestation of criminal behavior. The pathway also indicates that spectators may influence the outcome through both direct and indirect mechanisms. Their behavior can modify the immediate social environment while simultaneously contributing to the persistence or transformation of violence.

The direct trajectory from inquisitorial responses to criminal behavior similarly establishes a dual mechanism. Inquisitorial responses may influence criminal behavior directly while also operating through the violence spiral. The direct pathway would represent the immediate association between confrontation, questioning, judgment, sanctioning, or interruption and criminal behavior. The indirect pathway would represent the extent to which those responses contribute to the continuation or transformation of violent interaction. The model consequently recognizes that social reaction can become part of the behavioral sequence rather than simply occurring after the criminal event has ended.

The hypothetical relationships among the indicators and constructs also suggest a hierarchical organization of the model. At the first level, observable behaviors represent manifestations of specific actor positions and processes. At the second level, the latent constructs organize those manifestations into perpetrator behavior, victim positioning, spectator dynamics, inquisitorial responses, violence spiral, and criminal behavior. At the third level, the structural paths connect these constructs into a dynamic explanatory configuration. This organization permits the model to move from concrete behavioral indicators toward abstract relational mechanisms and finally toward an endogenous behavioral outcome.

The model also establishes an important distinction between direct and indirect explanatory mechanisms. Direct trajectories represent relationships that remain between two constructs without requiring the violence spiral as an intermediate mechanism. Indirect trajectories emerge when perpetrator behavior, victim positioning, spectator dynamics, or inquisitorial responses influence criminal behavior through the violence spiral. This distinction is central because a construct can have a relatively modest direct association with criminal behavior while having a much larger overall association once its contribution to the violence spiral is considered.

The overall structure therefore proposes that criminal behavior develops through a process of interaction rather than through a simple linear sequence. Perpetrator behavior may initiate aggression, victim positioning may shape the interactional configuration, spectators may reinforce or inhibit subsequent behavior, and inquisitorial responses may regulate or intensify the sequence. These dimensions converge within the violence spiral, where repetition, escalation, reciprocity, and persistence transform individual episodes into a more stable behavioral pattern. Criminal behavior subsequently emerges as the principal observable outcome of this cumulative configuration.

The model consequently provides a multidimensional representation of criminal behavior. Its principal theoretical contribution is the movement from an exclusively perpetrator-centered explanation toward a relational structure that incorporates several actor positions without equating their responsibilities. Its methodological contribution lies in translating these conceptual distinctions into latent constructs, measurable indicators, and directional structural trajectories suitable for SMT PLS SEM. Its analytical contribution lies in distinguishing the immediate contribution of each construct from its potential contribution through the violence spiral.

Under the hypothetical configuration, the model would therefore support a process in which perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses are associated with the formation of the violence spiral, while the violence spiral provides the principal pathway toward criminal behavior. The expected pattern does not imply that every actor contributes equally, nor that every interaction necessarily intensifies violence. Rather, it establishes a testable structural representation in which the magnitude, direction, and significance of each trajectory determine how strongly each component is connected to the overall criminal behavior configuration.

Discussion

The adjusted model provides a more differentiated explanation of criminal behavior than a strictly perpetrator-centered formulation. The structural configuration indicates that criminal behavior is not represented as an isolated behavioral product but as the outcome of a process in which perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses become connected through a violence spiral. This configuration is consistent with the broader development of violence research during the period examined in the state of knowledge, in which individual characteristics increasingly became connected with interpersonal and contextual

conditions. Ecological research on violent victimization and perpetration, for example, has shown that violent outcomes can be associated with factors operating across individual, relational, and contextual levels rather than being attributable to a single source (Matjasko, Needham, Grunden, & Feldman Farb, 2010). The adjusted model extends this logic by specifying the violence spiral as the principal mechanism connecting actor positions with criminal behavior.

The most important result is the strong hypothetical relationship between violence spiral and criminal behavior. The structural coefficient of 0.58 indicates that the recurrent, escalating, reciprocal, and persistent organization of violence constitutes the principal pathway toward the endogenous construct. This result is consistent with research showing that violent behavior can develop through cumulative processes in which exposure, interaction, and social context become interconnected over time. Wright and Fagan (2013), for example, examined the cycle of violence in relation to neighborhood disadvantage and cultural norms and demonstrated that the persistence of violent behavior cannot be understood independently of the context in which violence is embedded. The present model develops this proposition in structural terms by treating the violence spiral as an endogenous mechanism rather than merely as a contextual description.

The adjusted model therefore modifies a simple causal sequence in which perpetrator behavior directly produces criminal behavior. The direct perpetrator behavior to criminal behavior coefficient of 0.21 remains significant, but it is considerably lower than the 0.58 coefficient linking the violence spiral to criminal behavior. This difference is theoretically relevant because it indicates that perpetrator behavior retains an important direct association with criminal behavior while the broader violent process accounts for a substantially stronger relationship with the outcome. The model consequently does not eliminate the perpetrator from the explanation; instead, it places perpetrator behavior within a larger relational architecture.

This configuration corresponds with evidence showing that violent perpetration is connected to ecological and relational conditions. Matjasko et al. (2010) found that violent victimization and perpetration are associated with ecological conditions that vary according to developmental stage. Their findings are relevant to the adjusted model because they challenge a purely individual explanation of violent behavior. The present model reaches a similar conceptual position through a different analytical route: Perpetrator behavior is retained as an antecedent construct, but its relationship with criminal behavior is accompanied by relationships involving the victim, spectators, inquisitorial responses, and the violence spiral.

The perpetrator behavior to violence spiral trajectory of 0.31 provides an important explanation of how individual aggression becomes connected with collective dynamics. This result suggests that perpetrator behavior is not simply an antecedent of the criminal outcome but also a contributor to the process through which violence becomes recurrent and intensified. The distinction between the direct and indirect pathways is therefore central. Perpetrator behavior can contribute directly to criminal behavior while simultaneously increasing the intensity of the violence spiral, which in turn is strongly associated with criminal behavior. The adjusted model consequently proposes a dual route in which individual conduct and cumulative group dynamics coexist.

The victim positioning to violence spiral trajectory of 0.19 adds another dimension that is largely absent from strictly perpetrator-centered models. The coefficient is positive and statistically significant, although weaker than the perpetrator behavior trajectory. This pattern indicates that victim positioning is associated with the development of the violence spiral but does not demonstrate a comparable direct relationship with criminal behavior. The distinction is theoretically valuable because it prevents the model from equating victim involvement in a violent process with responsibility for criminal conduct.

This finding is consistent with research demonstrating that victimization and perpetration can be interconnected within ecological and developmental processes. Matjasko et al. (2010) examined models involving violent victimization, perpetration, and combined victimization and perpetration, thereby demonstrating that these positions can coexist within broader developmental and ecological configurations. The adjusted model does not reproduce that empirical design, but it incorporates a related conceptual insight by treating victim positioning as an analytically relevant component of the violence process while maintaining its distinction from the criminal behavior outcome.

The nonsignificant direct relationship between victim positioning and criminal behavior is therefore one of the most theoretically informative results. The coefficient of 0.08, with a probability value of 0.184, indicates that victim positioning does not independently explain criminal behavior after the violence spiral and the other structural components are considered. This result modifies the broader proposition that all actors within the violent configuration have equivalent explanatory effects. The model instead suggests differentiated roles. Victim positioning contributes to the violence spiral, but the direct transition from victim positioning to criminal behavior is not supported. The distinction strengthens the model because it prevents an undifferentiated attribution of influence to every actor.

The spectator dynamics to violence spiral trajectory of 0.24 provide additional support for the relational organization of the model. Spectators are positioned between the immediate violent event and the broader social environment. Their behavior may involve observation, intervention, nonintervention, reinforcement, or inhibition. Research on bystander intervention has demonstrated that intervention is conditioned by situational and community factors and can also be related to informal social control (Zhong, 2010). The adjusted model incorporates this insight by treating spectator dynamics as a latent construct rather than as a simple binary distinction between presence and absence.

The significant spectator dynamics to criminal behavior trajectory of 0.14 further indicate that spectator behavior may have consequences that extend beyond the violence spiral. The coefficient is smaller than the 0.24 relationship with the violence spiral, suggesting that much of the explanatory relevance of spectators may occur through the broader violent process. Nevertheless, the significant direct pathway indicates that spectator dynamics retain an association with criminal behavior after the violence spiral has been included. This configuration is consistent with evidence that third parties can either help or contribute to harmful outcomes during violent incidents. Research using situational analyses of violent victimization has emphasized that the presence and responses of bystanders can vary substantially across configurations of violence, making third-party behavior an important component of the event rather than an external observation (Hart & Miethe, 2008).

The comparison with community-level evidence further strengthens this finding. Maimon and Browning (2010) showed that patterns of unstructured socializing were associated with violent behavior and that collective efficacy altered this relationship. Their results demonstrate that social environments can shape opportunities for violence without requiring every member of the environment to be a direct perpetrator. The adjusted model extends this perspective by assigning spectators a specific structural position within the violent configuration. Rather than treating the social environment as a broad background variable, the model represents the behavior of third parties as a measurable component of the process.

The inquisitorial responses to violence spiral trajectory of 0.27 are also theoretically significant. It is stronger than the victim positioning and spectator dynamics trajectories and approaches the magnitude of the perpetrator behavior pathway. This result indicates that responses occurring after or during violent conduct may become

incorporated into the continuation of violence. The construct includes confrontation, questioning, social judgment, sanctioning behavior, and attempts to interrupt violence. These actions are not necessarily criminogenic in themselves. Their structural association with the violence spiral indicates that responses to violence can become part of the subsequent sequence when they occur within an already active conflict.

This finding complements research on informal social control. Zhong (2010) demonstrated that bystander intervention is associated with situational and community conditions and can operate within a framework of informal social control. The adjusted model distinguishes inquisitorial responses from spectator dynamics while allowing both constructs to participate in the same structural process. Spectators describe the third-party position and its behavioral manifestations, whereas inquisitorial responses describe a more explicit evaluative or regulatory reaction. Their separate trajectories suggest that observing violence and responding to violence are analytically distinguishable processes.

The inquisitorial responses to criminal behavior trajectory of 0.11 are positive and significant but weaker than the corresponding relationship with the violence spiral. This difference is consistent with the proposition that inquisitorial responses are more closely connected to the process through which violence is maintained or transformed than to the criminal outcome itself. In other words, their principal structural relevance may occur at the intermediate level. This result supports the adjusted model's decision to retain the violence spiral as the central mechanism rather than treating every actor-related construct as a direct predictor of criminal behavior.

The relationship between spectator dynamics and inquisitorial responses is also conceptually important even though the adjusted model treats them as separate constructs. Spectators may observe, remain passive, intervene, or reinforce behavior, while inquisitorial actors engage more explicitly in questioning, confrontation, judgment, or regulation. The separation prevents the model from collapsing all third-party behavior into a single dimension. This differentiation is consistent with research showing that the behavioral response of observers varies according to the situational configuration and the perceived risks associated with intervention (Zhong, 2010). The model therefore recognizes heterogeneity among third-party responses.

The violence spiral also provides an explanation for why the model produces different magnitudes across direct and indirect relationships. Perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses do not need to exert equivalent direct effects on criminal behavior because their principal contribution may occur through different stages of the violent sequence. The adjusted structure indicates that perpetrator behavior has both a direct and an indirect route, spectator dynamics also retain both routes, and inquisitorial responses appear more strongly associated with the intermediate violence process than with the final outcome. Victim positioning is associated with the violence spiral but lacks a significant direct pathway toward criminal behavior. This differentiation provides greater explanatory precision than a model in which every antecedent is assigned an equivalent direct relationship with the outcome.

The findings can also be compared with social ecological research on public space and violence. Browning and Jackson (2013) demonstrated that the relationship between the presence of people in public spaces and exposure to severe violence can be nonlinear, indicating that the mere presence of other people does not automatically produce social protection or social risk. The adjusted model is compatible with this complexity because spectator dynamics are defined behaviorally rather than numerically. The relevant issue is not simply how many spectators are present but what they do within the violent situation. This distinction helps explain why spectator dynamics can be associated with both escalation and inhibition depending on the specific behavioral configuration.

The model also corresponds with research showing that exposure to violence can be associated with delinquent behavior through social and relational mechanisms. Barr et al. (2012) found that exposure to community violence was related to delinquent outcomes and that family cohesion affected the relationship. Their findings reinforce the proposition that violence is embedded in social relationships and that contextual mechanisms can alter the transition from exposure to behavioral outcomes. The adjusted model translates this broader ecological principle into a structural configuration in which victim positioning and spectator dynamics are connected to the violence spiral, while criminal behavior remains the principal endogenous construct.

An important contribution of the adjusted model is therefore the distinction between participation and direct causation. All four actor-related constructs can participate in the violence configuration without having equivalent direct relationships with criminal behavior. Perpetrator behavior has a direct pathway, victim positioning does not, spectator dynamics have a smaller direct pathway, and inquisitorial responses have a relatively limited direct pathway. This pattern suggests that the violent group should not be conceptualized as a homogeneous causal unit. Instead, each position has a different structural relationship with the process.

The model also modifies the idea that criminal behavior can be fully explained through individual predispositions. The results indicate that the violence spiral explains a large proportion of the variation in criminal behavior within the hypothetical model. The explanatory structure therefore moves from individual action toward interactional persistence. The criminal event is treated as part of a sequence in which prior actions modify subsequent opportunities, responses, and behavioral expectations. This approach is particularly relevant to situations in which violence is repeated or escalates over time.

The comparison with the state of knowledge also reveals a movement from unidirectional toward relational explanations. Earlier models reviewed in the underlying literature distinguished unidirectional, sequential, and dual configurations of violence, while the proposed model incorporates elements of each without being restricted to any one configuration. The unidirectional component remains visible in the direct perpetrator behavior to criminal behavior pathway. The sequential component appears in the movement from actor-related constructs through the violence spiral toward criminal behavior. The dual component appears in the reciprocal relevance of perpetrator and responding actors. The adjusted model integrates these dimensions within a single structural architecture rather than treating them as mutually exclusive models.

This integration also corresponds with the original model specification, which proposed that criminal behavior should be examined as the result of a cycle and spiral of violence involving perpetrator, victim, spectators, and inquisitorial actors. The original formulation explicitly argued that the state of knowledge had concentrated responsibility on the perpetrator while the reviewed models revealed broader participation by other actors. The present adjusted model develops that conceptual proposition into a differentiated structural configuration by demonstrating that the four actor positions do not have identical relationships with the outcome.

The model should nevertheless be distinguished from a claim that victims, spectators, or inquisitorial actors are morally or legally responsible for criminal behavior. The structural paths describe statistical and theoretical relationships among constructs. They do not establish equivalent responsibility among actors. The nonsignificant victim positioning to criminal behavior pathway reinforces this distinction because victim positioning is related to the violence spiral but does not demonstrate a direct relationship with the criminal outcome. The model therefore supports relational explanation without requiring an undifferentiated attribution of responsibility.

The adjusted model further indicates that the violence spiral should be regarded as the principal organizing construct. Its strong relationship with criminal behavior and its connections with all four actor-related dimensions

establish a central position within the structural architecture. The model can consequently be understood as a process in which actor-specific conditions converge, become transformed through repeated interaction, and eventually manifest as criminal behavior. The violence spiral is therefore neither merely an indicator of criminal behavior nor a background condition. It represents the structural mechanism connecting the social configuration with the endogenous outcome.

The comparison with the state of knowledge consequently suggests both convergence and extension. There is convergence with ecological research showing that violent behavior is embedded within multiple social levels, with research emphasizing the relevance of bystander behavior, and with research demonstrating that exposure and social context are associated with delinquent outcomes. There is extension because the adjusted model specifies these dimensions as interconnected latent constructs and assigns differentiated structural trajectories among them. The result is a model that moves beyond describing multiple influences and instead organizes them into a testable relational system.

Overall, the adjusted model indicates that criminal behavior is most adequately represented as the outcome of a dynamic configuration rather than as an isolated act. The perpetrator remains a significant component, but the violence spiral exhibits the strongest relationship with criminal behavior. Victim positioning contributes to the violence process without demonstrating a direct relationship with criminal behavior. Spectator dynamics contribute both to the violence spiral and to criminal behavior, while inquisitorial responses are more strongly connected with the violence spiral than with the final outcome. The resulting configuration places interaction, recurrence, escalation, and social response at the center of the explanation.

The theoretical implication is that criminal behavior should be studied through differentiated actor positions and the processes connecting those positions over time. The methodological implication is that structural modeling can distinguish direct pathways from pathways operating through an intermediate violence process. The empirical implication, subject to validation with observed data, is that the strongest explanatory component of criminal behavior may reside not in any single actor but in the cumulative organization of violence generated through interaction among actors. The adjusted model therefore provides a more precise representation of the transition from individual aggression to group violence and from group violence to criminal behavior.

Conclusion

The study developed a structural model of criminal behavior based on the premise that violence emerges through an interconnected configuration of actors, behaviors, and interactional processes. The adjusted model places perpetrator behavior, victim positioning, spectator dynamics, and inquisitorial responses within a broader violence spiral that connects individual actions with recurrent, escalating, and persistent patterns of group violence. This configuration provides a more differentiated account of criminal behavior than an exclusively perpetrator-centered approach because it distinguishes the specific structural contribution of each construct while avoiding the assumption that all actors have equivalent responsibility.

The results indicate that the violence spiral represents the central component of the model. Its relationship with criminal behavior constitutes the strongest structural trajectory, suggesting that repetition, escalation, reciprocity, persistence, and transformation of isolated violent events into recurrent group dynamics are particularly relevant to the emergence and maintenance of criminal behavior. The model therefore shifts the analytical emphasis from the isolated criminal act toward the process through which violent interactions become established and reproduced within a group.

Perpetrator behavior retains an important position within this configuration. Its direct relationship with criminal behavior indicates that individual conduct remains relevant, while its relationship with the violence spiral demonstrates that perpetrator behavior also contributes to the development of broader violent dynamics. The model consequently does not replace individual explanation with collective explanation. Instead, it integrates both levels by representing perpetrator behavior as an immediate behavioral component and the violence spiral as a relational mechanism through which violent conduct can acquire continuity and intensity.

Victim positioning produces a more differentiated pattern. Its relationship with the violence spiral indicates that the victim position is embedded within the development of violent interaction, whereas its direct relationship with criminal behavior is not supported in the adjusted model. This distinction is important because it separates analytical participation in a violent configuration from attribution of responsibility for criminal conduct. The model therefore provides a framework for examining victimization without treating the victim as a direct producer of criminal behavior.

Spectator dynamics and inquisitorial responses also demonstrate structural relevance. Their relationships with the violence spiral indicate that third-party observation, intervention, nonintervention, confrontation, questioning, judgment, and other responses can become components of the continuing interactional process. Their direct relationships with criminal behavior are weaker than the relationship involving the violence spiral, suggesting that their principal importance may occur through the transformation and persistence of violent dynamics. The model consequently recognizes the social environment as an active component of criminal events rather than as a passive background.

The principal scope of the model lies in its capacity to integrate individual, interpersonal, and group dimensions within a single structural framework. It can be used as an analytical basis for examining criminal behavior in settings where violence develops through recurrent interaction among multiple actors. It also provides a conceptual structure for distinguishing direct relationships from relationships mediated by a violence process. The model may therefore be useful for future empirical studies examining violence in educational, community, institutional, family, occupational, or digital environments, provided that the constructs are adapted to the characteristics of each setting.

Another important scope concerns prevention and intervention. Because the model identifies several points at which violent dynamics may develop or intensify, it allows future research to examine intervention opportunities before criminal behavior becomes established. Perpetrator behavior represents one possible point of intervention, while spectator responses and inquisitorial reactions represent additional points within the interactional sequence. The violence spiral provides a further point because interruption of repetition, escalation, reciprocity, or persistence could potentially modify the transition toward more established criminal behavior. These possibilities should be empirically evaluated rather than assumed from the structural model alone.

The principal limitation is that the present formulation originated from documentary evidence and model specification rather than from a verified empirical dataset. The numerical structural estimates previously presented are therefore hypothetical and should not be treated as observed population parameters. The proposed relationships require empirical testing with primary data before substantive conclusions can be generalized. In particular, the magnitude, direction, statistical significance, and predictive performance of each trajectory must be established through an independently collected dataset.

A second limitation concerns temporal delimitation. The documentary corpus was restricted to publications from 2009 through 2014. This restriction provides consistency with the defined state of knowledge but limits the

representation of subsequent theoretical and empirical developments. Changes in digital environments, social networks, surveillance technologies, online violence, and contemporary forms of collective interaction may have introduced mechanisms that are not fully represented in the selected period.

A third limitation concerns the operationalization of the constructs. Concepts such as victim positioning, spectator dynamics, inquisitorial responses, and violence spiral are multidimensional and may vary substantially across cultural and institutional contexts. Their indicators should therefore undergo additional content validation and empirical refinement before being treated as stable measurement instruments. Future studies should examine whether the proposed reflective specification remains appropriate or whether some constructs would be better represented through alternative measurement structures.

A fourth limitation concerns causal inference. A cross-sectional or documentary foundation cannot establish temporal causality among the constructs. Even if future PLS SEM analyses produce statistically significant structural paths, such associations should not automatically be treated as definitive causal relationships. Longitudinal designs, panel studies, event-based observations, and repeated measurements would provide stronger evidence concerning whether perpetrator behavior, spectator dynamics, victim positioning, and inquisitorial responses precede changes in the violence spiral and whether changes in the violence spiral precede changes in criminal behavior.

A fifth limitation concerns contextual heterogeneity. The model treats the four actor-related constructs as analytically distinct, but their practical meaning may differ according to social environment, institutional rules, cultural norms, age composition, organizational structure, and type of violence. A spectator in a public setting may behave differently from a spectator in an educational institution, while an inquisitorial response in a formal institution may differ substantially from an informal confrontation among peers. The structural model should therefore be tested across contexts rather than assuming universal equivalence.

Future research should begin with empirical validation of the proposed measurement model using sufficiently large samples and clearly defined populations. Indicator reliability, internal consistency, convergent validity, discriminant validity, measurement invariance, and predictive relevance should be examined before interpreting the structural relationships. The model should subsequently be tested with independent samples to determine whether the structural configuration is replicable.

Longitudinal research is particularly recommended because the concept of a violence spiral inherently involves temporal development. Repeated measurements could determine whether initial perpetrator behavior predicts subsequent escalation, whether spectator and inquisitorial responses modify later episodes, and whether victim positioning changes across successive stages of the violent process. Such designs would provide a stronger basis for distinguishing temporal sequence from simple statistical association.

Comparative research should also examine whether the structural configuration varies across social and institutional contexts. Multi-group analyses could determine whether the trajectories differ according to setting, type of violence, demographic composition, institutional characteristics, or other theoretically relevant conditions. Such analyses would clarify whether the model represents a general structural configuration or whether different forms of violence require context-specific adaptations.

Future studies should additionally examine mediation and moderation mechanisms in greater depth. The violence spiral is particularly suitable for mediation analysis because the proposed model places it between actor-related constructs and criminal behavior. Moderating variables could subsequently be incorporated to examine

whether social cohesion, informal control, institutional regulation, perceived legitimacy, environmental disorder, or other contextual characteristics strengthen or weaken the structural trajectories.

The operationalization should also be expanded through multiple sources of evidence. Self-report measures could be complemented by behavioral records, institutional reports, observational data, anonymized incident records, and other ethically collected sources. Multi-source measurement would reduce dependence on a single perspective and could provide a more comprehensive representation of the interactional processes specified by the model.

Ethical safeguards should remain central to future empirical applications. Research involving criminal behavior and violence requires careful protection of participants, particularly when victims, perpetrators, witnesses, or vulnerable populations are involved. Data collection should minimize identification risks, avoid unnecessary exposure to traumatic material, establish procedures for confidentiality and secure data management, and distinguish scientific analysis from legal attribution of responsibility. The constructs should be presented as analytical categories rather than as labels that determine individual culpability.

In conclusion, the adjusted model proposes that criminal behavior is best examined as a dynamic outcome emerging from the interaction of multiple actor positions and the cumulative development of violence. Perpetrator behavior remains directly relevant, but the violence spiral provides the principal structural connection with criminal behavior. Victim positioning contributes to the violent process without demonstrating a direct pathway to criminal behavior, while spectator dynamics and inquisitorial responses contribute both to the violence process and, to a lesser extent, directly to the outcome. The resulting framework offers a basis for moving from isolated explanations of criminal conduct toward a relational and process-oriented model. Its principal value, however, will depend on rigorous empirical validation, longitudinal examination, contextual comparison, and ethical application in future research.

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Appendix A. Operationalization of Variables

Table A1

Operationalization of Perpetrator Behavior

Construct	Dimension	Indicator	Measurement
Perpetrator behavior	Initiation	PB1. Initiates aggressive or violent actions	Reflective, five-point scale
Perpetrator behavior	Repetition	PB2. Repeats aggressive or violent actions	Reflective, five-point scale
Perpetrator behavior	Escalation	PB3. Increases the intensity or frequency of violent actions	Reflective, five-point scale
Perpetrator behavior	Reinforcement	PB4. Maintains violent behavior through social or situational reinforcement	Reflective, five-point scale

Table A2

Operationalization of Victim Positioning

Construct	Dimension	Indicator	Measurement
Victim positioning	Exposure	VP1. Experiences direct exposure to violent situations	Reflective, five-point scale
Victim positioning	Recurrence	VP2. Experiences repeated exposure to violence	Reflective, five-point scale
Victim positioning	Interactional vulnerability	VP3. Becomes vulnerable through interactions within the violent context	Reflective, five-point scale
Victim positioning	Subsequent involvement	VP4. Becomes involved in subsequent stages of the violent interaction	Reflective, five-point scale

Table A3

Operationalization of Spectator Dynamics

Construct	Dimension	Indicator	Measurement
Spectator dynamics	Observation	SD1. Observes violent events or interactions	Reflective, five-point scale
Spectator dynamics	Intervention or nonintervention	SD2. Intervenes or remains passive during violent interactions	Reflective, five-point scale
Spectator dynamics	Reinforcement or inhibition	SD3. Reinforces or inhibits violent behavior through social responses	Reflective, five-point scale
Spectator dynamics	Social response	SD4. Provides social responses that influence the continuation of violence	Reflective, five-point scale

Table A4

Operationalization of Inquisitorial Responses

Construct	Dimension	Indicator	Measurement
Inquisitorial responses	Confrontation	IR1. Confronts participants involved in violent interactions	Reflective, five-point scale
Inquisitorial responses	Questioning	IR2. Questions the circumstances and participants associated with violence	Reflective, five-point scale
Inquisitorial responses	Social judgment	IR3. Produces social judgments concerning violent behavior	Reflective, five-point scale
Inquisitorial responses	Sanctioning	IR4. Supports or applies sanctions in response to violence	Reflective, five-point scale
Inquisitorial responses	Interruption	IR5. Attempts to interrupt or prevent the continuation of violence	Reflective, five-point scale

Table A5

Operationalization of Violence Spiral

Construct	Dimension	Indicator	Measurement
Violence spiral	Repetition	VS1. Violent interactions are repeated over time	Reflective, five-point scale
Violence spiral	Escalation	VS2. Violent interactions increase in intensity or frequency	Reflective, five-point scale
Violence spiral	Reciprocal responses	VS3. Participants respond to previous violent actions with additional actions	Reflective, five-point scale
Violence spiral	Persistence	VS4. Violent interactions persist despite previous responses	Reflective, five-point scale
Violence spiral	Transformation	VS5. Isolated violent incidents develop into recurrent interactional dynamics	Reflective, five-point scale

Table A6

Operationalization of Criminal Behavior

Construct	Dimension	Indicator	Measurement
Criminal behavior	Manifestation	CB1. Violence becomes manifested through behavior associated with criminal conduct	Reflective, five-point scale
Criminal behavior	Recurrence	CB2. Criminally relevant behavior occurs repeatedly	Reflective, five-point scale
Criminal behavior	Escalation	CB3. Criminal behavior increases in intensity or frequency	Reflective, five-point scale
Criminal behavior	Diversification	CB4. Criminal behavior expands across different forms of conduct	Reflective, five-point scale
Criminal behavior	Persistence	CB5. Criminal behavior continues across situations or periods	Reflective, five-point scale

Table A7

Structural Configuration of the Model

Exogenous construct	Mediating construct	Endogenous construct
Perpetrator behavior	Violence spiral	Criminal behavior
Victim positioning	Violence spiral	Criminal behavior
Spectator dynamics	Violence spiral	Criminal behavior
Inquisitorial responses	Violence spiral	Criminal behavior
Violence spiral	—	Criminal behavior

The proposed measurement model treats all constructs as reflective latent variables. The structural model specifies Violence Spiral as the principal mediating mechanism connecting the behavioral and interactional positions of perpetrators, victims, spectators, and inquisitorial actors with Criminal Behavior.