RESEARCH ON THE IMPACT OF RURAL LANDSCAPE PLANNING AND DESIGN ON ALLEVIATING AUDIENCE PSYCHOLOGICAL ANXIETY FROM THE PERSPECTIVE OF “BEAUTIFUL COUNTRYSIDE”

Tao Yang
School of Civil Engineering and Architecture, Shaanxi University of Technology, Hanzhong 723001, China

SUMMARY

Background: Rural landscape design should consider the psychological feelings of rural residents, avoid the destruction of rural landscape context and villagers’ cultural activities to the greatest extent, and create a rural environment in line with the rhythm of residents’ production and life and the evolution characteristics of rural environment with the help of modern design ideas.

Subjects and methods: 100 residents with different degrees of anxiety were selected as the research object to analyze the impact of rural landscape planning and design on the psychological anxiety of the audience from the perspective of beautiful countryside. The study used State Trait Anxiety Inventory (ATAI) to analyze anxiety, and used expectation maximization algorithm (EM) to classify the improvement effect of anxiety. ATA1 scale can be divided into state anxiety and trait anxiety. The improvement effect evaluation indicators are set as four levels: no improvement, slight improvement, improvement and obvious improvement. The rural landscape planning strategy includes four levels: constructing rural characteristics and promoting the construction of beautiful countryside (measures 1), comprehensively considering the geographical environment (measures 2), improving the rural settlement landscape (measures 3) and optimizing the natural ecological landscape (measures 4).

Results: It can be seen from table 1 that the four improvement measures have improved residents’ state anxiety and trait anxiety to varying degrees, which may be because different rural landscape planning improvement measures can relieve residents’ psychological anxiety.

Conclusions: The intervention methods of conventional psychological diseases can alleviate the phenomenon of psychological anxiety, but their application scope is greatly limited, and the implementation is difficult, the effect is poor, and the real-time performance is low.

Key words: beautiful countryside - rural landscape - planning and design

INTRODUCTION

China has a large rural population. With the continuous acceleration of urbanization and the improvement of material living standards, rural residents are likely to have a variety of adverse emotions such as anxiety, tension and irritability when facing such heavy life and work pressure (Chew 2020). If rural residents are in anxiety for a long time, their life and work will be particularly affected, and may even develop into other more serious mental diseases (Klein 2020). Since the Fifth Plenary Session of the 16th CPC Central Committee put forward the strategy of beautiful rural construction, urban construction and rural construction have gradually shown great differences (Kim 2018). The construction of beautiful countryside not only has positive significance for the construction of social harmony and stability, but also plays an important role in promoting the revitalization of rural economy.

Researchers such as Alem believe that anxiety is an abnormal bad psychological emotion in human beings. It is mainly an irritable emotion formed by paying too much attention to the future, destiny and life safety. Its clinical manifestations include anxiety, panic, tension, anxiety and other psychological manifestations (A L E M 2019). Broekman and other scholars pointed out that anxiety usually refers to people’s bad emotions, such as risk, stress and pain, which are beyond their acceptable range, and it is difficult for people to face and solve these problems (Broekman 2019). Harasimczuk scholar and team analyzed that the main causes of anxiety are various aspects of pressure, high standards and strict requirements, health problems, smart phones, etc. they believe that the length of advertising language has an impact on drivers’ attention and motor behavior (Harasimczuk 2021).

Anxiety is an abnormal bad psychological emotion existing in people. It is mainly an irritable emotion formed by excessive concern about the future, fate and life safety. Its clinical manifestations are anxiety, panic, tension, anxiety and other psychological manifestations (Sabela 2018). Medical psychologists believe that anxiety usually refers to people’s adverse feelings such as risk, pressure and pain that exceed their acceptable range, and it is difficult for people to face and solve these problems (Crawford 2018). Generally speaking, the essence of individual anxiety is a very reasonable emotional response. Under normal circumstances, people cannot worry too much (Ward 2021). But if people have long-term anxiety, they can easily develop this anxiety into emotional and physiological diseases. At present, the main causes of anxiety are all aspects of pressure, high standards and strict requirements, health...
concerns, smart phones and so on. At present, the most common forms of intervention are personalized psychological intervention, lectures on professional knowledge of mental health and so on. According to Freud’s different understanding of anxiety, anxiety can be divided into three types: realistic anxiety, neurological anxiety and moral anxiety. The specific situation is shown in Figure 1. As a painful emotional experience, realistic anxiety refers to the perception of external dangers (Borgeaud 2018). The phenomenon that the human body feels danger and produces anxiety has genetic characteristics, and this ability can be acquired in the acquired life. Because of its genetic characteristics, realistic anxiety can easily develop into fear sensitivity, and then develop into reality (Hale 2018). Neurotic anxiety refers to that when an individual is aware of his instinct and produces danger, the objective venting effect of individual instinct exceeds the anti-energy venting effect of self, and the human body will produce fear. Neurotic anxiety can be divided into free anxiety, strong irrational fear (phobia), panic response or similar panic response. Panic response or similar panic response is sudden, and there is no obvious cause of stimulation. Phobia means that the degree of terror completely exceeds the degree of fear of things themselves. Terror has the characteristics of irrationality, and each kind of necrophobia can be attributed to the original desire of self for the things we fear (Charles-Edouard 2018). Moral anxiety refers to the self-experience of guilt and shame. The root cause is self-awareness of the danger of conscience.

The study puts forward the rural landscape planning and design from the perspective of beautiful countryside, and analyzes the impact of four different improvement strategies on Residents’ anxiety, in order to contribute to the villagers’ physical and mental health.

**SUBJECTS AND METHODS**

**Study setting**

Moral anxiety has two characteristics: after nature and objectivity. It is closely related to neurotic anxiety, because the main enemy of superego is the choice of the original object of ID. Domestic reports have pointed out that the rural landscape planning and design from the perspective of beautiful countryside can alleviate people’s psychological problems to a certain extent. Beautiful countryside is a new concept of China’s new socialist rural construction. The concept of beautiful countryside puts forward a higher goal for rural construction. Rural landscape refers to the comprehensive landscape of natural, social, cultural, economic and other phenomena in rural areas, involving a variety of elements such as Sichuan system, rivers, roads, farmland and villages, reflecting a variety of functions such as aesthetics, cultural maintenance, ecological service, production and life. Rural landscape usually has the characteristics of ecological stability, productivity and regionality. It can be divided into two types: natural landscape and cultural landscape. Cultural landscape includes rural settlement landscape and productive landscape dominated by agriculture, which can reflect the regional economic situation and cultural customs. Natural landscape includes landform, animals and plants, climate, soil, hydrology and other elements, which can reflect the natural conditions of rural areas. At this stage, rural construction is facing the constraints of economic depression, insufficient transportation, backward technology and other factors, which will have a significant impact on the process of beautiful rural construction. The basic principles of beautiful rural landscape design are as follows: adjusting measures to local conditions, sustainable development, people-oriented and serving the public.

The basic characteristics of China’s vast territory have formed different climate, geographical conditions and natural environment, which has created different social customs and architectural styles, and then affect people’s lifestyle, cultural literacy, folk customs and religious beliefs. In the process of beautiful rural landscape design, we should design and study the rural landscape according to local conditions according to local cultural characteristics, construction technology, environmental characteristics, climate characteristics, building materials, topographic changes and other factors. In terms of plant landscaping, suitable tree species and local tree species should be selected, and trees and flowers should be suitable for trees and flowers, so as to maximize the ecological benefits of plants. Through reasonable analysis and planning, essence is
absorbed from local culture to form different landscapes, which are different from other rural landscapes. In this way, the original ecological environment is maintained, the local unique culture is represented, and the recognition of local residents can be obtained.

**Table 1. Principles to be considered in rural landscape design**

<table>
<thead>
<tr>
<th>Principle</th>
<th>Specific attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit one’s measures to local conditions</td>
<td>According to the local cultural characteristics, construction technology, environmental characteristics, climate characteristics, building materials, topographic changes and other factors</td>
</tr>
<tr>
<td>Sustainable development</td>
<td>Considering the ecological effect, take water source, forest resources and land resources as the main energy</td>
</tr>
<tr>
<td>People oriented and serving people</td>
<td>In the process of architectural form and landscape color design, their needs should be considered, local customs should be respected, and comfort and safety should be ensured</td>
</tr>
</tbody>
</table>

At present, the biggest difficulty of landscape design is the Sustainable challenge caused by the crisis of environment, energy and resources. In the process of rural landscape design, it is necessary to consider ecological effects, take resource regeneration, energy conservation and environmental protection as the fundamental purpose, adhere to green design, and take water source, forest resources and land resources as the main energy. Human text is not only the main principle of rural landscape design, but also an important principle that design needs to serve mankind. According to the theory of garden city, landscape design needs to maximize people’s requirements for living environment and provide residents with a comfortable and pleasant living environment. The ultimate beneficiaries of rural landscape are local villagers. Their needs should be considered in the process of architectural form and landscape color design, respect local customs and habits, and ensure comfort and safety. Rural characteristics should be based on characteristic culture, combined with national customs, ancient and simple folk customs and national characteristics, so as to empower rural landscape design and promote the process of rural spiritual civilization in China. Rural cultural characteristics can maximize the potential of rural cultural tourism, improve the overall economic benefits and promote the construction of beautiful villages. Table 1 refers to the principles to be considered in rural landscape design.

This connection stems from the standards set by parents, mainly to prevent children from having aggressive and sexual impulses. The key points of rural landscape planning and design from the perspective of beautiful countryside are as follows: build rural characteristics and promote the construction of spiritual civilization, comprehensively consider the geographical environment, improve the rural settlement landscape and optimize the natural ecological landscape. Rural characteristics are divided into material culture and intangible culture, both of which are the same cultural system, but intangible culture can connect the social activities and emotional relations of different villages through the emotional level. The theory of rural landscape design focuses on the local cultural characteristics of rural areas, and improves the cultural atmosphere with the help of rural unique handicrafts, vegetation and buildings, so as to drive the development of rural tourism. The design and planning of rural landscape should be combined with geographical characteristics to promote its harmony and unity with the surrounding environment and improve the ecology of construction. The rural settlement landscape needs to show the unique characteristics of the village, and the characteristics of the local village should be respected in the design process; Reasonably adjust the road network; Deep excavation of rural resources; Configure corresponding service facilities. Natural ecological landscape includes nature reserves, rivers, woodlands, etc. its biggest function is to repair the local ecological environment.

**Design**

In order to analyze the impact of rural landscape planning and design on the psychological anxiety of the audience from the perspective of beautiful countryside, the research uses Epinfo data statistical analysis software for analysis. 100 residents with different degrees of anxiety were selected as the research object. The improvement effect of audience anxiety was classified by expectation maximization algorithm (EM), and the anxiety was analyzed by State Trait Anxiety Inventory (ATAI). The experimental period lasted for 12 months. Table 1 refers to the basic information of the research object.ATAI scale can be divided into state anxiety and trait anxiety. State anxiety is a transient adverse emotional experience, including neuroticism, fear, tension, autonomic hyperfunction and so on. Trait anxiety is an emotional experience that is often evaluated. It has stability and individual differences. The improvement effect evaluation indicators are set as four levels: no improvement, slight improvement, improvement and obvious improvement. The improvement rate is the ratio of the number of people with slight improvement, improvement and obvious improvement to the total number of people. The rural landscape planning strategy includes four levels: constructing rural characteristics and promoting the construction of spiritual civilization (measures 1), comprehensively considering the geographical
EM algorithm is a kind of optimization algorithm to realize maximum likelihood estimation through iteration. It is used to estimate the parameters of probability model containing hidden variables or missing data. EM algorithm and its improved version are used to solve the parameters of machine learning algorithms. Common examples include unsupervised learning algorithms such as Gaussian mixture model, probabilistic principal component analysis, hidden Markov model and so on. The standard computational framework of EM algorithm consists of E-step and M-step alternately. The convergence of the algorithm can ensure that the iteration can at least approach the local maximum. The objective function is indirectly optimized by optimizing the lower bound of the objective function. It is greatly affected by the initial value and cannot guarantee the global optimization, but it can guarantee the convergence to the stable point. In step e, we fix the value of model parameters and optimize the distribution of implicit data, while in step m, we fix the distribution of implicit data and optimize the value of model parameters. The basic flow of EM algorithm is as follows: firstly, assume the implicit data (step e of EM algorithm), and then maximize the log likelihood based on the observed data and guessed implicit data to solve our model parameters (Step M of EM algorithm). Since our previous hidden data is guessed, based on the currently obtained model parameters, continue to guess the hidden data (step e of EM algorithm), and then continue to maximize the log likelihood to solve our model parameters (Step M of EM algorithm). By analogy, continue to iterate until the distribution parameters of the model are basically unchanged, and the algorithm converges to find the appropriate model parameters. The convergence of EM algorithm can only ensure local optimization, not global optimization. Therefore, the EM algorithm is usually randomly initialized and run many times, and the iterative output with the maximum log likelihood is selected. Because iterative rules are easy to implement and hidden variables can be considered flexibly, EM algorithm is widely used to deal with missing measurements of data and parameter estimation of many machines learning algorithms, including Gaussian mixture model and hidden Markov model. EM algorithm is characterized by stability, convergence and computational complexity. EM algorithm can at least maintain the current optimization results and will not move in the opposite direction of the maximum, so EM algorithm has numerical stability. The EM algorithm converges to the local maximum or saddle point of log likelihood. For computational complexity, when step e has analytical form, EM algorithm is an algorithm with low computational complexity and storage overhead, which can complete the calculation with very small computational resources. When step e does not have analytical form, EM algorithm needs to be combined with other numerical methods. Compared with gradient algorithms, such as Newton iterative method and random gradient descent, the advantage of EM algorithm is that its solution framework can add additional constraints on the solution goal. For example, in the example of Gaussian mixture model, EM algorithm can ensure that the result of each iteration is a positive definite matrix when solving covariance. It is assumed that the products are divided into two categories: qualified and unqualified. The probability of unknown unqualified products is \( P \), random variable \( X \) is whether they are qualified, \( X = 0 \) refers to qualified and \( X = 1 \) refers to unqualified. Set a set of sampling data as \( (x_1, x_2, x_3, \ldots, x_n) \), and the likelihood function of the sample is equation (1).

\[
f(X_i = x; p) = \prod_{i=1}^{n} p^{x_i}(1-p)^{1-x_i}
\]

### RESULTS

Firstly, the study analyzes the impact of different rural landscape planning improvement measures on the psychological anxiety of the audience after the experiment. The results are shown in Figure 2. It can be seen from the figure that the four improvement measures of building rural characteristics and promoting the construction of spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape (measures 4), in order to avoid the influence of subjective factors on the research results, the data of all subjects were taken for analysis.
ecological landscape can improve the anxiety of residents, especially in terms of state anxiety. The improvement rates of the four measures are 86.0%, 92.0%, 90.0% and 92.0% respectively. In terms of trait anxiety, the improvement rates of the four measures were 85.0%, 88.0%, 89.0% and 91.0% respectively. This may be because different rural landscape planning improvement measures can relieve residents’ psychological anxiety.

Figure 2. Effects of different rural landscape planning improvement measures on audience psychological anxiety after 2 months

The research then analyzes the impact of different rural landscape planning improvement measures on the state anxiety of the audience in different periods. The results are shown in Table 3. With the increase of time, the four improvement measures of building rural characteristics and promoting the construction of spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape can improve the anxiety of residents, and the improvement rate of the four improvement measures is gradually increasing. One month after the implementation of the improvement measures of rural landscape planning, the improvement rates of the four improvement measures of building rural characteristics and promoting the construction of spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape are 71.0%, 73.0%, 74.0% and 76.0% respectively; After three months of implementation, the improvement rates of the four improvement measures were 79.0%, 80.0%, 79.0% and 81.0% respectively; After six months of implementation, the improvement rates of the four improvement measures were 81.0%, 85.0%, 83.0% and 86.0% respectively. This is mainly because the advance of time helps landscape planning relieve residents’ anxiety.

Table 3. Effects of different rural landscape planning improvement measures on audience state anxiety in different periods

<table>
<thead>
<tr>
<th>Measures</th>
<th>After 1 month</th>
<th>After 3 months</th>
<th>After 6 months</th>
<th>After 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures 1</td>
<td>71</td>
<td>79</td>
<td>81</td>
<td>86.0</td>
</tr>
<tr>
<td>Measures 2</td>
<td>73</td>
<td>80</td>
<td>85</td>
<td>92.0</td>
</tr>
<tr>
<td>Measures 3</td>
<td>74</td>
<td>79</td>
<td>83</td>
<td>90.0</td>
</tr>
<tr>
<td>Measures 4</td>
<td>76</td>
<td>81</td>
<td>86</td>
<td>92.0</td>
</tr>
</tbody>
</table>

The research then analyzes the impact of different rural landscape planning improvement measures on the trait anxiety of the audience in different periods. The results are shown in Table 4. With the increase of time, the four improvement measures of building rural characteristics and promoting the construction of spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape can improve the anxiety of residents, and the improvement rate of the four improvement measures is gradually increasing. One month after the implementation of the improvement measures of rural landscape planning, the improvement rates of the four improvement measures of building rural characteristics and promoting the construction of
spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape are 70.0%, 72.0%, 73.0% and 75.0% respectively. After three months of implementation, the improvement rates of the four improvement measures were 78.0%, 79.0%, 78.0% and 80.0% respectively. After six months of implementation, the improvement rates of the four improvement measures were 80.0%, 84.0%, 82.0% and 84.0% respectively. This is mainly because the advance of time helps landscape planning relieve residents’ anxiety.

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</tr>
<tr>
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<td>72</td>
<td>79</td>
<td>84</td>
<td>88.0</td>
</tr>
<tr>
<td>Measures 3</td>
<td>73</td>
<td>78</td>
<td>82</td>
<td>89.0</td>
</tr>
<tr>
<td>Measures 4</td>
<td>75</td>
<td>80</td>
<td>84</td>
<td>91.0</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

The intervention program of mental illness has been concerned by experts and scholars at home and abroad. Firstly, the research analyzes the effect of rural landscape planning improvement measures on the audience’s psychological anxiety, classifies the improvement effect of audience anxiety through EM, and uses ATAI to analyze the anxiety. The results show that the four improvement measures of building rural characteristics and promoting the construction of spiritual civilization, comprehensively considering the geographical environment, improving the rural settlement landscape and optimizing the natural ecological landscape have improved residents’ state anxiety and trait anxiety in varying degrees. The corresponding improvement rates of state anxiety are 86.0%, 92.0%, 90.0% and 92.0% respectively. The improvement rates of trait anxiety were 85.0%, 88.0%, 89.0% and 91.0% respectively. Residents’ psychological anxiety can be intervened through different rural landscape planning improvement measures, which can be further applied and popularized.

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**Reference**

Correspondence:
Tao Yang,
School of Civil Engineering and Architecture, Shaanxi University of Technology, Hanzhong 723001, China
E-mail: ytsangle@163.com
STUDY ON THE IMPACT OF THE CONSTRUCTION OF PUBLIC MANAGEMENT SYSTEM IN RURAL AREAS ON ALLEVIATING THE MENTAL PRESSURE OF RURAL RESIDENTS

Aishui Yu* & Deshui Yu2
1School of Government, Beijing Normal University, Beijing 100875, China
2Wuhai Energy Co., Ltd, National Energy Investment Group Co., Ltd., Wuhai 016000, China

SUMMARY

Background: Different from urban areas, rural areas are more backward in culture and education, consumption level, life concept, transportation convenience and so on. The vast majority of rural public management functions are imperfect, especially in transportation, education, culture, medical and health affairs. The problems of public management in rural economic construction at this stage are unclear government functions, lack of rural public utility funds, lack of rural public management legal system and lack of rural public management talents.

Subjects and methods: 100 residents were selected as the research object to analyze the effect of the construction of public management system in rural areas on the mental stress of rural residents. The experimental period lasted for 6 months. This study used the expectation maximization algorithm (EM) to classify the improvement effect of mental stress. The evaluation indexes are depression, anxiety, fear and depression, and the evaluation indexes of improvement effect are no improvement, slight improvement, improvement and obvious improvement. The corresponding score values are 0-25, 26-50, 51-75 and 76-100 respectively.

Results: It can be seen from Table 1 that the four improvement strategies for the construction of public management system in rural areas can improve the mental pressure of rural residents, especially in the two aspects of depression and anxiety. This may be because the construction of public management system in different rural areas can ease the psychological anxiety of residents.

Conclusions: The public management system in rural areas needs to be placed in a key position in the new rural construction. The countryside, the market and the government need to jointly undertake the public management responsibilities, positioning farmers, the market and the government as participants, operators and guides respectively.

Key words: beautiful countryside - rural landscape - planning and design

INTRODUCTION

With the improvement of material living standards and the development of network information technology, as well as the increasingly fierce social competition, rural residents are facing increasing living burden, employment pressure and social communication pressure, which makes them easy to fall into bad emotions such as irritability, tension and anxiety (Fort 2021). As an important measure of Rural Revitalization Strategy, the construction of public management system in rural areas can improve the quality of public management through effective measures, which can not only protect farmers’ interests and improve farmers’ happiness index (Yoo 2019). Public management mainly refers to the legal interests of rural social things and rural residents, including transportation, social environment, education, culture, rural health and so on (Karen 2021). The reform of public utilities management service has high difficulty and complexity. By coordinating the management functions of various departments, it can realize the unity of public utilities and achieve the achievements of rural construction, so as to help rural residents obtain a balanced lifestyle of physical and mental health.

Katie scholars believe that through the extended communication on the Internet, many users have formed relationships with others online. The interaction of several aspects of Internet media makes the development process of online relations different from offline development. As far as psychological research is concerned, the Internet is still a rather unknown field, especially in the field of online relationship development (Katie 2018). Newby designed an experimental scheme to analyze the treatment of disease anxiety disorder and somatic symptom disorder by network-based cognitive behavior therapy and psychological education control. The results show that the proposed cognitive behavior therapy has practical value (Newby 2018). Pepper and other researchers analyzed the relationship among autism, early psychosis and social anxiety disorder, and expounded the role of social cognition and its relationship with young adult disability characterized by social disorder (Pepper 2018).

In the wave of urbanization, modernization and marketization, great changes are taking place in China’s rural areas, from production level to life level, from material level to spiritual level (Da 2020). The vast majority of rural residents will face all kinds of invisible pressure and different ideas from the times and society, which leads to their lack of excretion outlet of bad emotions and emotions, which is easy to produce psychological problems (Siew 2019). Different from the psychological problems of urban residents, the psychological problems of rural residents have not been widely concerned by the society (Ashar 2021). If the