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The Influence Factors in Elementary and Junior High School Bullying - Based on the Interpretative Structural Modeling

Wen CAO¹, Xianglan ZHANG², Qing ZHANG³, You LI⁴

Abstract

To explore the root factors in school bullying for fundamentally preventing school bullying, interpretative structural modeling is applied to construct the multilevel hierarchical structure model for influence factors in elementary and junior high school bullying. The results reveal that psychological factors and habits are the direct factors in elementary and junior high school bullying, law enforcement, physiological factors, and national legislation are the mediating factors, and the field and capital of family factors, school factors, and social factors are the root factors. According to the model analysis, it is suggested to construct the multiple collaboration mechanism for preventing school bullying from root factors.

Keywords: elementary and junior high school, school bullying, influence factor, interpretative structural modeling, social network, social status.

¹ Ludong University, School of Educational Science, Yantai City, Shandong, CHINA. E-mail: hzcw0210@hotmail.com

² Ludong University, School of Educational Science, Yantai City, Shandong, CHINA. E-mail: xlzh@ldu.edu.cn

³ Shandong Youth University of Political Science, College of Politics and Public Administration, CHINA. E-mail: sdyuqingz@hotmail.com

⁴ Suzhou Early Childhood Education College, Suzhou City, Jiangsu, CHINA. E-mail: you776371@gmail.com (*Corresponding author*)

Introduction

School bullying has existed in various schools globally, and it is no exception domestically. Distinct bullying phenomenon, such as physical, verbal, relationship, and sexual bullying, appears from kindergartens to universities. It is worth noting that bullying is a complicated dynamic process with huge influence on adolescent physical and mental health and even the later personality development and social life response. Adolescent might experience the change in different roles during the bullying process, including bullies, victims, victims/bullies, and bystanders. However, domestic research still focuses on single characteristics of school bullying phenomenon, bully or victim traits, and treatment, but ignore that the party often experiences more than an identity in the bullying process. It is also possible that role overlap appears in the same period; or, bullying might be terminated due to some critical factors or a turning point in the growth process. Not all bullying actors would sink into the bad cycle; certain turning point in the life or the support of social network might terminate the way to cope with pressure by bullying others. Research reveals the positive correlation between bullying and crime, but there is the chance to change in individual interaction with the environment. Factors or the turning point to terminate bullying to cope with bullying should be emphasized and reinforced.

To clarify influence factors in elementary and junior high school bullying and analyze the multilevel hierarchical relationship among influence factors and the internal mechanism are the key links to prevent school bullying. A lot of scholars, based on various perspectives, studied influence factors in school bullying with theoretical speculation and questionnaire survey, reasonably interpreted the generation of school bullying, and provided certain theoretical guidance for school bullying prevention. Nevertheless, such research was restricted to general simple enumeration and theory deduction of influence factors, but lacked the exploration of the structure among factors in elementary and junior high school bullying and did not reveal the relationship among influence factors and the effect on school bullying. The guidance to practice the prevention from school bullying was limited. The basis for preventing school bullying is to find out root factors in school bullying and take corresponding measures. Interpretative structural modeling presents great advantages on clarifying the structure level of influence factors in school bullying and showing the logic relation among factors and could benefit implementing the organization and gradation of multiple influence factors. For this reason, this study attempts to analyze the hierarchical relational structure of influence factors in school bullying through interpretative structural modeling to construct influence factors in elementary and junior high school bullying, to find out the root factors in the generation of school bullying, and to propose targeted suggestions, expecting to effectively avoid the occurrence of school bullying.

Literature review

Glambek *et al.* (2018) mentioned that World Health Organization regarded bullying as an issue of public health, had the same academic definition of bullying, and considered an individual being exposed to physical or emotional attacks, e.g. ridicule, unpleasant nickname, sarcasm, harassment, threat, tease, rumor, or social alienation, as the element of bullying. Most empirical research on bullying referred to the definition of Yun & Kang (2018), including the indices of (1) being physically harmed or indirectly injured, e.g. being teased, crowded out, or gossiped; (2) being repeatedly hurt; (3) unequal power between victims and perpetrators. Baranik *et al.* (2017) proposed five elements of school bullying, as (1) bullying behavior; (2) intentional injury; (3) physiological and psychological hurt; (4) unequal power (status) between both parties, and (5) bullying events confirmed by school bullying prevention groups.

Leon & Morales (2018) divided deviant behavior generated by the experience in school bullying into externalized deviant behavior, internalized deviant behavior, and school adaptation problem. Externalized deviant behavior referred to attack or counterattack problematic behavior, such as fight, carrying a weapon, theft, and vandalism; internalized deviation indicated self-harm or suicidal ideation; and, school adaptation problem covered low academic performance, in-school interpersonal relationship adaptation, and attendance. Such deviant behaviors might appear on victims and bullies that they are the mental health problem worth of discussion as well as a primary item to prevent crime. Barlett (2017) indicated that bullies, due to low frustration tolerance and more impulsive, would bully others to prove themselves or obtain the domination among peers. Karwowski *et al.* (2016) stated that some bullies were victims, whose aggrieved experience caused them to bully others for covering the interpersonal dilemma of being isolated or alone. Fluck (2018) explained that victims might well know fighting back as an improper response; however, under the premise of original law of survival, they still responded with bullying when there was no fundamental solution. Maguire & Delahunt (2017) indicated that adolescent girls, despite the bullying was formed by active power use or conforming external force, might present the psychological problems of low frustration tolerance, impulse, low self-value, being afraid of being isolated, or demand for others' affirmation. It became the mental health issue which could not be ignored.

Bortolon *et al.* (2019) stated that, in comparison with victims' low social status in a group, bullies seemed to be psychologically strong-willed and presented high social status in the group. Gruber & Fineran (2016) indicated that bullies presented more power advantages in the dynamic interpersonal relationship, containing tall, strong, special skills, and favored by teachers

or peers, so that they had chances and resources to bully others. Savage & Tokunaga (2017) argued that bullies might look impressive and confident, but a lot of them found out their confidence or released the internal anxiety by bullying and controlling others. Williford *et al.* (2016) indicated that many bullies and victims showed bad academic performance at school to relatively appear low self-evaluation. Moreover, a lot of bullies and victims felt hopeless due to negative experience of worse interaction with external systems, unhealthy family structure, alienated peer relationship, and bad interaction with teachers. Patton *et al.* (2017) mentioned that there was much regular obstruction on bullying related parties, such as lack of gender equality and character education at school, bully and victim assistance programs, and mass media shaping negative labels on bullies, so that bullies and victims had no accessible resource to take actions or change behaviors. Magee *et al.* (2017) stated that some people with drastic changes could still cope with traumatic experience and grow in the impact, while some others would sink into traumatic experience and constantly experience traumatic pain and torture. The influence factors covered the dimensions of individual, family, school, and society.

Methodology

Research method

Interpretative structural modeling is utilized in this study. Interpretative structural modeling (ISM), originally used for analyzing complicated social economic system problems, shows the features of decomposing a complicated system into subsystems/elements, utilizing people's practical experience and knowledge, and with the help of computer explanations to eventually construct the system as a multilevel hierarchical structure model. Interpretative structural modeling could divide influence factors in school bullying into different levels and present the mutual relationship among factors.

Research thought: First, according to existing research conclusions, influence factors in school bullying are concluded. Second, influence factors in elementary and junior high school bullying are further defined through interviews. Selection indicators are further established with interpretative structural modeling, and experts in different subjects are invited to establish the adjacency matrix according to the relationship among factors. MATLAB 12a is used for calculating the structure hierarchical relationship among factors to acquire the accessibility matrix, which is preceded inter-stage decomposition to clarify the logic relation

among influence factors in school bullying. Finally, suggestions for preventing school bullying are proposed.

Data source

Two data sources are covered in this study. The indirect source is based on existing research conclusions. Domestic and international research on influence factors in school bullying is the major reference for confirming the influence factors in school bullying in this study. Such research results focus on physiological factors (Smith *et al.*, 2010; UNESCO, 2016), involving in age, gender, and appearance features, psychological factors (Van Geel *et al.*, 2018; Zych, Ttofi, & Farrington, 2019), mainly concerning about depression, anxiety, and self-esteem, school factors (Casas, Ortega-Ruiz, & Del Rey, 2015; Huang *et al.*, 2018; Thornberg, Wanstrom, & Pozzoli, 2017), including school environment, teacher management, and teacher-student relationship, family factors (Kaufman *et al.*, 2019; Pickett & Wilkinson, 2008; Rigby, 2010), involving in family economic background, family relationship, and family parenting styles, and social factors, containing social anomie, social change, and legal system. The direct source is obtained through interviews. To better construct the interpretative structural modeling, 21 bullies, 16 victims, 4 bullying/victims, 10 bystanders, and 5 teachers in 12 elementary and junior high schools are preceded semi-structured interviews, mainly investigating student personality, family hard environment, family soft environment, education concept, and education practice. The same interview is adopted for inquiring the opinions of 12 experts in different subjects to eventually confirm the influence factors in school bullying.

Results

Confirmation of influence factor

From the comprehensive points of view of domestic and international scholars, factors in school bullying are preliminarily confirmed, containing individual factors, family factors, school factors, and social factors. Furthermore, 56 respondents are preceded in-depth interview and crosscheck to further realize the influence factors in school bullying, which are combined and de-duplicated by inquiring expert opinions. Eventually, 11 factors, in 4 dimensions, in elementary and junior high school bullying are confirmed in this study, *Table 1*.

Table 1: Influence factors in elementary and junior high school bullying

Factor type	Specific influence factor	Code	Factor description
individual factors	psychological factor	A1	Student's individual cognition, emotion, will, attitude, personality, temperament, and ability
	physiological factor	A2	Student's individual age, gender, appearance features, and genetic factors
family factors	family hard environment	B1	Family structure, parents' occupation, parents' cultural standard, family economic conditions
	family soft environment	B2	Family relationship, family parenting styles
school factors	education concept	C1	Education value orientation, education objective, and school culture
	education practice	C2	Education content, education methods, school management, and teacher-student relationship
social factors	habit	D1	Contact methods, conversation methods
	field	D2	Social rules, power
	capital	D3	Cultural capital, economic capital, and social capital
	national legislation	D4	Special legislation to prevent school bullying, legislation of punishment for relevant responsible parties
	law enforcement	D5	Accountability of direct/indirect bullying participants, accountability of relevant persons responsible for school bullying events

Establishment of matrix

The confirmation of direct relationship among influence factors in school bullying is the premise and basis to construct the adjacency matrix. Row elements and column elements in the matrix with directed direct influence factors are marked "1"; otherwise, they are marked "0". According to the comprehensive analysis of expert opinions, the adjacency matrix N with influence factors in school bullying is acquired.

An accessibility matrix refers to the accessibility of nodes in the directed connection diagram described with a matrix, after certain length of channel, and presents the characteristics of passing law. Summing the adjacency matrix N and the unit matrix I, i.e. N+I, and proceeding power operation, Boolean matrix algorithm is used for the calculation till the following equation is satisfied.

When $(N + I)^{k-1} \neq (N+I)^k = (N+I)^k + I$, matrix $R=(N+I)^k$ is acquired.

For convenient operation, MATLAB 2012a is applied to calculate the accessibility matrix of influence factors in elementary and junior high school bullying.

According to the operation result, influence factors in school bullying are preceded hierarchical separation to define the correlation among factors and the effect level on school bullying. First, the accessible set $R(N_i)$ and the antecedent set $A(N_j)$ are calculated according to the accessibility matrix to further calculate the common set $C(N_i)=R(N_i)\cap A(N_j)$. The factor hierarchy is further divided. When $C(N_i)=R(N_i)\cap A(N_j)$ or $C(N_i)=R(N_i)$, hierarchical extraction is preceded. According to the result, the set of $\{A1,D1\}$ is the accessible set and the antecedent set in the first level satisfying $R(N_i)\cap A(N_j)$ that the first-level factors in school bullying, $L1=\{A1,D1\}$, is acquired. It also explains that individual psychological factors and field factors directly affect the occurrence of school bullying. Accordingly, A1 row and A1 column as well as D1 row and D1 column in accessibility matrix R are removed to acquire the second-level accessible set and antecedent set and further confirm the second-level influence factors in school bullying, $L2=\{D5\}$.

Repeat the process till the factors in the lowest level are divided. Removing the reflexive relationship of factors, the interpretative structural modeling for influence factors in school bullying is constructed, *Figure 1*.

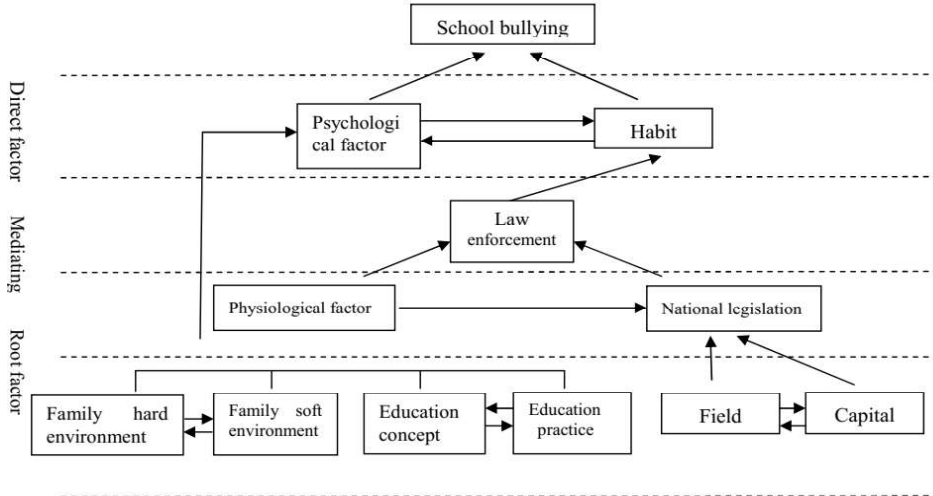


Figure 1: Interpretative structural modeling of influence factors in elementary and junior high school bullying

Discussion

According to interpretative structural equation model, the hierarchical structural model could be divided into surface layer, middle layer, and fundamental layer factors. From Figure 1, surface-layer factors would directly affect the occurrence of school bullying, middle-layer factors, with the mediating effect, are affected by deep-layer factors and would affect surface-layer factors, and deep-layer factors are the roots of school bullying. That is, interpretative structural modeling could divide influence factors in school bullying into direct factors, mediating factors, and root factors.

Analysis of direct factors

Psychological factors and habits are the direct factors in elementary and junior high school bullying, and are interactive. That is, a student's individual cognition, emotion, will, personality, contact methods, and conversation methods would directly affect the behavior selection. Individual cognition of hostile deviation, lonely moral sentiment, imperfect will, and bad contact is the direct inducement to school bullying.

Analysis of mediating factor

Mediating factors in school bullying are composed of influence factors in the second and third levels, which are mutually related. The second-level factors refer to the enforcement of domestic elementary and junior high school bullying cases and the feeble accountability mechanism of responsible persons. Since elementary and junior high school students are juveniles, the accountability for school bullying is not blindly on individual bullies, but should involve in other responsible subjects, including the parents, teachers, and schools of bullies. The interview reveals that the accountability of elementary and junior high school bullies is weakened and the accountability for schools, related teachers, and parents is ambiguous. It becomes an important inducement to school bullying.

Analysis of root factor

Root factors are the fundamental factors in elementary and junior high school bullying to directly or indirectly affect other factors. Root factors in school bullying focus on the field and capital of family factors, school factors, and social factors, and the field and capital between internal family factors, school factors, and social factors appear return.

Analysis of hierarchical relationship of factors

From the model diagram, two major factors would directly result in school bullying. One is individual psychological function, caused by individual moral sentiment loss, imperfect will quality, improper self-esteem and self-confidence, and stronger aggressiveness. The other is habit function, mainly inducing school bullying through individual bad contact and conversation methods. Generally speaking, the paths for school bullying contain family factors→psychological factor→school bullying, school factors→psychological factor→school bullying, physiological factor→law enforcement→habit→school bullying, and field/capital→national legislation→law enforcement→habit→school bullying in social factors. As the example of the effect of capital on school bullying, cultural capital, economic capital, and social capital, to some degree, would affect the standards and applicability of national legislation. Absent national legislation could easily result in lax enforcement. For instance, domestic specific legislation for school bullying is still absent that it might result in “no law to follow” for the punishment after bullying events and “passively” get in the deadlock of lax enforcement. Elementary and junior high school bullies are generally younger than the age for criminal penalties and, to some degree, enjoy legally condoned “preferential treatment”. Such “lenient” treatment could more easily induce students’ bad habits and further cause the occurrence of school bullying. It also explains such a path of “root factors→mediating factors→direct factors→school bullying”.

Conclusion

From above analyses, factors in elementary and junior high school bullying are multiple and compound. Influence factors in school bullying under the frame of interpretative structural modeling presents four-level three-hierarchy appearance. Psychological factors and habits are affected by mediating factors and deep-layer factors, and the mutual effects of the two would directly induce school bullying. Mediating factors are composed of factors in the second and third levels. Second-level factors mainly refer to law enforcement problems, and third-level factors reflect physiological factors and national legislation problems. In regard to the effect of physiological factors on legislation, physiological factors and national legislation would collaboratively affect law enforcement. Root factors are the fundamentality to influence the occurrence of elementary and junior high school bullying and would directly or indirectly affect other factors, mainly focusing on family hard environment and family soft environment in family factors, education concept and education practice in school factors, as well as field and capital in social factors. Moreover, there is return among internal family, school, and social factors. Based on the analysis of factors in elementary and junior high school bullying with interpretative structural modeling, the structure hierarchy of

influence factors in elementary and junior high school bullying and the mutual relationship are clearly analyzed, based on which targeted prevention suggestions could be proposed.

Suggestion

It is necessary to start from root factors for fundamentally preventing elementary and junior high school bullying. The point is to concern about field and capital of family factors, school factors, and social factors. It not only has to concern about the diversity of prevention subjects, but also could not ignore the connection among subjects. Meanwhile, a prevention chain from “prevention” in prior period to “governance” in the last period should be formed. It means to pay attention to multidimensional crisis warning, implement the multidimensional linkage prevention of family, school, and society, and make sure of family responsibilities, school duties, and social responsibilities. The enhancement of the safety prevention of internal/external linkage presents distinct dimensions on family, school, and society. The reinforcement of punishment and alert should be implemented, family punishment and alert could be reasonably applied, school punishment and alert should be regulated and practiced, and social punishment and alert should be timely introduced. Multiply co-constructed supervision and management should be emphasized to pay attention to family-school-society supervision and restraint. The creation of global situations with multidimensional alerts, coupling protection, joint disciplinary, and diverse co-management should be emphasized to construct the multiple collaboration mechanism for preventing school bullying.

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