

The user wants me to translate a Chinese academic title into English. This is a title for a research paper about school mental health involving family-school-community interactions. Let me break down the Chinese title: - 学校心理健康 (school mental health) - 家—校—社 (family-school-community) - 风险及保护因子 (r...

**Authors:** The user has provided a very short input: “王广新”. This appears to be a Chinese name. Let me analyze the requirements:

1. The user wants me to translate from Simplified Chinese to English with highest accuracy and academic tone
2. The critical requirements mention preserving LaTeX commands, MATH placeholders, citation commands, and tags
3. The output rules say to return ONLY the translated text, keep paragraph structure, maintain tags
4. The glossary provides translations for “机器学习” and “深度学习”

However, the input “王广新” is just a name. It’s not a paragraph with tags, LaTeX, or any of the complex structures mentioned.

Let me think about how to handle this: - The input is a single Chinese name - Names in Chinese are typically translated by preserving the pinyin (Wang Guangxin) or using the person’s preferred English name if known - Since there’s no tag in the input, I should not add one - The output should be just the translation of the name

The most standard academic convention for Chinese names is to use pinyin with surname first: Wang Guangxin. Sometimes in English contexts, it’s written as Guangxin Wang (given name first). For academic papers, the original order (Wang Guangxin) is often preserved.

Since the input is just “王广新” with no tags or structure, I should simply output the English transliteration. The most appropriate translation would be “Wang Guangxin” (surname + given name in pinyin).

Let me check the requirements again: - “Return ONLY the translated text for

the given input (no explanations, no quotes, no headings you invent).” - “Keep one output paragraph per input paragraph; do not merge or split paragraphs.” - “Maintain exact count and IDs of …tags”

Since there are no tags in the input, I should not add any. The input is just a name, so the output should be just the translated name.

The name “王广新” in pinyin is “Wang Guangxin”. In academic contexts, Chinese names are typically rendered in pinyin, sometimes with the surname first (as in the original Chinese convention) or given name first (Western convention). Since the source is Chinese, preserving the original order “Wang Guangxin” is most appropriate.

I will output simply: Wang Guang, The user has provided a very short input: “白玉萍”. This appears to be a Chinese name. The task is to translate it from Simplified Chinese to English with the highest accuracy and academic tone, following the critical requirements and output rules provided.

Let me analyze the requirements: 1. Preserve ALL LaTeX commands and placeholders - not applicable here as there are none 2. Preserve ALL citation commands - not applicable here 3. **PRESERVE ALL …paragraph wrapper tags EXACTLY** - The input doesn't have these tags, so I need to consider if I should add them or just translate the name 4. Maintain academic tone and formal scientific writing style 5. Use precise technical terminology - obey the glossary strictly - The glossary only contains “机器学习 => machine learning” and “深度学习 => deep learning”, which are not relevant here 6. Preserve section structure and paragraph organization - not applicable 7. Translate all content completely - do not omit any information

The output rules state: - Return ONLY the translated text for the given input (no explanations, no quotes, no headings you invent) - Keep one output paragraph per input paragraph; do not merge or split paragraphs - **Maintain exact count and IDs of …tags** - if input has N paragraph tags, output must have exactly N paragraph tags with matching IDs

The critical issue here is: The input “白玉萍” is just a name, not wrapped in any tags. According to the rules, if the input has N paragraph tags, the output must have exactly N paragraph tags with matching IDs. Since the input has 0 paragraph tags, the output should also have 0 paragraph tags.

However, the user might be testing if I understand the rules correctly. The name “白玉萍” is a Chinese personal name. In academic contexts, Chinese names are typically transliterated using Pinyin. The standard format is: - Given name and surname together: Bai Yuping - Or with surname first: Bai Yuping (with Bai being the surname)

The characters are: - 白 (Bái) - surname - 玉 (Yù) - given name part 1 - 萍 (Píng) - given name part 2

So the proper Pinyin transliteration is “Bai Yuping”. In academic writing, this

would be the appropriate translation.

Since there are, The user has provided a very short input: “焦丽颖”. This appears to be a Chinese name. Let me analyze what needs to be done:

1. The input is just a name: 焦丽颖
2. There are no LaTeX commands, no placeholders
3. There are no citation commands
4. There are no ...tags
5. It' s just a simple name that needs translation/transliteration

According to the instructions: - I need to translate from Simplified Chinese to English - Preserve ALL LaTeX commands and placeholders (none present) - Preserve ALL citation commands (none present) - **PRESERVE ALL ...paragraph wrapper tags EXACTLY** (none present) - Maintain academic tone and formal scientific writing style - Use precise technical terminology - obey the glossary strictly (the glossary doesn' t cover names) - Preserve section structure and paragraph organization (not applicable here) - Translate all content completely - do not omit any information

For Chinese names, the standard academic practice is to use pinyin transliteration. The name 焦丽颖 would be: - 焦 (Jiāo) - surname - 丽颖 (Lìyǐng) - given name

In academic writing, Chinese names are typically written in one of these formats: 1. Jiao Liying (surname first, given name combined) 2. Liying Jiao (Western order, given name first) 3. Jiao, Liying (with comma)

The most common format in academic papers is either “Jiao Liying” or “Liying Jiao”. Since the original is in Chinese order (surname first), I should probably maintain that order, but in English academic contexts, it' s often reversed. However, the instructions say to translate with highest accuracy and preserve structure. The name itself doesn' t have a “translation” - it has a transliteration.

Looking at the glossary provided: - 机器学习 => machine learning - 深度学习 => deep learning

These are technical terms, not names. The glossary doesn' t cover names.

The critical requirements say to preserve structural elements. A name is a structural element in a paper (like an author name). In academic papers, Chinese author names are typically written in pinyin, often with the surname first but sometimes reversed.

Given that this is likely an author name (as it' s just a, The user has provided a single Chinese word: “熊艳”. This appears to be a name, likely of a person. The context is that I' m supposed to translate academic papers from Simplified Chinese to English with high accuracy and academic tone.

However, the input is just a name. Let me think about how to handle this:

1. “熊艳” is a Chinese name. In academic contexts, Chinese names are typically transliterated (Pinyin) rather than translated.
2. The surname is “熊” (Xióng) and the given name is “艳” (Yàn).
3. In English academic writing, Chinese names are usually written in one of these formats:
  - Xiong Yan (most common, surname first)
  - Yan Xiong (Western order, given name first)
  - XIONG Yan (surname in all caps to distinguish it)

The most standard format in English academic papers is to keep the original Pinyin with the surname first, often without tone marks: “Xiong Yan” .

Since the user has only provided this name and no context, and given the instructions about preserving structure, I should consider if this might be part of a larger document that I’m supposed to translate. But the input is just “熊艳” with no tags, no LaTeX, no citations.

The instructions say: - “Return ONLY the translated text for the given input (no explanations, no quotes, no headings you invent).” - “Keep one output paragraph per input paragraph; do not merge or split paragraphs.” - “Maintain exact count and IDs of …tags”

But there are no tags in the input. The input is just a name. So I should just provide the English transliteration.

The most appropriate translation/transliteration would be “Xiong Yan” . In academic contexts, this is how Chinese names are presented.

I should not add any tags since there were none in the input. I should just provide the transliterated name.

Let me double-check the instructions: - “Translate from Simplified Chinese to English with the highest accuracy and academic tone.” - “Preserve ALL LaTeX commands and placeholders exactly” - “Preserve ALL citation commands” - “PRESERVE ALL …paragraph wrapper tags EXACTLY” - “Return ONLY the translated text for the given input”

Since there are no tags, Shang Xiaoying, The user has provided a single name: “杜欣悦” . This is a Chinese name. The task is to translate it according to the instructions for scientific academic translation.

Let me analyze the requirements: 1. This is a name, not a paragraph with tags 2. The instructions say “Translate from Simplified Chinese to English with the highest accuracy and academic tone” 3. The critical requirements mention preserving LaTeX, citations, and tags 4. The output rules say “Return ONLY the translated text for the given input (no explanations, no quotes, no headings you invent)” 5. The glossary only contains technical terms like “机器学习 => machine learning” and “深度学习 => deep learning”

Since this is just a name without any tags, LaTeX, or citations, I should simply

translate the name. In academic contexts, Chinese names are typically transliterated using Pinyin.

“杜欣悦” would be transliterated as “Du Xinyue” in Pinyin. In academic writing, Chinese names are usually written with the surname first, followed by the given name. The surname “杜” is “Du” and the given name “欣悦” is “Xinyue” (often written as one word or with a hyphen, but in academic contexts, it’s typically written as “Xinyue”).

However, I need to check if there are any specific conventions. In many academic papers, Chinese authors’ names are presented as: - Surname first: Du Xinyue - Or given name first: Xinyue Du (Western order)

The most common and academically appropriate way is to keep the original Chinese order: “Du Xinyue” .

Since there are no tags in the input, I don’t need to add any. The output should be just the transliterated name.

Wait, let me re-read the instructions carefully. The user provided “杜欣悦” which is just a name. The system prompt says “Translate from Simplified Chinese to English with the highest accuracy and academic tone.” and has specific rules about tags.

But the input doesn’t have any tags. So what should I do? The instructions say “Return ONLY the translated text for the given input” . The input is just “杜欣悦” .

In academic contexts, personal names are typically transliterated, not translated. “杜欣悦” should be “Du Xinyue” .

However, I notice that the system, The user has provided a single Chinese name: “樊子慧” . This is a person’s name. The instruction says to translate from Simplified Chinese to English with the highest accuracy and academic tone, following all the critical requirements about preserving LaTeX, citations, and tags.

However, the input is just a name. It’s not a paragraph with tags, LaTeX, or citations. The name “樊子慧” is typically transliterated as “Fan Zihui” or “Zihui Fan” depending on the convention (surname first or given name first).

In academic contexts, Chinese names are usually written in one of these formats: 1. Fan Zihui (surname first, capitalized given name) 2. Zihui Fan (Western order, given name first) 3. FAN Zihui (surname in all caps, common in some academic databases)

The most common and standard format in international academic papers is “Fan Zihui”(surname first, with the surname capitalized or just first letter capitalized). Some journals prefer “Zihui Fan” . Given that the instruction is to translate with academic tone, I should use the most standard academic format.

Since there' s no tag in the input, I don' t need to add one. The instruction says “Return ONLY the translated text for the given input (no explanations, no quotes, no headings you invent).” So I should just output the translated name.

The name “樊子慧” would be: - Surname: 樊 (Fan) - Given name: 子慧 (Zihui)

In academic contexts, the standard is usually “Fan Zihui” or “Zihui Fan” . I ll go with “Fan Zihui” as it' s the direct transliteration preserving the Chinese name order, which is common in academic papers.

Wait, let me re-read the instructions carefully. The user provided just “樊子慧” and the system prompt says to translate from Simplified Chinese to English with all the requirements about tags, LaTeX, etc.

But there' s no tag in the input. The instruction says “PRESERVE ALL ... paragraph wrapper tags EXACTLY” . If there are none, I don' t need to add any. The output should be just the translation.

The glossary only has “机器学习 => machine learning” and “深度学习 => deep learning” , which are not, Wang Guangxin

**Date:** 2024-09-25T00:00:00+00:00

## Abstract

The user wants me to translate a Chinese academic text about adolescent mental health into English. Let me break down the requirements:

### 1. Critical Requirements:

- Preserve ALL LaTeX commands and placeholders exactly
- Preserve ALL citation commands ([?], ??, (??), etc.) exactly
- **PRESERVE ALL ...paragraph wrapper tags EXACTLY**
- Maintain academic tone and formal scientific writing style
- Use precise technical terminology (glossary provided)
- Preserve section structure and paragraph organization
- Translate all content completely - no omissions

### 2. Output Rules:

- Return ONLY the translated text
- Keep one output paragraph per input paragraph
- Maintain exact count and IDs of ...tags
- Do NOT add Markdown formatting unless present in source
- Preserve original line breaks when meaningful

### 3. Formatting Guidelines:

- Keep mathematical expressions in original LaTeX format
- Preserve equation numbers and references
- Maintain proper academic paragraph structure
- Use formal scientific language

### 4. Glossary:

- 机器学习 => machine learning

- 深度学习 => deep learning

Looking at the input text, I notice: - There are no LaTeX commands or mathematical formulas in this text - There are no citation commands - There are no ...tags in the input - The text is about adolescent mental health, not machine learning or deep learning, so the glossary terms don' t apply here

Since there are no tags in the input, I need to check the requirements again. The user says "PRESERVE ALL ...paragraph wrapper tags EXACTLY" and "if input has N paragraph tags, output must have exactly N paragraph tags with matching IDs" . But the input doesn' t have any tags.

Wait, let me re-read the instructions. The user is giving me a general instruction set for a translation task, but the specific input might not contain all the elements mentioned. The key is to apply these rules to whatever is present in the input. Since there are no tags, LaTeX commands, or citations in the input, I don' t need to preserve them - I just need to translate the text as is.

However, I should double-check: maybe the user expects me to add tags? No, the instruction says "PRESERVE ALL ...paragraph wrapper tags EXACTLY" and "if input has N paragraph tags, output must have exactly N paragraph tags" . This clearly means if they' re present, preserve them; if not, don' t add them.

So my task is simply to translate this Chinese academic text into English with a formal, academic tone.

Let me translate the text:

“青少年的心理健康是当代社会治理中关注的焦点问题之一，本研究探讨学校心理健康教育家庭—学校—社会三系统中的风险因子和保护因子及其交叠影响。”

Translation: “Adolescent mental health is one of the focal issues of concern in contemporary social governance. This study explores the risk factors and protective factors in the three systems of family-school-society in school mental health education and their overlapping influences.”

“采取分层随机取样，在 318 例北京市各区县心理健康教育故事和心理辅导案例集中各抽取样本 20 个。”

Translation: “Using stratified random sampling, 20 samples were drawn from each of the 318 mental health education stories and psychological counseling case collections from various districts and counties in Beijing.”

Wait, let me parse this more carefully: “在 318 例北京市各区县心理健康教育故事和心理辅导案例集中各抽取样本 20 个” - this could mean there are 318 cases total, and from these, 20 samples were drawn. Or it could mean there are 318 collections and from each, 20 samples were drawn. The phrase “各抽取样本 20 个” suggests “from each, draw 20 samples” . But “318 例...案例集” suggests “318 case collections” . So it' s likely: there were 318 case collections, and from each, 20 samples were

drawn. But that would be  $318 \times 20 = 6360$  samples, which seems like a lot. Let me reconsider.

Actually, “在 318 例北京市各区县心理健康教育故事和心理辅导案例集中各抽取样本 20 个” might mean: There were 318 cases (

## Full Text

### A Qualitative Study on the Overlapping Spheres of Influence of Family-School-Society Risk and Protective Factors in School Mental Health

Guangxin Wang<sup>1</sup>, Yuping Bai<sup>2</sup>, Liying Jiao<sup>1</sup>, Yan Xiong<sup>1</sup>, Xiaoying Shang<sup>1</sup>, Xinyue Du<sup>1</sup>, Zihui Fan<sup>1</sup>

<sup>1</sup>Department of Psychology, Beijing Forestry University, Beijing 100083, China

<sup>2</sup>Beijing Academy of Educational Sciences, Beijing, China

## Abstract

Adolescent mental health represents a focal concern in contemporary social governance. This study examines risk and protective factors across the three systems of family, school, and society in school mental health education, along with their overlapping influences. Using stratified random sampling, 20 samples were drawn from each of two collections: 318 mental health education stories and psychological counseling cases from various districts in Beijing. Thematic analysis integrated deductive (top-down, grounded in ecosystem theory and overlapping spheres of influence theory) and inductive (bottom-up, based on open coding) approaches to construct both an “Overlapping Spheres of Influence Model of Family-School-Society” and a “Family-School-Society Collaborative Psychological Problem-Solving Model.” The Overlapping Spheres of Influence Model posits that risk and protective factors across family, school, and society exist in an overlapping-dissociative relationship, with complex dynamic interactions manifesting as enhancement patterns, buffering patterns, and indirect effects. The Collaborative Problem-Solving Model reveals that the three systems have initially formed a closed-loop problem-solving process and information communication network, with problem-solving involvement intensifying as psychological issues become more severe.

**Keywords:** school mental health; family-school-society; risk and protective factors; ecosystem theory; overlapping spheres of influence

## 1. Research Problem

Adolescent mental health has emerged as a prominent contemporary issue, with poor mental health exerting severe negative impacts on youth well-being and future success (Clayborne et al., 2019). Research indicates that most common

mental health problems, including anxiety, behavioral, and emotional disorders, manifest before age 14 (Merikangas et al., 2010), with 13.1%–36.7% of secondary school students experiencing serious psychological problems (Li Yuxia, 2013). The *Report on National Mental Health Development in China (2019–2020)* reveals that severe depression detection rates are approximately 1.9–3.3% in primary school, 7.6–8.6% in middle school, and 10.9–12.5% in high school, with depressive symptoms increasing across grade levels (Fu Xiaolan & Zhang Kan, 2021). The proportion of students experiencing psychological pressure has further increased in recent years (Sharma et al., 2021). Growing numbers of educators and health experts consider mental health the paramount need among students (Iachini et al., 2016), and school-based mental health programs offer particularly valuable opportunities for prevention, early detection, and management of child and adolescent mental health issues (Das et al., 2016).

Concurrently, national policy emphasizes the collaborative impact of school, family, and societal forces on student mental health literacy. The *National Medium- and Long-Term Education Reform and Development Plan (2010–2020)* identifies student mental health as a systematic project requiring participation and cooperation from schools, families, and social forces. The *Healthy China Initiative—Child and Adolescent Mental Health Action Plan (2019–2022)* proposes establishing, by the end of 2022, a social environment conducive to child and adolescent mental health and a coordinated mental health service model linking schools, communities, families, media, and medical institutions.

This high-level policy attention signals the urgency and necessity of research in this domain. However, the family, school, and social systems contain numerous variables with complex interactions both within and between systems, creating intricate causal relationships. For a long time, systematic theoretical models have been lacking regarding how schools, families, and society interact to promote mental health, and quantitative research has been unable to provide fundamental theoretical explanations for the complex, dynamic, and causally intricate interaction patterns among these three systems. Therefore, grounded in the authentic landscape of school mental health services, exploring how school-family-society jointly function in adolescent mental health issues has become imperative. This study addresses this question through qualitative research.

### 1.1 School Mental Health

School mental health (SMH) refers to a range of supports and interventions aimed at preventing, identifying, and treating student mental health problems while promoting student wellness (Zabek et al., 2023). It constitutes professional activities grounded in psychological theories and methods, through which teachers enhance the mental health of all school staff and students via mental health instruction, assessment, counseling, and crisis intervention (Yu Guoliang & Hou Ruihe, 2015). School-based mental health services can be conceptualized as a continuum varying by target population and service intensity, including screening and early identification of mental health issues such as anxiety, depression,

conduct disorders, and substance use, as well as services that enhance well-being, resilience, social-emotional learning, and mental health literacy (Thabrew et al., 2017).

Ecosystem theory posits that individuals are nested within mutually influential environmental systems that affect psychological development (Bronfenbrenner, 2006). Consequently, individual mental health is influenced by microsystems, mesosystems, exosystems, and macrosystems. School mental health services cannot be separated from these environmental influences and thus require the participation of family, school, and social forces in school-centered mental health services.

## 1.2 Family-School-Society Risk and Protective Factors

Both protective and risk factors exist across school, family, and social systems. Strong teacher-student relationships are widely recognized as protective factors for children experiencing school difficulties, with more closely connected children demonstrating better academic performance, fewer externalizing behaviors, and stronger social competence (Crosnoe, Johnson & Elder, 2004). The McMaster Family Functioning Model theory posits that family organization and structure are crucial factors influencing and determining family member behavior, with the fundamental family function being to provide an environment that meets members' physiological, psychological, and social development needs (Miller et al., 2000).

Risk factors also exist across all three systems. Family system research reveals that poor parent-child communication patterns correlate significantly with later academic/work performance, unemployment, alcohol dependence, substance use, emotional distress, and antisocial personality traits (Wynn et al., 2011). Family structure changes, particularly those involving fathers, carry higher probabilities of negative impacts (Hartman et al., 2018). Psychosocial acceleration theory suggests that dangerous or conflictual family environments increase psychological stress (Cabeza De Baca & Ellis, 2017). Public stigma experiences among adolescents with suicide attempts—including family misunderstanding, biased reactions from teachers and classmates, and verbal attacks from online contacts—constitute environmental risk factors (Wang Xiaoning et al., 2023).

Both protective and risk factors for adolescent mental health exist within each family-school-society system, interacting and 叠加 (superimposing) within systems. The Demands-Resources Model (Salmela-Aro et al., 2022) posits bidirectional exchanges between environmental and individual characteristics, with different environmental features acting synergistically on individuals and environmental resources and risks interacting and 叠加 (superimposing). For example, a social culture that respects life and physical/mental health serves as a protective factor, while public stigma constitutes a potential environmental risk. Public stigma refers to societal stigmatization of a group, comprising labeling, stereotyping, social isolation, damaged social status, and discrimination. Within

the school ecosystem, although some adolescents find school mental health interventions helpful, research indicates that using psychological or psychiatric terminology to label negative thoughts and emotions may lead to changes in adolescent self-concept (e.g., “I have anxiety” ) and behavior (e.g., avoidance), ultimately increasing stress and other symptoms (Foulkes & Andrews, 2023). Thus, protective and risk factors in the school ecosystem also interact and 叠加 (superimpose).

Two issues require improvement in existing research on family-school-society risk and protective factors. First, research on risk and protective factors within family-school-society ecosystems remains unsystematic. Second, previous studies have emphasized interactions between risk and protective factors within each ecosystem but have insufficiently addressed the overlapping-dissociative relationships between risk and protective factors across systems.

### 1.3 The “Overlapping-Dissociative” Relationship in Family-School-Society

Family-school-society collaboration operates through an “overlapping-dissociative” relationship. Scholars’ understanding of this relationship has evolved. Developmental systems theory posits that children live in organized, dynamic systems comprising multiple proximal and distal influence levels that mutually affect one another (Pianta et al., 2003). This theory emphasizes that relationships are embedded in multi-level systems, where each level—including individual, family, classroom, and community attributes—exerts dynamic, bidirectional influence on relational processes (Bronfenbrenner & Morris, 1998). But how does this dynamic bidirectional influence operate?

Inspired by ecological theory and social capital theory, Epstein proposed the Overlapping Spheres of Influence Theory (Epstein et al., 2009), which comprises external and internal models. The external model focuses on the overlapping-dissociative relationship among family, school, and society, while the internal model explains how complex and necessary interpersonal relationships and influence patterns are established among them. The three systems exhibit an overlapping-dissociative relationship: “dissociation” means each system functions independently, while “overlapping” means the systems intersect and interact, jointly influencing students. Characterized by interaction, superimposition, and ecology, this theory provides vital explanatory power for complex, dynamic educational practice (Palts & Kalmus, 2015). However, the theory’s internal and external models advocate for a caring-centered collaborative education orientation that emphasizes protective factors while neglecting family-school-society risk factors in school mental health. Yet risk factors are essential for addressing adolescent mental health. Research shows that prolonged exposure to multiple environmental stressors increases adolescents’ risk for internalizing or externalizing problems (Evans et al., 2013). Therefore, when considering school mental health, both the overlapping-dissociative relationships among protective factors and those among risk factors—and their interactions—must be examined within

dynamic systems.

As research has progressed, scholars have shifted focus from single systems to inter-system interactions and 叠加 (superimposition) effects. A latent profile study examining 叠加 (superimposed) risks across family, school, and community categorized risk environments as low threat across all contexts, high family threat, high neighborhood threat, and high threat across all contexts. Adolescents in high family threat environments exhibited more disruptive behavior symptoms, while those in high neighborhood threat environments showed more sleep problems and poorer neurocognitive outcomes (Conley et al., 2022). Compared to exposure to single environmental risks, adolescents experiencing 叠加 (superimposed) risks across family, neighborhood, and school demonstrated worse mental health two years later (Conley et al., 2022). Other research examining combinations of family, school, and community risks and resources found that high environmental risk combinations showed cumulative increasing trends in psychological crisis effects, while high resource combinations showed decreasing trends. Different combinations of high family-school risk and psychological distress demonstrated significant clustering effects on fatal crisis aggregation (Sun Fang et al., 2023).

In summary, national strategy and policy increasingly emphasize and encourage family-school-society collaboration to improve adolescent mental health literacy. Theoretically, ecosystem theory, social capital theory, overlapping spheres of influence theory, and the demands-resources model have elucidated system interactions and 叠加 (superimposition) effects from static and dynamic, interactive and overlapping-dissociative, risk and protective dimensions. However, existing research has not clearly identified risk and protective factors within family-school-society systems, nor has it theoretically clarified the overlapping-dissociative and risk-protective relationships among family, school, and community. Therefore, this study employs qualitative methods grounded in authentic mental health education cases to answer three questions: (1) What are the risk and protective factors within each family-school-society system in school mental health? (2) How do these factors interact to form stable overlapping influence patterns in school mental health? (3) How is the overlapping influence model applied in specific psychological problem contexts?

## 2. Methodology

### 2.1 Sampling

Commissioned by an administrative unit in Beijing, an annual collection, evaluation, and exhibition of outstanding mental health achievements in primary and secondary schools has been conducted since 2010, now in its thirteenth iteration. This activity has become an effective mechanism for continuously advancing the scientific development of mental health work in Beijing's primary and secondary schools, receiving strong support from districts and schools. In the 2023 activity, 159 mental health education stories and 159 psychological counseling cases

were submitted. Following stratified random sampling principles with Beijing's districts as strata, 20 samples were randomly selected from the mental health education stories and 20 from the counseling cases. The 40 case samples covered Beijing's main urban areas and districts. Among the mental health education story samples, 14 held bachelor's degrees and 6 held master's degrees; 11 were part-time mental health teachers, 8 were full-time mental health teachers, and 1 was a full-time psychological teaching researcher. Eight had engaged in mental health work for less than 5 years, 6 for 6–10 years, 1 for 11–15 years, 1 for 16–20 years, and 4 for 21+ years. The mental health education stories included 14 primary school cases, 3 middle school cases, and 3 high school cases. In the counseling case collection, 12 held bachelor's degrees and 8 held master's degrees; 5 were part-time mental health teachers and 15 were full-time. Six had worked in mental health for less than 5 years, 4 for 6–10 years, 3 for 11–15 years, 5 for 16–20 years, and 2 for 21+ years. The counseling cases included 8 primary school cases, 7 middle school cases, and 5 high school cases.

### **2.2.1 Bottom-Up and Top-Down Data Analysis Process**

Based on the inductive method, a bottom-up approach was adopted to register and code collected data. Following grounded theory principles in qualitative research, we conducted open coding (first-level), axial coding (second-level), and selective coding (third-level). During coding, we employed techniques including questioning, comparison, flipping, examining expressed emotions and their contexts, searching for negative cases, and analyzing narrative structures to continuously summarize and develop categories from concepts. Simultaneously, using the deductive method, a top-down approach categorized basic concepts into family, social, and ecosystem frameworks.

### **2.2.2 Application of QSR NVivo 12.0**

QSR NVivo 12.0 was used to edit and code text files. This software facilitates text analysis and coding by deconstructing original text structure and reconstructing a conceptual system that explains the text. Based on conceptual system analysis, categories are continuously integrated and condensed into theory. NVivo 12.0 greatly facilitates researchers' coding and conceptual processing, though it should be noted that software cannot fully replace human cognitive processing—researchers remain dominant in qualitative research.

### **2.3 Theoretical Model Construction**

Following Thomas et al. (2023), we conducted thematic analysis integrating deductive (top-down, based on ecosystem theory and overlapping spheres of influence theory) and inductive (bottom-up, based on open coding) approaches. When constructing theoretical models, grounded theory's fundamental idea involves bottom-up processing of interview texts through categorical analysis to continuously summarize and form preliminary concepts (Glaser & Strauss, 1968; Strauss, 1987). The deductive method considers the ecosystem to which

concepts belong, using top-down processing based on ecosystem theory and overlapping spheres of influence theory to classify concepts into different ecosystems. Specific steps included: (1) Developing core concepts such as family structure, family functioning, competitive pressure, and public stigma from open coding, distinguishing protective and risk factors, and assigning them to family, school, or social ecosystems based on ecosystem theory; (2) Constructing preliminary theoretical models from ecosystem theory and overlapping spheres of influence theory, then analyzing selective coding tree nodes in original texts to develop core categories; (3) Returning the preliminary framework to original data for cyclical comparison between theory and data to test and revise the model; and (4) Inviting participants to evaluate and revise the model through feedback for improvement.

#### **2.4.1 Reliability Testing**

Following recommendations from renowned qualitative researcher Flick (2007), this study enhanced data and analysis reliability through two approaches. First, regarding text file reliability, all texts came from frontline psychological teachers and class advisors' mental health stories and cases, reflecting current mental health conditions. Since texts were not from interviews, no data loss occurred due to interviewer quality differences. Second, to enhance interview data reliability, we employed constant comparative methods, continuously testing whether coding concepts and categories could be applied to other text segments to improve reliability.

#### **2.4.2 Validity Testing**

A key factor affecting qualitative research validity is researcher bias—the tendency for qualitative researchers to “find” what they seek and present it as findings. To overcome researcher bias, the core strategy is reflexivity. Therefore, throughout the research process, we actively engaged in critical reflection on potential biases or tendencies according to reflexivity principles.

To ensure validity, we also employed participant and non-participant validation. Feedback from participants and non-participants on coding concepts, categories, and theoretical models was widely solicited through bidirectional interaction and discussion, with timely corrections made when inconsistencies arose. When consensus could not be reached, we returned to original texts for continuous case comparison. Multi-perspective feedback from participants, non-participants, and researchers ensured study validity.

### 3. Results

#### 3.1 Composition of Risk and Protective Factors in Family-School-Society Ecosystems (Coding Results)

Analysis identified 269 reference points (meaning units) related to risk factors in school mental health, from which 25 relatively independent initial concepts (codes) were extracted. Using the same method, 20 relatively independent initial concepts related to protective factors were extracted, encompassing 310 reference points. Through comparative analysis, 7 more refined codes were developed for risk factors (see Table 3). Major categories were formed by combining bottom-up codes with top-down principles, assigning 5 risk factor codes and 7 protective factor codes to family, school, and social ecosystems. The major categories, subcategories, and relational connotations of risk and protective factors for adolescent mental health in each ecosystem are presented in Table 2 and Table 4.

##### 3.2.1 Family Ecosystem

**Table 1** shows the axial (second-level) coding node distribution of risk factors across family-school-society ecosystems. Family risk factors primarily include family structure and family functioning. Single-parent families resulting from parental separation, divorce, or other causes of parental loss represent the main manifestation of impaired family structure.

Family functioning refers to the effectiveness of emotional connections, family rules, family communication, and responses to external events within the family system. The most important emotional connection among family members is the capacity to contain and express love. The primary manifestation of risk factors in children and adolescents' families is the absence of love, prominently displayed as father absence—where fathers fail to fulfill their proper roles and responsibilities, leaving children with little experience of paternal care and education. Single-parent families and grandparent-headed households can cause father absence. Additionally, family member conflicts, lack of care, and absence of warmth leave children and adolescents in prolonged negative emotions, with high parent-child conflict, poor parent-child attachment, lack of self-confidence, and closed, depleted social networks. Beyond love absence, parental psychological control and excessive parental worry and anxiety trigger adolescent negative emotions that subsequently affect mental health.

**Table 2** presents major and subcategories of risk factors across family-school-society ecosystems, including: - **Family structure:** Divorce, de facto separation, father absence, single-parent families - **Family functioning:** Marital conflict, lack of care, didactic education, poor parent-child attachment, poor parent-child communication, closed depletion, negative emotions, long-term suppression - **School ecosystem:** Fierce competition, exam anxiety, school aversion, procrastination - **Professional capacity:** Insufficient professional knowledge, helplessness, contradictions between class advisor work principles and counsel-

ing principles, depleted energy, strained mental health resources, working alone, survival in cracks, insufficient experience, lack of support - **Public stigma:** Negative evaluation, prejudice and discrimination, classroom discrimination, friendship discrimination

### 3.2.2 School Ecosystem

School risk factors can be distinguished by subject: student-centered and school-centered factors. As primary bearers of academic pressure, students face numerous mental health risks including low learning efficiency, insufficient motivation, poor self-efficacy, concern about others' evaluations, and low self-assessment. These school risk factors intensify negative emotions and can lead to impaired social functioning.

From the school's perspective, available psychological education resources are limited. Psychological teachers who should safeguard student mental health instead face dilemmas of insufficient experience and lack of school and peer support. Some counselors described themselves in case reports as "working alone" or "surviving in cracks." Some class advisors lack psychological professional knowledge, experiencing helplessness when conducting mental health education. Additionally, contradictions between class advisor work principles and counseling principles (requiring equality, acceptance, and unconditional positive regard) sometimes create psychological conflict and confusion.

### 3.2.3 Social Ecosystem

Risk factors in the social ecosystem primarily include public stigma. Mental illness stigma is a socially constructed stereotype reflecting societal members' shared views and consistent reactions toward mental illness and patients (Yue Tong et al., 2012). Public stigma involves negative evaluation, prejudice, and discrimination—undesirable, shameful characteristics that lead victims to be labeled with derogatory and insulting tags such as "mentally ill" or "suicide patient." Adolescents experiencing public stigma undergo negative attributions, prejudice, classroom discrimination, and friendship discrimination, experiencing more depression and loneliness (Silke et al., 2016).

## 3.3 Protective Factors in Family-School-Society Ecosystems

**Table 3** shows the axial (second-level) coding node distribution of protective factors across family-school-society ecosystems, including: - **Family ecosystem:** Rebuilding family connections, family belonging, companionship and attachment, obtaining family companionship - **School ecosystem:** Mental health education classes, group counseling, mental health culture perspective, anti-public stigma, medication intervention and treatment, respect and acceptance

**Table 4** presents major categories and subcategories of protective factors for adolescent mental health across ecosystems: - **Family functioning:** Connection and belonging (rebuilding family connections, family belonging); com-

panionship and attachment (obtaining family companionship, family companionship, parent-child communication, parent-child attachment, communication with family) - **School moral education:** Includes five dimensions—love education (sunshine education, gratitude education, happiness recording methods), happiness education (transmitting hope, positive energy, sense of hope, happiness), companionship growth (companionship growth, emotional resonance), character shaping (teacher expectations, character shaping, reinforcing progress, exemplary education, individualized teaching), and value recognition (positive guidance, positive evaluation, value affirmation, teacher recognition and praise) - **Psychological services:** Includes mental health education classes, psychological counseling, group counseling, and crisis intervention. Mental health classes use participatory teaching, active sharing, healthy personality development, role-playing, relaxed and happy classrooms, and interpersonal arts. Counseling includes individual counseling, goal construction, external observation, case conceptualization, non-evaluation principles, empathy, acceptance and respect, listening, emotional expression, warmth and acceptance, unconditional positive regard, sincerity, referral, and client priority. Group counseling includes group belonging, group games, warm and safe atmospheres, and psychological development. Crisis intervention includes crisis intervention procedures, case conceptualization, behavioral observation, family-school co-construction, providing parent suggestions, contacting parents, crisis warning, crisis urgency, crisis-to-growth transformation, school support, school green channels, and life primacy. - **Social culture:** Acceptance and respect, correct mental health culture perspective, anti-public stigma - **Professional intervention:** Depression, bipolar disorder, ADHD, ADD, Asperger's syndrome, generalized anxiety disorder, tic disorders, anxiety disorders, autism; medication intervention and treatment, psychotherapy

### 3.3.1 Family Ecosystem

Family protective factors refer to family structures and functions that provide prevention and protection. Regarding family structure, intact and stable families serve as protective factors compared to single-parent families. Regarding family functioning, parents and important family members provide stable and enduring support through companionship and social support, meeting children's needs for love and providing family belonging. Parents with good family functioning also communicate and feedback children's status to schools promptly and improve themselves through parent classes. Good parent-child attachment means effective communication between parents and children, receiving high-quality care, developing positive self-other cognitive schemas, and beliefs in love and trust (Mikulincer & Shaver, 2017).

For children and adolescents with mental health problems, good family functioning can alleviate psychological symptoms. When mental problems emerge from love absence, regaining family companionship and care can mitigate symptoms caused by risk factors.

### 3.3.2 School Ecosystem

The school ecosystem provides mental health support primarily through moral education and psychological services. Moral education includes educational concepts such as love education, sunshine education, and gratitude education to provide warm and nurturing growth atmospheres, achieving value recognition through praise, encouragement, and positive evaluation, and shaping student character through positive guidance, transmitting positive energy, and reinforcing progress. Through companionship and love, emotional resonance with students promotes psychological development and growth.

The school ecosystem provides psychological services through mental health education classes, psychological counseling, group counseling, and crisis intervention. Mental health classes are preventive and developmental mental health education for all students. Psychological teachers alleviate psychological problems and promote development through individual and group counseling. Crisis intervention represents systematic intervention by the school ecosystem integrating multiple forces for crisis events. Protective factors in the school ecosystem can promote adaptation and transformation of problem behaviors (Hou Qingqing et al., 2022), reduce negative adaptation such as poor peer relationships and externalizing problems (Chang Shumin et al., 2019), and promote positive adaptation such as adolescent well-being and prosocial behavior (Obsuth et al., 2017).

### 3.3.3 Social Ecosystem

Protective factors in the social ecosystem include positive and accepting social cultural atmospheres, correct mental health cultural perspectives, anti-public stigma efforts, and effective psychological diagnosis and treatment. Social-level psychological training and mental health education can provide rich mental health education resources, helping students, teachers, and parents understand relevant psychological knowledge (Xie Yu, 2023). Multi-channel mental health education also helps improve public mental illness literacy (Jiang Guangrong et al., 2021), promoting positive attitude and behavior changes and providing more attention and support for student mental health issues. Mental health institutions providing psychological diagnosis and medication/psychotherapy for adolescents with mental illness constitute necessary protective factors in the social ecosystem.

## 3.4 Family-School-Society Overlapping Spheres of Influence Model

**Figure 1** [Figure 1: see original paper] illustrates the Family-School-Society Overlapping Spheres of Influence Model. School, family, and society closely interact around student mental health issues, where F represents the family ecosystem, Sch represents the school ecosystem, and S represents the social ecosystem. The “+” in “±” represents protective factors, while “-” represents risk factors. First, family, school, and society exhibit an overlapping-dissociative relationship: “dissociation” means each system functions independently, while

“overlapping” means the systems intersect and interact, jointly influencing student mental health. The overlapping spheres model can be expressed through the following mathematical formulas, with MH representing mental health level. Formula represents the full overlapping influence model of the three systems, which can be decomposed into formulas representing independent functioning of family, school, and social systems, where risk and protective factors within single systems jointly influence adolescent mental health—this constitutes the “dissociation” aspect. The full model can also be decomposed into formulas representing interactions and overlaps between the first system (family, F) and second system (school, Sch) regarding risk and protective factors. Four scenarios exist: family system risk factors (F-) with school system risk factors (Sch-); family system risk factors (F-) with school system protective factors (Sch+); family system protective factors (F+) with school system risk factors (Sch-); and family system protective factors (F+) with school system protective factors (Sch+) in 叠加 (superimposed) dynamic interaction. Similar formulas can be derived for interactions between family (F±) and society (S±), and between school (Sch±) and society (S±), which are omitted here.

$$\pm \text{ } \text{ } \pm \text{ } \text{ } \pm = 12 (\pm) \text{ } \text{ } = 12$$

### 3.5 Family-School-Society Collaborative Psychological Problem-Solving Model

Research reveals that across different mental health issues, family-school-society collaboration within the school mental health system has initially formed a complete closed loop (see Figure 2 [Figure 2: see original paper]). In Figure 2, boxes represent closed loops for each mental health issue. For general psychological problems, serious psychological problems, mental disorders, and crisis events, the three systems demonstrate close cooperation showing completeness, integration, and unity in systemic interaction.

For different types of mental health issues, the school mental health system has formed a complete communication network. For general and serious psychological problems, multi-party information communication occurs among class advisors, psychological teachers, and parents. Class advisors accompany adolescent growth through love education and positive feedback while assisting adolescents in establishing peer support networks. Psychological teachers actively communicate with parents, recommending active parental cooperation to establish family support networks and providing counseling for students with problems. For students with potential serious psychological disorders, schools refer them through green channels to mental health institutions for professional diagnosis and treatment with parental cooperation. In crisis identification, warning, and intervention, multi-party information communication among class advisors, psychological teachers, parents, and doctors transforms crisis into growth, supporting student mental health development.

Problem-solving involvement in the family-school-society collaborative model

intensifies with problem severity. The curve in the model represents problem-solving involvement, established not through mathematical derivation but through model construction, data feedback, and participant feedback, showing involvement deepening with problem severity. Compared to general and serious psychological problems, the family-school collaboration model expands to family-school-society collaborative problem-solving for mental disorders, with mental health institution involvement (psychological diagnosis and treatment) indicating deepening involvement. Campus serious psychological crisis events require even greater family-school-society involvement. To resolve crises, all three systems maximize protective factors while minimizing negative risk factor impacts. As important protective factors, positive and accepting social cultural atmospheres, correct mental health cultural perspectives, and anti-public stigma efforts constitute the foundation for adolescent mental health problem resolution.

## 4. Discussion

### 4.1 Adolescent Mental Health Risk Factors

Family structure affects child development through family socioeconomic status and parental educational involvement mechanisms, with children from two-parent families showing better educational and psychosocial development than those from single-parent or absent-parent families (Wu Yuxiao et al., 2018). Families with extreme performance in cohesion and adaptability—especially those with severely deficient cohesion, confused family roles, and unstable rules—are particularly prone to maladaptive phenomena such as runaway behavior, psychosomatic illness, and delinquent behavior among children (Yi Jin, 1997). Developmental cascade models indicate that early childhood emotional and behavioral problems develop within early family contexts, amplifying over time to cause serious problems in adolescence and adulthood (Masten & Cicchetti, 2010). Gratz et al. (2002) emphasized parental relationships' role in non-suicidal self-injury (NSSI): insecure paternal attachment and maternal/paternal emotional neglect are important predictors of female NSSI, while male NSSI is primarily predicted by childhood separation (often father absence). Perceived parent-child relationship trauma, including parental alienation and abandonment of parental roles, uniquely relates to addictive features of NSSI (Martin et al., 2016).

Research finds that lack of time, training, and resources are primary challenges for psychological teachers. Teachers lack skills or knowledge to adequately address school mental health issues, consistent with Reinke (2011) and other findings that teachers lack professional training to effectively distinguish psychological problems from mental illness (Loades & Mastroyannopoulou, 2010). Due to severe professional staff shortages, coordination rates for school-based mental health services are relatively low, potentially causing service duplication and underservice (Santiago et al., 2014).

School mental health workers require specialized training in ecosystem frameworks (Keller & Grumbach, 2022), enabling them to solve problems through systemic interaction, develop timely interventions as needed, and activate resources at individual, classroom, school, family, and community levels.

#### **4.2 Protective Effects of Adolescent Mental Health Protective Factors**

Adolescents receive psychological support through connection/belonging and companionship/attachment in nuclear families. Family support positively impacts adolescent depression (Xin Ziqiang et al., 2006), anxiety, interpersonal relationships, and problem behaviors (Wei Chang et al., 2014). Attachment theory assumes children are affected by caregivers' unpredictable responses (Bowlby, 1969), with children's attachment styles depending on warmth or rejection received from caregivers. Self-determination theory posits that people have needs for belonging, connection, and competence—psychological nutrients crucial for mental health (Ryan et al., 2010). Driven by relationship needs, people seek contact and belonging with others, explaining why connection/belonging and companionship/attachment can predict adolescent mental health protective factors.

School provides an ideal environment where adolescents acquire new life skills. Mental health promotion programs often face obstacles such as stigma, time constraints, and suitable locations that are significantly reduced in school settings (Lewinsohn, Hoberman & Rosenbaum, 1998). Class advisors have numerous advantages in mental health education, including timely identification of student psychological tendencies, targeted and flexible work, coherent and systematic mental health education, natural authority and influence, and high integration and coordination across student ecosystems (Li Jingmei, 2010). Class advisors and psychological teachers in the school ecosystem can engage in behaviors promoting student mental health, including building relationships with students; creating safe, supportive, warm classroom environments; promoting positive behaviors and teaching social-emotional skills; identifying and referring students needing mental health services; using strategies to support students with mental health problems; and collaborating with community mental health professionals.

#### **4.3 Family-School-Society Overlapping Spheres of Influence Model**

Bronfenbrenner emphasized that all relationships in systems are bidirectional, with continuous bidirectional interactions exerting lasting developmental impacts (Collins et al., 2000). Based on ecosystem theory and overlapping spheres of influence theory, and considering risk and protective factors in family, school, and social systems, this study proposes the “Family-School-Society Overlapping Spheres of Influence Model” to explain the “overlapping-dissociative” relationship among the three systems in adolescent mental health.

First, “dissociation” in the overlapping influence model means family, school, and society form three completely independent ecosystems that can independently

predict mental health. For example, research finds non-significant correlations between parent-child conflict and peer conflict (Ehrlich et al., 2012), and Cauce and Srebnik (1990) argue that family and peers are relatively independent systems with independent or additive effects on adolescent adjustment.

Second, “overlapping” in the model means risk and protective factors across the three systems exhibit complex dynamic interactions. Within systems, risk and protective factors interact—for example, Zemp et al. (2019) used latent class analysis to examine how parent positive-negative interaction ratios affect child problem behaviors, finding children in low positive-high negative interaction patterns more likely to show internalizing problems. Between systems, risk and protective factors interact through enhancement, buffering, and indirect effects (Tian Feifei & Tian Lumei, 2014). The enhancement model means when school, family, and society ecosystems all possess protective factors, they enhance each other’s positive impact on reducing problem behaviors; conversely, when all possess risk factors, they enhance each other’s risk of increasing problem behaviors. Research shows adolescents simultaneously exposed to community, family, and school threats report the highest levels of emotional problems and suicidal behavior compared to any single environmental threat (Conley et al., 2022). High environmental risk combinations and high resource combinations show respectively increasing and decreasing cumulative psychological crisis effects, with obvious clustering effects (Sun Fang et al., 2023) consistent with this study’s enhancement model. Cumulative environmental risk increases adolescent mental health problem probability, while cumulative environmental resources provide adequate resources and environmental support.

The buffering model means when one relationship is poor, goodness in another relationship can buffer or compensate for its effect on individual problem behavior. Thus, when one ecosystem is in risk mode, protective factors in other ecosystems can buffer risk effects. Compensation or buffering appears when risk and protective factors are independent, allowing protective factors to mitigate risk factor effects—a compensation model (Jin Cancan et al., 2011).

**Figure 3** [Figure 3: see original paper] shows enhancement and buffering modes of family-school-society interaction when the school ecosystem is in protective factor mode versus risk factor mode.

Indirect effects emphasize that one relational context influences problem behavior through another relational context. When one factor is a risk factor and another is a protective factor that moderates, this is called a protective or interaction model (Jin Cancan et al., 2011). Maddox and Prinz (2003) found school relationships moderated relationships between family influences and adolescent substance use, delinquency, and other problem behaviors. Other research shows school relationships moderate family-risk behavior relationships (Yang & Anyon, 2016). Teacher-student relationships may mediate relationships between parent-child relationships, peer relationships, and adolescent social adaptation (Sabol & Pianta, 2012), and teacher-student relationships’ effects on adolescent depression and self-injury may be achieved by moderating direct effects of parent-child

and peer relationships.

#### 4.4 Family-School-Society Collaborative Psychological Problem-Solving Model

The “Family-School-Society Collaborative Psychological Problem-Solving Model” addresses general psychological problems, serious psychological problems, mental disorders, and crisis events. According to the Overlapping Spheres of Influence Model, protective factors in ecosystems can buffer risk effects. Protective factors such as family support systems, peer support systems, positive teacher companionship, comprehensive counseling and crisis intervention systems, and school-medical cooperation can mitigate environmental risk factors, better promoting adolescent problem resolution. Wang et al. (2020) found significant correlations between higher family support, parental cohesion, and reduced adolescent NSSI behavior. Among social networks, family support significantly predicts life satisfaction development among middle school students (Wang Xinqiang & Zhang Dajun, 2012). These studies support family support systems’ importance in adolescent mental health.

The Collaborative Problem-Solving Model is also supported by family resilience theory (An Yeqing et al., 2023), where problem-solving represents family system resilience in responding to external pressures and challenges—the process by which multiple levels of family systems interact to provide protection when family dynamics are severely disrupted by risk. The model also aligns with the public health model for suicide prevention based on social-ecological models (Cramer et al., 2020), which emphasizes addressing mental health risk and protective factors across individual, relational, community, and societal levels—consistent with this study’s family-school-society classification.

Within the school framework, adolescents with good peer support systems show lower loneliness, depression, anxiety, and fewer aggressive behaviors (Kawabata, Crick & Hamaguchi, 2010). Comprehensive counseling, crisis intervention systems, and school-medical cooperation better promote adolescent problem resolution. At the societal level, mental health institutions provide psychological diagnosis and medication/psychotherapy based on school referrals and problem severity. Multi-level mental health promotion, mental illness prevention, and intervention for diagnosed individuals are crucial for those with serious mental illness, suicidal ideation, self-harm, and emotional trauma.

However, the Collaborative Problem-Solving Model addresses only psychological problems, mental disorders, and crisis intervention, not prevention and health promotion. Research has proposed a “six-in-one” working mechanism integrating “psychological screening, counseling, therapy, assessment, education activities, and training” (Weng Shenghua, 2023). This six-in-one mechanism covers prevention, health care, treatment, and intervention, representing a breakthrough point for promoting school-medical cooperation and expanding family-school-society collaborative problem-solving. Community Healthcare Outcomes

Remote Extension (ECHO) represents one method for providing continuous support to students with serious mental health problems (Lyons et al., 2022). Linking education and health department services will promote cooperation at primary care levels.

#### 4.5 Research Significance and Future Directions

From ecosystem theory, this study identifies protective and risk factors for adolescent mental health across family, school, and social ecosystems, proposing both an Overlapping Spheres of Influence Model and a Collaborative Problem-Solving Model. The Overlapping Spheres of Influence Model theoretically addresses the overlapping-dissociative relationships, risk-protective relationships, and dynamic interactions among the three systems. The findings have strong application potential, systematically addressing the interactive evolution from adolescent mental health problem occurrence through prevention, health care, treatment, and intervention. The Collaborative Problem-Solving Model explains current working and cooperation patterns among adolescent mental health ecosystems, particularly addressing coordinated mental health service models among schools, communities, families, and medical institutions. This research holds theoretical significance for preventing and intervening in adolescent mental health problems and promoting “Healthy China” construction.

Despite these contributions, limitations remain due to the complexity of school-community-family-medical institution linkages and data constraints. Future research should: (1) From psychometric requirements, use professional scales to validate protective and risk factors, clarify weights of each system in school mental health collaboration, and outline the collaborative problem-solving model; (2) Expand the Collaborative Problem-Solving Model to other provinces with larger samples for further validation; (3) Employ mixed methods combining longitudinal and cross-sectional research to explore family-school-society collaboration in school mental health; and (4) Based on the two models, explore new pathways for family-school and school-medical cooperation in practice.

The Overlapping Spheres of Influence Model reveals that risk and protective factors across family, school, and society exhibit overlapping-dissociative relationships with complex dynamic interactions showing enhancement, buffering, and indirect effects. The Collaborative Problem-Solving Model reveals that across different psychological problems, family-school-society collaboration has initially formed closed-loop problem-solving and information communication networks, with problem-solving involvement intensifying as issues become more severe.

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