Big Data-Driven Resilience Research Among Rural Children in Underdeveloped Areas: A Perspective of Spiritual Social Work Intervention

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Abstract:

Big data technology has become an important tool to promote the localization of social work. Social work intervention driven by big data is characterized by strong timeliness and professionalism. In this context, rural children face multiple difficulties in their growth process, which has a profound impact on their academic performance and life development. Resilience, as an individual's coping strategy in the face of stress and adversity, is of great significance to the healthy growth of rural children. Based on the perspective of spiritual social work theory, through field research in a primary school in Y County, H Province, this study interprets the resilience patterns of 20 rural children and conducts social work intervention. It is found that intervention in group work can help promote the healthy transformation of their resilience patterns, and the intervention techniques in spiritual social work can help improve the resilience level of rural children. Big data analysis provides a new perspective and logic for the intervention research of rural children's resilience. In addition, this study attempts to discuss the social support system of rural children and proposes a three-level system architecture of "distant guidance - element support - value-driven".

Keywords: big data perspective; rural children; resilience; spiritual social work; group work.

INTRODUCTION

Currently, big data technology has penetrated deeply into the field of social work, bringing new perspectives and opportunities to grassroots social governance [1]. By applying big data technology, the localization development of social work becomes more scientific and efficient, the professionalism of theory and practice is continuously enhanced, and service efficiency is continuously improved. Under the perspective of big data, information collection and analysis are further optimized, accurately grasping the situation of service objects while understanding the needs of vulnerable groups in a timely manner, so as to more effectively improve the quality and efficiency of social work services [2-3]. Children in underdeveloped rural areas of China often face complex and changeable difficulties in their growth process. The influence of multiple adverse factors such as geography, economy, and culture, and the relative lack of resources in many aspects, directly or indirectly lead to many rural children being unable to receive more comprehensive and in-depth education, lagging behind in the formation of cognitive ability and values, and to a certain extent, increasing the difficulty of their integration into modern society [4-5]. Some studies have found that rural children are more likely to experience anxiety, depression and other psychological problems, which, if not intervened in time, may develop into more serious psychological disorders [6]. Therefore, the research on the resilience of rural children has become increasingly important. Resilience is the positive adaptation and coping strategies that individuals exhibit when facing stress and adversity. It can help individuals better cope with challenges and difficulties in life. Understanding the adaptation mechanisms and coping strategies of rural children in adversity not only helps us to have a deeper understanding of their needs and difficulties, but also provides a scientific basis for formulating more effective intervention measures. By enhancing the resilience of rural children, we can help them better cope with life's challenges and achieve healthy growth and all-round development [7].

Related foreign research mainly focuses on the concept definition, influencing factors and mechanisms of resilience [8-10], while domestic research pays more attention to practical applications, such as the specific manifestations of children's resilience and how to cultivate their resilience. These studies have important reference value for guiding how to help rural children improve their resilience in practice, but there are still some shortcomings. For example, the research methods are relatively single, and most studies collect data through questionnaires or interviews, lacking a variety of research methods; the research perspective is not comprehensive, ignoring the influence of external environments such as family, school, and society; and the practical application effects of research results need to be verified [11-14]. Based on the interpretation of rural children's resilience patterns and taking the improvement of rural children's resilience level as the main goal of intervention, this study focuses on the expansion and evidence-based research of three questions: First, what kind of resilience patterns do rural children have? Second, what are the intervention process and effects of group work? Third, does the intervention technique in spiritual social work help to promote the improvement of resilience level? Aiming at the above three questions, following the analytical logic of

"deconstructing problems - cooperating - reconstructing life", this study attempts to make relevant responses, in order to make some supplements to the social work intervention of rural children in China and the practice path of spiritual social work.

THEORETICAL FOUNDATION AND APPLICATION LOGIC

According to Kumpfer's resilience model, an individual's resilience traits encompass five aspects: "spirituality," "cognition," "social or behavioral," "emotional," and "physical," each containing multiple specific elements [15]. Based on the theory of spiritual social work, there is a certain overlap and compatibility between resilience traits and spiritual abilities, such as optimism, creativity, communication skills, a sense of meaning, and happiness. Specifically, on the one hand, resilience refers to an individual's ability to integrate oneself, self-control, adaptive response, and self-development when coping with crises and adapting to high-risk environments [16]. This ability is highly correlated with one of the individual's three basic abilities, spiritual ability, and spiritual social work has the function of enhancing resilience. Spiritual ability, as an individual's innate internal advantage, is in line with the view of resilience theory that emphasizes the development of individual advantages. On the other hand, a group, as a field that gathers strength and variables, can influence an individual's psychological state, behavior, and so on [17]. In the group activities, the introduction of intervention techniques in spiritual social work is both a process of dialogue with theory and a process of putting theory into practice and exploring the localization of social work. The realization of theoretical dialogue in this study is mainly based on the following theoretical viewpoints: first, resilience is an individual's ability to integrate oneself, self-control, adaptive response, and self-development when coping with crises and adapting to high-risk environments [18]; second, spiritual social work has the function of enhancing resilience, and spiritual ability is an individual's innate internal advantage; third, the emergence of a group will form a field that gathers strength and variables, and individual behavior will be affected by these forces and variables.

INTERPRETATION OF RESILIENCE PATTERNS IN RURAL CHILDREN

June-July 2024, a summer social practice team from S University in Beijing went to a primary school in Y County, H Province to carry out practical activities. Selecting 20 rural children as service objects, the team employed questionnaires, interviews, and participatory observation to collect first-hand data. Using group work as the primary social work intervention method, a qualitative analysis was conducted on the resilience models of rural children and the effects of social work intervention. Among the participants, 14 were boys and 6 were girls, with an average age of 9.5 years. 60% of the children were primarily cared for by grandparents, while 40% were primarily cared for by their mothers. To ensure the reliability of the research as much as possible, while diligently collecting rich data, the author adopted two main measures: conducting authentic and repeated observations, and using the "triangulation method" to collect diversified data from multiple perspectives, thereby guaranteeing the authenticity and reliability of the research.

Based on Kumpfer's resilience operation model, and through observations and interviews with 20 rural children and their families, this study conducted a categorical and situational analysis of the resilience models of rural children, dividing them into three categories: resilience reconstruction, restoration of balance, and maladaptive reconstruction. Among them, 5 children exhibited resilience reconstruction, with an average age of 8.4 years; 11 children exhibited restoration of balance, with an average age of 9.6 years; and 4 children exhibited maladaptive reconstruction, with an average age of 10.3 years. Different resilience models significantly influence the daily behavioral patterns and coping mechanisms of rural children under adversity. This study analyzes the resilience models of 20 rural children to explore the psychological mechanisms behind their model choices and develop corresponding social work intervention strategies.

Resilience Characteristics of Resilience Reconstruction

Resilience reconstruction, the most ideal outcome, refers to an individual's ability to help themselves overcome crises and return to their original state of balance. It is a positive resilience mode that can lead to self-improvement and self-integration. Through the abstract extraction of data, it can be found that the most significant characteristic of this mode is that individuals exhibit "clear goals" and "optimistic confidence." In interactions with them, it can be found that children with this resilience mode have higher levels of harmony in interpersonal relationships, more positive emotions such as optimism and proactiveness, and better goals and planning for future development.

Resilience Characteristics of Restoration of Balance

Restoration of balance is a maintenance-oriented resilience outcome, where individuals return to their pre-stress state, maintaining their original life. It is a calm and accepting resilience mode. Through the abstract extraction of data, it can be found that the most significant characteristic of this mode is that individuals exhibit "stable state" and "compromise adaptation." In

interactions with them, it can be found that children with this resilience mode generally have strong independence, exhibiting more peacefulness and stability in their emotions. However, when faced with adversity, they may exhibit more pronounced negative emotions or behaviors. In interactions with them, it was found that children with this resilience mode exhibited a friendly and satisfied attitude in the school system, more understanding and tolerance in the family system, and sensitivity and fear when facing sudden events or difficulties in life, but still strive to restore balance through self-regulation.

Resilience Characteristics of Maladaptive Reconstruction

Maladaptive reconstruction refers to an individual's choice of negative coping mechanisms, maladaptive behaviors, and other coping strategies. It is a lower-level resilience outcome, often manifested as low self-efficacy, negative coping, and anxiety. Through the abstract extraction of data, it can be found that the most significant characteristic of this mode is that individuals exhibit "negativity" and "destructiveness." In interactions with them, it can be found that children with this resilience mode generally exhibit a negative attitude towards life, anxiety, depression, impulsivity, and even destructive negative behaviors towards themselves or others. They present a future life without goals, plans, or consequences, seeking a new state of balance in a negative and relatively aggressive manner.

IMPLEMENTATION OF GROUP WORK INTERVENTION PROGRAM

Intervention Design

In this study, the 20 rural children were divided into 2 groups (the grouping was done by random draw), each group consisted of 3 social workers and 10 children, and 7 group activities were carried out. Before the intervention, data was collected through participatory observation and interviews to deepen the understanding of the group members' basic information, family relationships, learning, interpersonal relationships, etc. Using the time-space freezing technique in spiritual social work and Kumpfer's resilience model, the developmental stage and needs of the group members were analyzed. The group members showed the following stage characteristics: cognitive ability was greatly improved, moral judgment was affected by behavioral consequences and subjective intentions, there was a greater need for social interaction, and spiritual ability developed relatively slowly. Regarding the needs analysis of group members, this study summarized the following specific requirements from the perspective of resilience traits and spiritual social work intervention points: first, to obtain a sense of identity from others and oneself; second, to reduce or eliminate negative emotions; third, to build harmonious social relationships; and fourth, to improve self-efficacy and self-confidence.

Based on the above analysis, this study developed a detailed intervention plan. Figure 1 presents the intervention framework of group activities in this study. Before the group activities, this study evaluated the group members using the resilience model and time-space freezing technique. Among them, the time-space freezing technique is used to fix the time-space field of group members at the moment with time and space coordinates, and identify their personality development stage and living environment. The intersection of time and space helps to quickly understand the basic characteristics of group members at the beginning of the activity. In the group activities, the intervention was carried out according to the logic of "initial contact-deconstruction - prospect", involving the individual's understanding of self, others, and the environment, as well as the understanding of the present and the future. After the group activities, multiple parties, including group members, social workers, teachers, and parents, were invited to evaluate.

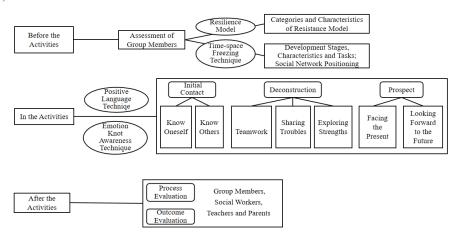


Figure 1. Group activity intervention framework

Intervention Implementation

Initial contact phase

The initial contact phase mainly consisted of two group activities, with the core content being getting to know others and oneself. Specifically, the first group activity's core task was to establish relationships, namely familiarity and closeness between the worker and group members, among group members, and between groups. The activity content included setting basic norms for group activities, self-introductions, and "icebreaker" games. The second group activity's core task was self-exploration. Through pre-class review, "What I have and you don't" and "My self-portrait," group members were helped to face themselves, appreciate themselves, and accept their shortcomings. This phase employed positive language techniques, that is, using positive energy expressions in the communication between social workers and group members, aiming to achieve effective communication [19]. This was mainly achieved through encouraging and affirming language, indirectly influencing the communication methods between group members and stimulating the generation of positive interaction patterns among group members.

Deconstruction phase

The deconstruction phase mainly consisted of three group activities, with the core content being teamwork, sharing troubles, and exploring strengths. Specifically, the third group activity's core task was to establish team awareness. Through pre-class review, "The Fun of a Thousand Knots" and "White Paper Puzzle," group members were encouraged to learn to cooperate and establish a good team awareness based on effective communication. The fourth group activity's core task was to learn emotion recognition and management. Through emotion knot awareness techniques, group members were helped to identify negative emotions, accept troubles, and learn relevant emotion management skills. The fifth group activity's core task was to discover potential and explore strengths, aiming to help group members enhance self-confidence and improve self-acceptance. Through a strengths sharing session, "Strengths relay," and "Resource tree," group members were helped to have a clearer understanding of their strengths and available resources.

Prospect phase

The prospect phase mainly consisted of two group activities, with the core content being facing the present and looking forward to the future. Specifically, the sixth group activity's core task was to face difficulties and challenges. Through pre-class review, frustration games, and setting small life goals, group members were helped to improve their ability to cope with problems and establish a positive attitude towards life. The seventh group activity's core task was to review the entire activity process and deal with separation emotions. Through video review, sharing feelings, and award ceremonies, the group members jointly reviewed the seven-group work intervention process and created a wish tree together, encouraging group members to face self-growth, enhance self-confidence, and look forward to the future.

Intervention Evaluation

Process evaluation

This study recorded the process of each group activity. After each session, the social worker evaluated the activity process and the group members' performance. In terms of the changes in group members, the following aspects were particularly noticeable: Transformation from passive contact to active interaction: At the beginning of participating in group activities, due to unfamiliarity with other group members and the social worker, children were generally shy and timid, and they had a low desire and initiative to share and communicate, speaking in a small voice. After guidance from the social worker, from the second activity onwards, the changes in most group members were quite obvious. They began to be willing to express their thoughts and their self-confidence increased.

Transformation from unfamiliar isolation to cooperative integration: In the first two group activities, each group member was more accustomed to being with more familiar playmates, and there was very little contact between boys and girls, with a clear gender segregation. After the third activity, the group members gradually established more familiar and trusting relationships, and their team awareness strengthened. Through cooperation and interaction in the game process, group members could more naturally integrate with each other and had more communication.

Transformation from vague cognition to confident acceptance: In the group activities, the group members' self-awareness changed significantly, mainly manifested in gradually accepting negative emotions and discovering their own strengths. For example, DYX was very good at discovering the strengths of other group members, and JZY, who was praised by him, once told

the social worker, "I didn't even know I had so many good qualities." In the frustration game and other links, the group members, by facing setbacks directly, gradually accepted the occurrence of difficulties and realized the existence of resilience.

Transformation from traditional habits to rule-based behavior: During the activities, some group members were relatively lively and restless, and there were instances of shouting or running around while others were speaking. In subsequent activities, the social worker guided the group members to establish a sense of rules and promptly corrected their original bad behavioral patterns, prompting the group members to learn to respect others and listen attentively.

Overall, the development of the group work presented the following process (see Figure 2). The distance, caution, and tension between group members gradually decreased, communication and interaction increased, the group atmosphere became more enthusiastic, and cohesion improved. Significant changes were observed in the group members' participation, enthusiasm, emotions, expression, interpersonal relationships, self-confidence, and self-efficacy, which can be summarized as active communication, peaceful emotions, positive attitudes, and confident cognition.

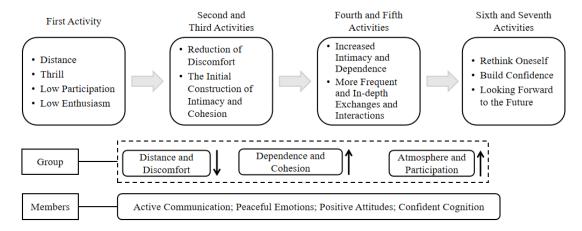


Figure 2. Change process of group work

Outcome evaluation

(1) Resistance Level Evaluation

The assessment questionnaire used in this study was the "Chinese Version of the Child and Youth Resilience Measure (CYRM-C)". The CYRM was developed by the International Resilience Project team based on quantitative analysis of 1451 adolescents from 14 countries and qualitative analysis of 89 adolescents [20]. The Chinese version was revised by Xiang Xiaoping, Tian Guoxiu, and their team. The questionnaire includes three factors: social support, family support, and personal resilience. It has been tested to have good reliability and validity and can be used to measure the resilience of Chinese adolescents. As shown in Figure 3, after the group activity intervention, the post-test scores of the group members' resilience levels were all higher than the pre-test scores. Although the difference between the pre-test and post-test scores varied, it can generally be stated that the group work intervention had a certain effect on improving the group members' resilience levels. In the pre-test and post-test results of the three resilience modes, the average value of the pre-test and post-test resilience levels of children with the resilience reconstruction mode was the highest, followed by the restoration of balance and maladaptive reconstruction in descending order (see Table 1), and the average scores of the post-test of the three different resilience modes were all higher than the pre-test average scores, which to a certain extent reflected that the group work intervention played a positive and positive role in promoting the resilience development of rural children in various modes.

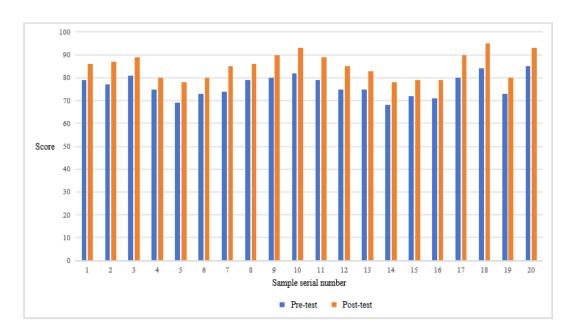


Figure 3. Comparison of pre-test and post-test resilience levels

Table 1. Comparison of pre-test and post-test scores for three resilience modes

| Resilience Outcome | Pre-test (mean) | Post-test (mean) | Difference |
|----------------------------|-----------------|------------------|------------|
| Resilience Reconstruction | 82.41 | 91.89 | 9.48 |
| Restoration of Balance | 76.27 | 84.63 | 8.36 |
| Maladaptive Reconstruction | 70.13 | 78.48 | 8.35 |

(2) Satisfaction Evaluation

After the group activities, the social worker conducted a satisfaction survey with the group members to understand their evaluation of the group activities. Among them, 70% of the group members believed that the group activities had greatly helped them improve their confidence, 75% of the group members had a deeper understanding of themselves, 85% of the group members believed that the group activities had greatly improved their interpersonal communication skills, 80% of the group members believed that the group activities had helped them better regulate their emotions, 60% of the group members believed that their problem-solving ability had been greatly improved, and 80% of the group members were more confident about their future. All 20 group members expressed their willingness to invite others to participate in the group activities. On the questions of "Group activities have improved my problem-solving ability" and "Group activities have given me confidence in the future", one group member each chose the "general" answer, which may indicate to some extent that the intervention effect of the group activities in this study on the group members' problem-solving ability and future confidence still has room for improvement. The author believes that it is possible that due to the influence of the intervention time and frequency, for rural children, it is easy to understand and learn the skills to cope with adversity, but the attitude of facing adversity calmly and believing in the future cannot be established in a short period of time. If there is a longer and more frequent intervention, or if necessary, individual case work intervention is adopted, there may be better results.

(3) Third-Party Evaluation

Third-party evaluation mainly refers to the evaluation of children's changes before and after group activities by teachers and parents. In this study, two teachers and four parents were invited to participate in the evaluation. They gave high praise and full affirmation to the group activities and believed that most students' changes showed a trend of manifestation, even if the degree of change varied, but positive change is a good start. The following conclusions can be drawn from the evaluation of teachers and parents: First, they fully affirmed the promoting effect of group work intervention on the changes of rural children in terms of behavior, emotions, interpersonal relationships, and resilience; second, they talked about the specific changes of students participating in group activities in school and family, which were reflected in positive shifts in personality, emotions, behavior, and attitude; third, they put forward some suggestions, such as carrying out long-term group activities and extending social work intervention to the family system. In general, third-party evaluation has great reference value. Teachers and parents observe the real-time state of children from the school and family systems respectively, and can examine the entire process of group activities

from an outsider's perspective [21], observing the children's changes before and after more objectively and keenly [22]. Therefore, the results of third-party evaluation can help to systematically reflect on the intervention process of group work and make a more objective and real judgment of the intervention results.

RESEARCH CONCLUSIONS

Subjective Interpretation of Resilience Models Based on the Resilience Operation Model

Based on Kumpfer's resilience operation model, and through observations and interviews with 20 rural children and their families, this study divided their resilience models into three categories: resilience reconstruction, restoration of balance, and maladaptive reconstruction. Different resilience models significantly influence the daily behavioral patterns and coping mechanisms of rural children under adversity. This study provides a subjective interpretation of different strategy choices: (1) Resilience reconstruction is the most ideal outcome, a positive resilience mode characterized by "clear goals" and "optimistic confidence." It is a process where individuals help themselves overcome crises and achieve self-improvement and self-integration; (2) Restoration of balance is a maintenance-oriented resilience outcome, characterized by "stable state" and "compromise adaptation." It is a calm resilience mode where individuals recover to their pre-stress state and maintain their original life, often exhibiting friendly and understanding attitudes, but also sensitivity and fear; (3) Maladaptive reconstruction is a lower-level resilience outcome, characterized by "negativity" and "destructiveness." It is often manifested as low self-efficacy, negative coping, anxiety, maladaptive behaviors, and a future life with no goals, plans, or consequences.

Group Work Intervention Promotes the Healthy Transformation of Resilience Models

Based on the above interpretation and analysis, this study developed corresponding social work intervention strategies, designed a total of seven group activities, and conducted process and outcome evaluations of the group activities. Through research, it can be concluded that group work intervention can help promote the healthy transformation of rural children's resilience. From the overall development of the group, in the first activity, group members showed a significant sense of distance and tension, and the group members' participation and enthusiasm were at a low level. In the second and third activities, there was a slight improvement, and the group members' discomfort was reduced to a certain extent, and intimacy and cohesion were initially established. In the fourth and fifth activities, the intimacy and dependence of the group members increased significantly, and the communication and interaction between members became more frequent and in-depth. In the sixth and seventh activities, group members showed a state of re-recognizing themselves and building confidence, and expressed their confidence in themselves and their expectations for the future. Overall, as an organic whole, the group showed a change in characteristics, with the sense of distance and discomfort gradually decreasing, the sense of dependence and cohesion gradually increasing, and the sense of atmosphere and participation gradually increasing throughout the seven group activities. The group, as a relatively independent field for intervening in high-risk adolescents, the power it gathers enables group members to rely on the interaction between themselves and others, the support between group members and the group, and through sharing, communication, and guidance in group activities, to achieve the goals of re-recognizing themselves, promoting personal growth and development, being inclusive of others, and accepting themselves. From the perspective of the development changes of group members, the effect of improving resilience levels was significant. The post-test scores of all group members were higher than the pre-test scores, and the average scores of the post-test of the three resilience modes were all higher than the pre-test average scores, showing a trend of active communication, peaceful emotions, positive attitudes, and confident cognition. It can be said that group work intervention can help improve the resilience levels of rural children and promote the healthy transformation of their resilience models.

Spiritual Social Work Techniques Contribute to the Improvement of Resilience

In this study, spiritual social work techniques such as time-space freezing, positive language techniques, emotion knot awareness techniques, and breathing awareness were introduced into group activities. It was found that intervention techniques in spiritual social work contribute to the improvement of individuals' resilience levels. Among them, the time-space freezing technique is an effective way to help social workers understand group members in a deep, comprehensive, and accurate manner. It locates group members using time and space coordinates to understand their developmental characteristics and tasks at different growth stages. Positive language techniques run through the entire process of group activities, communicating with group members in a positive and affirmative language, extending from linguistic positivity to positive shifts in mind, body, and spirit. Emotion knot awareness techniques help group members effectively identify their negative emotions and correct their negative emotional response patterns into pleasant, healthy, and positive response patterns. Breathing awareness helps group members practice daily methods of relaxing their minds and bodies. Especially in moments of emotional tension and anxiety, breathing awareness can

help individuals concentrate and restore a peaceful state of mind. Through the evaluation of group work, it can be concluded that: (1) Intervention techniques in spiritual social work are indeed helpful in enhancing resilience; (2) Spiritual capacity, as an individual's internal strength, can serve as a protective factor during adolescents' growth process to resist risks; (3) Spiritual social work has the function of enhancing resilience.

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Membrane Technology ISSN (online): 1873-4049

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