Journal of Clinical and Nursing Research, 2025, Volume 9, Issue 8
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

Study on Screening of Main Acupoints and Pattern-Specific Acupoint Combination Rules for Acupuncture in Autism Spectrum Disorder Complicated with Sleep Disorder Based on Data Mining

Wei Du[1], Hujie Song[2]*

[1]Shaanxi University of Chinese Medicine, Xianyang, Shaanxi, China
[2]Xi'an Hospital of Encephalopathy of Traditional Chinese Medicine, Xi'an, Shaanxi, China

**Corresponding author: Hujie Song, 13909231298@139.com*

Abstract: *Objective*: To explore the core acupuncture acupoints and pattern-adapted acupoint combination rules for autism spectrum disorder (ASD) complicated with sleep disorder using clinical data mining technology. *Methods:* A retrospective analysis was conducted on the diagnosis and treatment data of 104 children with ASD complicated with sleep disorder admitted to Xi'an Traditional Chinese Medicine (TCM) Encephalopathy Hospital from January 2022 to December 2024. Cross-pattern main acupoints were screened via frequency statistics, chi-square test, and factor analysis; pattern-specific auxiliary acupoints were extracted by combining multiple correspondence analysis, cluster analysis, and association rule mining. *Results*: Ten cross-pattern main acupoints (Baihui, Sishenzhen, Language Area 1, Language Area 2, Neiguan, Shenmen, Yongquan, Xuanzhong) were identified, and acupoint combination schemes for four major TCM patterns (Hyperactivity of Liver and Heart Fire, Deficiency of Kidney Essence, Deficiency of Both Heart and Spleen, Hyperactivity of Liver with Spleen Deficiency) were established. *Conclusion*: Acupuncture treatment should follow the principle of "regulating spirit and calming the brain as the root, and dredging collaterals based on pattern differentiation as the branch". The synergy between main and auxiliary acupoints can accurately regulate the disease, providing a basis for precise clinical treatment.

Keywords: Autism Spectrum Disorder (ASD); Sleep disorder; Acupoint selection rule; Data mining

Online publication: September 8, 2025

1. Introduction

Autism Spectrum Disorder (ASD), also known as autism spectrum disorder, is a neurodevelopmental disorder that onset in early development. It is characterized by impairments in social interaction, communication difficulties,

restricted interests, and stereotyped behaviors, with most patients accompanied by intellectual developmental disorders. Approximately 49%–80% of children with ASD have comorbid sleep disorders, mainly manifested as difficulty falling asleep, frequent nighttime awakenings, and daytime functional impairment, which seriously affect neurodevelopment and family quality of life [1]. In recent years, clinical practice and research on TCM treatment for ASD complicated with sleep disorder have increased year by year. In particular, acupuncture has shown significant efficacy in improving the clinical symptoms of ASD with comorbid sleep disorder, and has attracted wide attention due to its simple operation and few side effects. This study retrospectively explored the rules of acupuncture acupoint selection for ASD complicated with sleep disorder using data mining technology, aiming to provide a reference for precise clinical treatment and a theoretical basis for further exploring the safety and effectiveness of acupuncture in the treatment of ASD.

2. Materials and methods

2.1. Data source

Medical records of children with ASD complicated with sleep disorder admitted to Xi'an TCM Encephalopathy Hospital affiliated to Shaanxi University of Chinese Medicine from January 2022 to December 2024 were included. A total of 104 eligible cases were screened, including 75 males (72.12%) and 29 females (27.88%), aged 2–14 years with an average age of 5.99 years.

2.2. Diagnostic criteria

2.2.1. Diagnostic criteria for ASD

Refer to the diagnostic criteria for autism in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V) and the relevant criteria for ASD in the Clinical Practice Guidelines for Pediatrics in Traditional Chinese Medicine - Autism Spectrum Disorder [2, 3].

2.2.2. Diagnostic criteria for childhood sleep disorder

Comprehensive assessment was conducted through medical history collection, questionnaire evaluation, and auxiliary examinations. Medical history collection mainly focused on the clinical manifestations described in the present illness history and current symptoms; auxiliary examination was mainly based on polysomnography [4]; the questionnaire survey mainly used the Chinese version of the Children's Sleep Habits Questionnaire (CSHQ) [5].

2.3. Inclusion criteria

(1) Meet the dual diagnostic criteria for ASD and childhood sleep disorder.
(2) No restrictions on gender, ethnicity, age, region, or disease course.
(3) Complete and clear medical records, including admission records, TCM and Western medicine diagnoses, treatment process, and discharge records.
(4) For patients admitted repeatedly within 3 years, only the medical records of their first admission for a comorbid sleep disorder were included.

2.4. Exclusion criteria

(1) Complicated with other systemic diseases that affect the treatment of the primary diagnosis.

(2) Cases with severe data missing related to the study.
(3) Patients with other diseases that affect sleep disorder.

2.5. Data standardization and database establishment

Acupoint prescriptions from each included medical record were entered into an Excel spreadsheet to establish an acupoint prescription data collection form and database. Acupoint names were standardized in accordance with General Terminology of Acupuncture and Moxibustion (GB/T 30232-2013) [6]. The included medical record data were cleaned, terminology-standardized, and organized: for example, "childhood autism" and "early childhood autism" were uniformly classified as "autism spectrum disorder"; TCM diagnosis was uniformly referred to as "pediatric autism"; "pattern of hyperactive liver with spleen deficiency" and "pattern of spleen deficiency with hyperactive liver" were uniformly classified as "pattern of hyperactivity of liver with spleen deficiency". Data entry and verification were conducted by 2 personnel to ensure data accuracy.

2.6. Statistical methods

SPSS 29 and SPSS Modeler 18 were used for data analysis. Main acupoints were screened using frequency statistics, chi-square test, and factor analysis; auxiliary acupoints were screened using chi-square test, multiple correspondence analysis, cluster analysis, and association rule analysis to identify core acupoints. The correlation and specificity between each TCM pattern and acupoints were visualized [7–9].

3. Results

3.1. Demographic information and pattern distribution

A total of 4 TCM patterns were included: Deficiency of Both Heart and Spleen, Hyperactivity of Liver and Heart Fire, Deficiency of Kidney Essence, and Hyperactivity of Liver with Spleen Deficiency. After standardization, the names of the patterns were unified to ensure data consistency. The demographic information and pattern distribution are shown in **Table 1**.

Table 1. Distribution characteristics of TCM diagnostic syndromes

TCM diagnostic pattern	Frequency	Percentage
Heart-Spleen Deficiency Syndrome	46	44.23%
Heart-Liver Fire Excess Syndrome	34	32.69%
Kidney Essence Deficiency Syndrome	12	11.54%
Liver Hyperactivity-Spleen Deficiency Syndrome	12	11.54%
Total	104	100.00%

3.2. Screening of main acupoints

3.2.1. Frequency statistical analysis of acupoints (Acupoint areas)

A total of 37 acupoints (acupoint areas) were used in this study. There were 4 acupoints (acupoint areas) used in all cases, namely Baihui, Sishenzhen, Language Area 1, and Language Area 2. Acupoints with a usage rate > 50% included: Language Area 3, Naohu, Neiguan, Shenmen, Yongquan, Xuanzhong, Zusanli, Xinshu, Sanyinjiao, and Pishu. These high-frequency acupoints were selected as candidates for main acupoints, with details shown in **Table 2**.

Table 2. Usage frequency of 37 acupuncture points

Acupuncture point name	Frequency of use	Usage rate %	Acupuncture point name	Frequency of use	Usage rate %
Baihui (GV20)	104	100.00%	Benshen (GB13)	5	4.80%
Sishenzhen (EX-HN1)	104	100.00%	Shenting (DU24)	4	3.80%
Speech Area I	104	100.00%	Shuigou (GV26)	3	2.90%
Speech Area II	104	100.00%	Tongli (HT5)	3	2.90%
Speech Area III	103	99.00%	Guanyuan (CV4)	3	2.90%
Neiguan (PC6)	101	97.10%	Yamen (GV15)	2	1.90%
Shenmen (HT7)	101	97.10%	Motor Area	2	1.90%
Naohu (GV17)	100	96.20%	Foot Motor-Sensory Area	2	1.90%

Analysis of the acupuncture methods used in all cases showed consistency: for scalp acupuncture, conventional transverse insertion was adopted, with needles inserted close to the periosteum, a needle depth of approximately 25 mm, strong stimulation, and a 1-hour needle retention period. During needle retention, functional training with needles in place was persisted. For body acupuncture, the even reinforcing-reducing technique was used without needle retention, with 6 sessions per week.

3.2.2. Chi-Square test analysis of high-frequency acupoints

Since Baihui, Sishenzhen, Language Area 1, and Language Area 2 had a 100% usage rate, and based on TCM theory, these 4 acupoints all have the effects of opening the orifices, awakening the spirit, and dredging collaterals, they were included in the main acupoints without further analysis. The remaining high-frequency acupoints (acupoint areas) obtained in 2.2.1 were subjected to chi-square test. Acupoints (acupoint areas) with a p-value ≥ 0.05, including Language Area 3, Naohu, Neiguan, Shenmen, Yongquan, and Xuanzhong, were screened out, indicating that these acupoints (acupoint areas) had no pattern preference and were included as candidates for main acupoints. If the p-value < 0.05 (e.g., Zusanli, Xinshu, Sanyinjiao, Pishu), it indicates that such acupoints (acupoint areas) were related to a specific pattern and were transferred to auxiliary acupoint analysis. Details are shown in **Table 3**.

Table 3. Chi-Square test statistics for high-frequency acupoints

Name	P-value	Name	*P*-value
Speech Area III	0.736	Xuanzhong (GB39)	0.792
Neiguan (PC6)	0.634	Xinshu (BL15)	0
Shenmen (HT7)	0.634	Sanyinjiao (SP6)	0
Naohu (GV17)	0.31	Zusanli (ST36)	0
Yongquan (KI1)	0.792	Pishu (BL20)	0

3.2.3. Principal component factor analysis of high-frequency acupoints

Principal component analysis was performed on all candidate main acupoints, with the varimax rotation method selected. Acupoints with a factor loading > 0.5 were extracted through dimensionality reduction to reveal the internal correlation of acupoint groups. Finally, the core acupoints of Factor 1 were Neiguan, Shenmen, Yongquan, and Xuanzhong; the core acupoints of Factor 2 were Language Area 3 and Naohu; Shenmen was a cross-factor

acupoint. Details are shown in **Table 4**.

Table 4. Principal component matrix

	Component 1	Component 2
Neiguan (PC6)	0.972	-0.099
Xuanzhong (GB39)	0.866	0.446
Yongquan (KI1)	0.866	0.446
Shenmen (HT7)	0.696	0.551
Speech Area III	0.028	0.931
Naohu (GV17)	0.39	0.723

Through high-frequency statistics, chi-square test, and principal component analysis, a total of 10 cross-pattern acupoints (acupoint areas) were finally selected as main acupoints, including scalp acupuncture acupoints (Baihui, Sishenzhen, Language Area 1, Language Area 2, Language Area 3, Naohu) and body acupoints (Neiguan, Shenmen, Yongquan, Xuanzhong).

3.3. Screening of auxiliary acupoints

3.3.1. Chi-square test analysis of auxiliary acupoints

All acupoints except the main acupoints were selected as candidates for auxiliary acupoints and subjected to chi-square test. Due to the small sample sizes of the Deficiency of Kidney Essence pattern and Hyperactivity of Liver with Spleen Deficiency pattern, Fisher's exact test results were used, and the Bonferroni correction threshold was calculated manually. Acupoints with a p-value < 0.0013 and absolute residual value > 1.96 were selected. Among them, although acupoints such as Xinshu, Ganshu, Zusanli, Sanyinjiao, Pishu, Ganshu, and Taichong had an absolute residual value < 1.96 in each pattern, their p-value < 0.0013 and Cramer's V > 0.3 indicated a strong correlation between these acupoints and patterns, which may have clinical significance, so they were all included as candidate auxiliary acupoints. The resulting candidate auxiliary acupoints were: Deficiency of Both Heart and Spleen: Zusanli, Xinshu, Sanyinjiao, Pishu; Hyperactivity of Liver and Heart Fire: Xinshu, Ganshu, Taichong, Fengchi; Deficiency of Kidney Essence: Sanyinjiao, Pishu, Taixi, Shenshu; Hyperactivity of Liver with Spleen Deficiency: Zusanli, Sanyinjiao, Pishu, Ganshu, Taichong.

3.3.2. Multiple correspondence analysis of auxiliary acupoints

The candidate auxiliary acupoints obtained in 3.3.1 and TCM patterns were included in multiple correspondence analysis, with the default dimension set to 2. A joint category plot was selected to quantify the spatial distance between acupoints and patterns. In the output results, if an acupoint point was close to the origin and far from a specific pattern, it indicated that the acupoint was a co-occurring acupoint; if an acupoint point was close to a specific pattern, it indicated a strong correlation between the acupoint and that specific pattern, and the acupoint could be used as a core auxiliary acupoint for the pattern. The results were: Deficiency of Both Heart and Spleen: Zusanli, Xinshu, Sanyinjiao, Pishu; Hyperactivity of Liver and Heart Fire: Xinshu, Ganshu, Taichong, Fengchi; Deficiency of Kidney Essence: Taixi, Shenshu, Xinshu; Hyperactivity of Liver with Spleen Deficiency: Zusanli, Sanyinjiao, Pishu, Taichong, Xinshu. Xinshu was close to the origin in all four patterns, suggesting it was a "basic auxiliary acupoint" that required further verification using other methods, so it was included in each pattern.

3.3.3. Cluster and association rule analysis of each auxiliary acupoint

K-means cluster analysis was performed on the candidate auxiliary acupoints obtained in 3.3.2, with the number of clusters set to 4, to check whether the final clusters were consistent with the actual patterns. The results showed that the cross-tab comparison between the cluster results and actual patterns was roughly consistent. The results were: Cluster 1: Xinshu, Ganshu, Taichong, Fengchi; Cluster 2: Zusanli, Xinshu, Sanyinjiao, Pishu; Cluster 3: Zusanli, Sanyinjiao, Pishu, Ganshu, Taichong; Cluster 4: Sanyinjiao, Pishu, Taixi, Shenshu.

SPSS Modeler 18.0 was used for association rule strength analysis to verify the association strength between each auxiliary acupoint and each pattern. The minimum support was set to 7, confidence to 60%, and lift > 1.5 to exclude false correlations from random co-occurrence, and the relationship was visualized. The results showed that the acupoints strongly associated with each pattern were: Deficiency of Both Heart and Spleen: Zusanli, Xinshu, Sanyinjiao, Pishu; Hyperactivity of Liver and Heart Fire: Xinshu, Ganshu, Taichong, Fengchi; Deficiency of Kidney Essence: Taixi, Shenshu, Sanyinjiao, Pishu; Hyperactivity of Liver with Spleen Deficiency: Sanyinjiao, Pishu, Ganshu, Taichong.Details are shown in **Table 5** and **Table 6**.

Table 5. Final cluster centers for each acupoint combination

	Category 1	Category 2	Category 3	Category 4
Zusanli (ST36)	0	1	1	0
Xinshu (BL15)	1	1	0	0
Sanyinjiao (SP6)	0	1	1	1
Pishu (BL20)	0	1	1	1
Ganshu (BL18)	1	0	1	0
Taixi (KI3)	0	0	0	1
Shenshu (BL23)	0	0	0	1
Taichong (LR3)	1	0	1	0
Fengchi (GB20)	1	0	0	0

Table 6. Association rule table for acupoint combinations and syndrome types

Consequent (Syndrome Type)	Antecedent (Acupoint Combination)	Support	Confidence	Lift
TCM Syndrome = Liver Hyperactivity & Spleen Deficiency Syndrome	Taichong (LR3) and Sanyinjiao (SP6)	7.69%	62.50%	5.42
TCM Syndrome = Liver Hyperactivity & Spleen Deficiency Syndrome	Ganshu (BL18) and Pishu (BL20)	7.69%	62.50%	5.42
TCM Syndrome = Kidney Essence Deficiency Syndrome	Shenshu (BL23) and Taixi (KI3)	10.58%	100.00%	8.67
TCM Syndrome = Kidney Essence Deficiency Syndrome	Shenshu (BL23) and Sanyinjiao (SP6)	10.58%	100.00%	8.67
TCM Syndrome = Kidney Essence Deficiency Syndrome	Shenshu (BL23) and Pishu (BL20)	7.69%	87.50%	7.58
TCM Syndrome = Heart-Liver Fire Blazing Syndrome	Fengchi (GB20) and Taichong (LR3)	23.08%	100.00%	3.06
TCM Syndrome = Heart-Liver Fire Blazing Syndrome	Fengchi (GB20) and Ganshu (BL18)	23.08%	100.00%	3.06
TCM Syndrome = Heart-Liver Fire Blazing Syndrome	Fengchi (GB20) and Xinshu (BL15)	24.04%	96.00%	2.94
TCM Syndrome = Dual Deficiency of Heart & Spleen Syndrome	Pishu (BL20) and Xinshu (BL15)	53.85%	82.14%	1.86
TCM Syndrome = Dual Deficiency of Heart & Spleen Syndrome	Zusanli (ST36) and Sanyinjiao (SP6)	56.73%	77.97%	1.76

Through chi-square test, multiple correspondence analysis, K-means cluster analysis, and association rules, the pattern-specific auxiliary acupoints were extracted by integrating the results: Deficiency of Both Heart and Spleen: Zusanli, Xinshu, Sanyinjiao, Pishu; Hyperactivity of Liver and Heart Fire: Xinshu, Ganshu, Taichong, Fengchi; Deficiency of Kidney Essence: Taixi, Shenshu, Sanyinjiao, Pishu; Hyperactivity of Liver with Spleen Deficiency: Sanyinjiao, Pishu, Ganshu, Taichong.

4. Discussion

In TCM theory, ASD is mostly classified into the categories of "delayed speech", "infantile confusion", and "lack of wisdom". The core pathogenesis is insufficient cerebral marrow, malnutrition of the spirit, and obstruction of phlegm and blood stasis, which is closely related to the dysfunction of Zang-Fu organs such as the heart, kidney, brain, and liver.

The 10 main acupoints screened in this study are mainly core acupoints: Baihui is the confluence of all yang meridians; Sishenzhen regulates the spirit and awakens the brain; the language area acupoints (Area 1, 2, 3) improve cerebral collateral communication; Naohu is directly related to the "marrow sea" (brain), which can nourish the brain and fill the marrow, dredge collaterals, and open the orifices. Together, they play the roles of regulating the spirit, improving intelligence, and dredging cerebral collaterals, alleviating symptoms such as low cognitive ability and language deficiency in children. Among the body acupoints, Neiguan calms the heart and tranquilizes the spirit; Shenmen is the original point of the Heart Meridian; Yongquan connects the heart and kidney; Xuanzhong (the meeting point of marrow) nourishes the cerebral marrow. The combination of these acupoints jointly exerts the effect of regulating the spirit and awakening the brain, which is in line with the core pathogenesis of ASD, i.e., "malnutrition of the spirit and obstruction of cerebral collaterals" [10, 11]. Neiguan (the collateral point of the Pericardium Meridian) and Shenmen (the original point of the Heart Meridian) form a combination of "co-regulating the heart and brain"; Yongquan (the well point of the Kidney Meridian) and Xuanzhong (the meeting point of marrow) form a combination of "replenishing the kidney and filling the marrow", reflecting the TCM theory of "treating upper disorders from lower regions".

In addition, from the perspective of modern medicine, the main scalp acupoints (Baihui, Sishenzhen, Naohu) cover the projection areas of cerebral cortex functional areas; strong stimulation can regulate the function of the frontal-limbic system, improving the social motivation and emotional regulation of children with ASD. The language areas (Area 1, 2, 3) respectively regulate the three core functions of language expression, naming, and comprehension. By stimulating the scalp language areas, the neural synaptic connections in the corresponding cerebral cortex are activated, promoting neural plasticity and improving blood circulation and metabolism in the language functional areas [12].

The analysis of the syndrome-specific rules of acupoint matching shows that for the syndrome of deficiency of both heart and spleen: Zusanli (ST36) and Pishu (BL20) are used to invigorate the spleen and replenish Qi. Xinshu (BL15) and Sanyinjiao (SP6) are used to nourish blood and calm the mind. For the syndrome of exuberant fire in the heart and liver: Taichong (LR3) and Ganshu (BL18) soothe the liver and purge fire. Fengchi (GB20) clears and benefits the head and eyes. Xinshu (BL15) clears the heart and reduces fire. These acupoints play an important role in addressing the syndrome characteristics of "liver fire disturbing the heart and mental instability". For the syndrome of insufficient kidney essence: Taixi (KI3) and Shenshu (BL23) tonify the kidney and replenish essence. Sanyinjiao (SP6) and Pishu (BL20) invigorate the spleen and assist transportation to support the

congenital foundation (kidney). For the syndrome of liver hyperactivity and spleen deficiency: Taichong (LR3) and Ganshu (BL18) level the liver and subdue yang. Pishu (BL20) harmonizes the middle jiao and invigorates the spleen. Sanyinjiao (SP6) regulates the liver and spleen. These acupoints can prevent the complication of "spleen deficiency with liver hyperactivity and wood overacting on earth" [11, 13]. Acupuncture techniques: Scalp acupuncture: Routine transverse insertion, needling close to the periosteum with a depth of approximately 25mm, applying strong stimulation, and retaining the needles for 1 hour. Functional training with needles retained is performed during the needle retention period. Body acupuncture: Applying the even reinforcing-reducing method without needle retention, with 5 treatments per week.

5. Conclusion

This study revealed the acupoint selection rules of acupuncture for sleep disorders comorbid with Autism Spectrum Disorder (ASD) through data mining, and verified the treatment model of "main acupoints regulating the mind and matching acupoints based on syndrome differentiation". After demonstration and evaluation by relevant TCM experts on the core acupoint (acupoint area) scheme obtained from data mining in this study, the authenticity and rationality of the acupuncture treatment scheme were confirmed. This provides a theoretical basis for further exploring the safety and efficacy of acupuncture in the treatment of ASD, and also offers scientific evidence for further clinical standardized treatment. However, the study has limitations: the sample size is small, and the number of cases with insufficient kidney essence syndrome and liver hyperactivity with spleen deficiency syndrome is limited. In the future, it is necessary to expand the sample size and conduct multi-center studies to further verify the findings.

Disclosure statement

The authors declare no conflict of interest.

Funding

Song Hujie's Inheritance Studio of National Renowned Traditional Chinese Medicine Experts.

References

[1] Kamara D, Beauchaine TP, 2020, A Review of Sleep Disturbances Among Infants and Children With Neurodevelopmental Disorders. Rev J Autism Dev Disord, 7(3): 278–294.

[2] American Psychiatric Association, 2015, Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V), thesis, Beijing: Peking University Press.

[3] Zhao NX, Song HJ, Du XG, et al., 2023, Clinical Practice Guidelines for TCM Pediatrics: Autism Spectrum Disorder. China Journal of Traditional Chinese Medicine and Pharmacy, 38(7): 3231–3236.

[4] Shen BY, Fan PY, Wang XH, et al., 2024, Research Progress of Children's Sleep Assessment Tools. Proceedings of the 6th Shanghai International Nursing Conference (Part II). Shanghai: Shanghai Children's Medical Center Affiliated to Shanghai Jiao Tong University School of Medicine; School of Nursing, Shanghai Jiao Tong University: 168–169. DOI: 10.26914/c.cnkihy.2024.057900.

[5] Li SH, Jin XM, Shen XM, et al., 2007, Development and Psychometric Evaluation of the Chinese Version of the Children's Sleep Habits Questionnaire. Chinese Journal of Pediatrics, 45(3): 176–180.

[6] National Technical Committee for Acupuncture and Moxibustion Standardization (TC 475), 2013, General Terminology of Acupuncture and Moxibustion: GB/T 30232-2013. China Standards Press.

[7] Chen HJ, Huang YY, Zhao ML, et al., 2025, Analysis of Acupoint Selection Rules for Acupuncture Treatment of Pediatric Cerebral Palsy Based on Data Mining Technology. Chinese Journal of Information on Traditional Chinese Medicine, 32(3): 51–57. DOI: 10.19879/j.cnki.1005-5304.202407231.

[8] Wu Y, Zhang X, Deng G, et al., 2024, Acupoint Selection Rules and Application Characteristics of Acupuncture Methods for Spastic Cerebral Palsy Based on Data Mining. World Chinese Medicine, 19(17): 2602–2608.

[9] Zhang P, Zhang XW, 2023, Exploration of Acupoint Selection Rules for Acupuncture Treatment of Knee Osteoarthritis With Different Syndromes Based on Data Mining. Journal of Shanxi University of Chinese Medicine, 24(10): 1066–1074. DOI: 10.19763/j.cnki.2096-7403.2023.10.02.

[10] Expert Consensus on Integrated Traditional Chinese and Western Medicine Intervention for Children With Autism Spectrum Disorder, 2024, Journal of Hunan University of Chinese Medicine, 44(2): 169–175.

[11] Zhang NB, Zhao NX, Guo K, et al., 2021, Clinical Efficacy Observation of Acupuncture Combined With Medication and Behavioral Intervention in Improving Sleep Disorders Comorbid With Autism Spectrum Disorder. China Journal of Traditional Chinese Medicine and Pharmacy, 36(6): 3744–3746.

[12] Deng CY, Tang CZ, 2024, Mechanism of Acupuncture in the Treatment of Autism Spectrum Disorder. China Journal of Traditional Chinese Medicine and Pharmacy, 39(3): 1394–1397.

[13] Hu YJ, Huang RX, Luo XM, et al., 2023, Efficacy Observation of Acupuncture Combined With Auricular Point Sticking in the Treatment of Sleep Disorders in Patients With Autism. Shanghai Journal of Acupuncture and Moxibustion, 42(12): 1277–1281. DOI: 10.13460/j.issn.1005-0957.2023.12.1277.