

Construction of a Dynamic Update Mechanism for the Loose-Leaf Textbook “Community Nursing Practice” Based on AI and Big Data Analysis, Adapting to “On-the-Job, Course, Competition, Certification, and Innovation” Model

Shanshan Li, Chuyao Sun

Gansu Health Vocational College, Lanzhou 730207, Gansu, China

Corresponding author: Chuyao Sun (e-mail: WXXZSZW@163.com)

ABSTRACT With the evolution of community nursing service models and vocational education reform, the static content of traditional textbooks can no longer respond effectively to rapid changes in job competence requirements. Taking the loose-leaf textbook Community Nursing Practice as the carrier, this study constructs a dynamic update mechanism adapted to the “job-course-competition-certification-innovation” model based on AI and big data analysis. Multisource data are collected and integrated, including job competency mapping data, skills competition data, vocational qualification certificate data, and innovation and entrepreneurship project data. Natural language processing and machine learning algorithms are used to identify competency clusters, map textbook units to job requirements, analyze competition and certification content, and mine emerging innovation demands. The mechanism supports scientific matching and dynamic iteration between textbook knowledge and industry requirements. Results show that the proposed mechanism improves the timeliness and adaptability of textbook content, especially in emerging competency areas such as intelligent health monitoring, data management, and integrated community nursing tasks. The study provides an operable technical path for digital transformation of vocational textbooks.

INDEX TERMS ai big data, community nursing, loose-leaf textbook, dynamic update, vocational education

I. INTRODUCTION

AS the most important medium of knowledge transfer and skills training, vocational education textbooks have a direct impact on the quality of talent breeding and the extent to which they meet the technical development needs of the modern industry. The alignment between textbook content and actual production processes ensures that graduates possess the specific technical competencies required for high-end spinning, weaving, and industrial manufacturing. In the field of community nursing, with the accelerated aging population, with the rising demands for chronic diseases, and the better and better improvement of the primary healthcare services system, the job competency requirements for nursing staff are demonstrating a dynamic change and complexity. However, traditional textbooks have increasingly prominent problems such as long compilation cycle, slowness of content update, lack of connection with

the actual job requirements, etc., making it difficult to fit into the cultivation of high-quality technical and skilled personnel.

In recent years, the loose-leaf textbooks because of their modularity, flexibility and reconfigurability, have gradually become an important direction for vocational education textbook reform. Their content organization format allows dynamic changes according to teaching needs, and therefore provide a physical basis for continuous updates of textbooks. However, how to conduct the scientific determination of the content that needs to be updated, comprehend the time of the content being updated, and confirm how the content updates are effective is still one of the main barriers of the loose-leaf textbooks currently being used. Simply relying on teacher experience or periodic surveys is not sufficient to achieve timely response and accurate adaptation to the changes in the industry.

Meanwhile, the development of artificial intelligence and big data technologies has opened new opportunities for the intelligent organization and dynamic optimization of educational resources, enabling the real-time integration of advanced manufacturing data into vocational training frameworks. This technological synergy ensures that the cultivation of technical talent remains synchronized with the rapid evolution of smart spinning and weaving systems. Through in-depth mining and analysis of multidimensional data including job requirements, skills competitions, professional qualifications and innovation and entrepreneurship, a dynamic mapping relationship between textbook content and outside world can be constructed, realizing a change from “experience-driven” to “data-driven” approaches. Based on this, this study proposes and constructs a dynamic updating mechanism of “job-course-competition-certification-innovation” according to the AI big data analysis. Taking “Community Nursing Practice” course as the starting point, it discusses the technical route of the harmonic development of loose-leaf textbook content and industrial development. hopes to provide the theoretical support and practical reference for the digital transformation of vocational education.

II. RELATED WORK

In the current wave of global nursing education reform, the optimization of the curriculum system and the innovation of teaching models have become the core issues for improving the quality of talent training. Alaban et al. [1] identified the problems and concerns in the implementation of current nursing education courses, and then proposed a competency-based model based on the Spady curriculum development principle. Şimşek and Aksoy [2] investigated and compared the implicit curriculum of nursing education in two different universities in eastern and western Turkey, emphasized the importance of implicit curriculum in the professional socialization process of nursing students, and pointed out that educators need to be aware of and actively shape a positive implicit curriculum environment. Dickinson et al. [3] conducted a content analysis on the project descriptions and course descriptions of several undergraduate nursing preparatory programs in the United States, and systematically examined the nursing concepts used in them, such as people, health, environment/community and nursing. Yang [4] analyzed the application effect of blended learning in basic nursing courses. Through the analysis of students’ bucket lists, Moon and Lee [5] revealed the concerns, values and understanding of life of nursing students at the personal level.

Based on Kolb’s theory of experiential learning, Lee [6] explored the development of self-understanding among nursing students in professional seminar courses. Mendoza and Buhat-Mendoza [7] used SQL (Structured Query Language) and data analysis techniques to process and analyze data such as computer course grades or course rankings at the Nursing School of Tobruk University. Martin et al. [8] explored the obstacles and facilitators in the process

of embedding planetary health content into the reform of undergraduate nursing courses, and identified a series of obstacles and facilitators in implementing planetary health-related changes in undergraduate nursing courses. Eid-Heberle and Burt [9] explored the necessity and methods of integrating disaster education into nursing courses. Ranse et al. [10] identified and prioritized 31 disaster nursing contents that should be covered in undergraduate nursing courses, providing clear and specific guidance for the design or revision of disaster-related course modules in nursing education projects. Although the above studies have enriched the theory and practice of nursing education from different perspectives, their focus is mostly on the static description of course content, the effectiveness verification of single teaching methods, or the integration suggestions of specific issues. This study takes the loose-leaf textbook “Community Nursing Practice” as the carrier and introduces AI big data analysis technology. It aims to explore and construct a dynamic update mechanism that adapts to “job, course, competition, certificate, and innovation” so as to achieve the resonance between textbook content and industrial development and provide theoretical support and practical path for the digital transformation and high-quality development of nursing vocational education [11].

III. METHODS

A. MULTI-SOURCE DATA ACQUISITION AND PREPROCESSING

In order to create an adaptive dynamic update mechanism, a multi source data collection mechanism of five dimensions, including job, course, competition, certificate and innovation, must first be formed [12]. Simply, in terms of job data, the information on community nursing-related jobs released from 2023 to 2025 by popular recruitment websites operated in China was chosen as the source of data, including job descriptions, qualification requirements, skill tags, etc. A total of 3,287 valid job data samples were collected covering different types of employers including community health service centers, elderly care institutions, and home care service institutions in first-tier and second- and third-tier cities. In terms of course data, the teaching outlines, lesson plans, assessment questions, and student’s evaluation feedback of the course “Community Nursing Practice” in the past three years were extracted, totaling 156 documents with a total text of about 420,000 words. In terms of competition data, it was collected the competition question and scoring standard and ability profile of the winners of the National Vocational College Skills Competition Nursing Skills Competition (Higher Vocational Group) in 2022 to 2024, which was 18 sets of competition questions and 21 set of scoring rules. Regarding certificate data, we consolidated the examination outlines and past exam questions of community nursing related professional qualification certificates issued by the National Health Commission and the Ministry of Human Resources and Social Security, which covered the specialized competitiveness module, such as geriatric

nursing, rehabilitation nursing and chronic disease management etc. With regard to innovation and entrepreneurship data, we gathered data of award-winning nursing innovation projects of the “Internet+” College Student Innovation and Entrepreneurship Competition and having “Related to Community Nursing Innovation Entrepreneurship” cases which is 32 project reports.

In the data preprocessing stage, the unstructured text data is processed by the Jieba (v0.42.1) library for Chinese word segmentation, utilizing an augmented medical-specific dictionary to handle nursing terminology. Standard methods such as stop word filtering (using the Baidu stop words list) and part-of-speech tagging were applied for cleaning and standardizing the text data. For job description text, job description vocabulary consisting of core skill verbs and knowledge terms is extracted as candidate sets of competency tags. For the purposes of competition scoring criteria, scoring points are broken down into quantifiable indicator units of competency. Knowledge and skill points in certificate assessment outlines are hierarchically categorized based on the concept called Bloom’s Taxonomy of Cognitive Objectives. For innovation and entrepreneurship project materials, the innovative points, technological application scenarios, and elements of the business model are mainly extracted. All processed data is held in a structured format in the database.

B. CONSTRUCTION AND DYNAMIC ANALYSIS OF JOB COMPETENCY MAPS

Based on the preprocessed job data (comprising a total corpus of approximately 1.2 million words), the core competency features of community nursing jobs are extracted by combining the term frequency-inverse document frequency (TF-IDF) algorithm with the Word2Vec word vector model. To ensure scientific derivation, the Word2Vec model utilized a Skip-gram architecture with a vector dimensionality of 300, a window size of 5, and a minimum word count threshold of 10. K-means++ clustering was then applied to these vectors, with the optimal number of clusters ($k=8$) determined via the Elbow Method and Silhouette Coefficient, allowing semantically similar competency words to be clustered into competency clusters [13,14].

Using the methods described above, 47 core competency elements for community nursing positions were identified and clustered into 8 competency clusters, including basic nursing operation skills, chronic disease management skills, rehabilitation guidance skills, health education skills, communication and coordination skills, emergency response skills, information technology application skills, and humanistic care skills. A timesegmented analysis of quarterly job data from 2023 to 2025 shows that the demand frequency for chronic disease management skills increased from 42 times per 100 job positions in the first quarter of 2023 to 67 times per 100 job positions in the fourth quarter of 2025, an increase of 59.5%. The demand frequency for information technology application skills increased from

18 times per 100 job positions during the same period to 35 times, an increase of 94.4%. While the demand frequency for basic nursing operation skills remains high, its proportion shows a slow downward trend. These trends reflect the transformation of community nursing positions from traditional basic nursing to a specialized and intelligent service model.

C. QUANTITATIVE ASSESSMENT OF TEXTBOOK CONTENT ADAPTABILITY

In order to measure the degree of matching between the existing textbook content and job requirements, an evaluation index system for the adaptability of textbook content was established. The chapter content of the loose-leaf textbook “Community Nursing Practice” was decomposed into independent knowledge points and skill points units, and a total of 89 unit modules were extracted. Each unit module was labeled with its corresponding ability type, ability level, application scenario and other attributes [15]. The matching degree between each textbook unit and the job ability elements was calculated using the 47 ability elements in the job ability map as reference standards. To bridge the semantic gap between pedagogical language in textbooks and industrial terminology in job advertisements, a domain-specific synonym dictionary and a cross-domain alignment layer were implemented. This process mapped descriptive academic phrases (e.g., ‘clinical intervention protocols’) to corresponding industry-standard skill tags (e.g., ‘bedside acute care’), ensuring that the vector space model captured functional equivalence rather than just keyword overlap. The matching degree calculation adopted the vector space model, which represented the textbook unit as an ability label vector and the job ability cluster as a standard vector, and calculated the cosine similarity between the two. Table 1 shows that the overall average match between textbook units and job skills is 0.62, calculated as a weighted average where basic nursing skills—which constitute the largest volume of current instructional units ($n=24$)—carry the most significant weight. Consequently, the high proficiency in traditional areas (0.81) mathematically offsets the critical deficiencies in emerging domains like information technology application (0.23). This statistical ‘passing’ score masks a structural mismatch, highlighting that the textbook’s overall stability is heavily reliant on legacy content while failing to integrate essential modern competencies. Further analysis of units with lower match rates reveals that content related to the operation of intelligent nursing equipment, health data analysis, and the application of remote monitoring technology is either missing from the textbook or only presented conceptually, lacking actionable practical guidance.

As can be seen from the data in Table 1, the number of units related to information technology application skills is relatively small, and the matching degree is also at a low level, indicating a significant shortcoming in the textbook’s coverage of this emerging skill area. The matching degree

TABLE 1. Evaluation Results of the Matching Degree between Textbook Units and Job Competency Clusters

Capability cluster	Number of textbook units	Average matching degree	Highest matching degree	Minimum match
Basic nursing skills	twenty four	0.81	0.94	0.67
Chronic disease management capabilities	15	0.58	0.76	0.41
Rehabilitation guidance ability	12	0.53	0.71	0.35
Health education ability	10	0.49	0.65	0.32
Communication and coordination skills	8	0.45	0.59	0.28
Emergency response capabilities	9	0.56	0.72	0.39
Information technology application capabilities	6	0.23	0.35	0.12
Humanistic care ability	5	0.61	0.78	0.44
Total/Average	89	0.62	-	-

of units related to humanistic care skills is relatively high, reflecting that the textbook has a certain foundation in nursing humanities education; however, the number of units is limited and can be further enriched.

D. ANALYSIS OF THE MAPPING BETWEEN COMPETITIONS AND CERTIFICATES

Skills competitions and vocational qualification certificates are important criteria for assessing the quality of vocational education, and the content system of these is the guide for the updating of textbooks. Analysis of the questions of nursing skills competition from 2022 to 2024 reveals that the rate of basic nursing operations for 2022 and 2024 nursing skills competition questions declined from 65% to 48%, and the rates of comprehensive case analysis competition questions rose from 20% to 32%; while the rates of teamwork nursing skills competition questions increased from 15% to 20%, and the competition questions for emergency response increased from 8% to 19%. The weighting of operational standardization, clinical reasoning, and humanistic care in the competition scoring criteria also showed a dynamic adjustment trend, which shows that the weight of clinical reasoning has increased from 15% in 2022 to 25% in 2024.

A comparison of the competition skill requirements and text-book units shows that common themes of the competition such as comprehensive case analysis or multi-task parallel processing and emergency response are mostly presented in the text-book as independent skill points without comprehensive practical project designs. For example, the 2024 competition question with the same title “Emergency Response to Sudden Falls in Elderly Residents in the Community”, there are many stages involved in the question that include assessment, calling for help, first aid procedures, communicating with family members and recording and reporting that requires the comprehensive use of multiple abilities. However, the way that the textbook organizes similar content focuses on the breakdown of individual skills without task-driven integrated modules.

Analysis of vocational qualification certificate examination data (Table 2) shows that the 2023 revised syllabus for community nursing special skills assessment added three modules: “Application of Intelligent Health Monitoring Equipment,” “Home Nursing Risk Assessment,” and “Remote Health Guidance.” Search results for corresponding textbook content indicate that only “Home Nursing

Risk Assessment” is partially covered in the textbooks; the other two modules are not yet included. The proportion of questions in the certificate examinations involving electronic health record management and health data interpretation increased from 8% in 2021 to 21% in 2024, while related content in textbooks remains at the stage of paper-based recording and manual statistics.

Table 2 shows that the coverage of the two modules of intelligent device application and data management in the textbook is seriously insufficient, which is in stark contrast to their weight in the assessment. This suggests that the textbook should prioritize the supplementation of these two parts when updating the textbook.

E. CAPABILITY ASSESSMENT FOR INNOVATION AND ENTREPRENEURSHIP PROJECTS

Innovation and entrepreneurship projects reflect the cutting-edge directions and technological application trends of the industry. A summary of the required capabilities for these projects, as shown in Table 3, reveals a complex and multifaceted nature in the skill requirements. In addition to nursing expertise, projects generally require user needs insight, product design and iteration, data collection and analysis, business model development, and teamwork and communication skills. These capabilities are rarely covered in existing textbooks and differ significantly from the skill types identified in job competency maps, reflecting a deficiency in textbooks in cultivating students’ innovative awareness and entrepreneurial abilities.

Taking intelligent nursing equipment projects as an example, these projects require students to understand the working principles of the equipment, be able to perform basic data collection and interpretation, and be able to explain the usage methods and precautions to users. However, the textbooks mainly cover conceptual introductions of the equipment, lacking operational guidance. Similarly, the service process design and optimization skills required for community health service platform projects are almost entirely absent from the textbooks.

While the average matching degree for innovation elements is low (0.10), the focus for nursing textbooks should not be on ‘Business Model Construction’—which is peripheral to clinical practice—but rather on ‘innovation awareness’ and ‘clinical problem-solving’ within the nursing workflow. Future updates will prioritize ‘Product Design

TABLE 2. Comparative Analysis of Examination Content and Textbook Content for Professional Qualification Certificates

Assessment Module	Percentage of marks in the 2024 exam (%)	Number of relevant units in the textbook	Textbook content matching	Content update suggestions
Basic nursing procedures	28	twenty four	0.85	Maintain the status quo, optimize details
Chronic disease management	twenty two	15	0.61	Add new management models
Rehabilitation Nursing	15	12	0.55	Supplemental rehabilitation technologies
Health Education	12	10	0.48	Enhance interactive teaching
Emergency Response	10	9	0.53	Add comprehensive cases
Smart device applications	8	2	0.18	New Specialized Modules
Data Management	5	1	0.12	New Specialized Modules
total	100	73	-	-

TABLE 3. Matching of Innovation and Entrepreneurship Project Competency Elements with Textbook Content

Ability Type	Project frequency	Number of textbook units	Match	Source of ability
User needs insights	28	3	0.11	Project Research
Product design thinking	twenty four	1	0.04	Project Development
Data Analysis Fundamentals	twenty two	2	0.09	Project Operation
Business Model Construction	19	0	0.00	Project Planning
Teamwork	31	5	0.16	Project Execution
Communication and Expression	30	7	0.23	Project Showcase
Resource integration	18	1	0.06	Project Implementation
Innovative thinking	26	2	0.08	Project Ideas
average	-	-	0.10	-

Thinking’ as it pertains to patient safety and the improvement of nursing tools, ensuring that innovation modules remain secondary to and supportive of primary vocational nursing goals rather than shifting toward pure business administration.

IV. RESULTS AND DISCUSSION

A. OPERATIONAL FRAMEWORK OF THE ADAPTIVE DYNAMIC UPDATE MECHANISM

Based on the above results of multi-source analysis of data information, an operational scheme of an adaptive dynamic update mechanism is established in this study. This framework has four layers including a data acquisition layer, an analysis and diagnosis layer, an update decision-making layer and an effect verification layer. The data acquisition layer continuously captures dynamic data about four dimensions - job positions, competitions, certificates & entrepreneurship and the data sources are updated every quarter. The analysis and diagnosis layer utilizes machine learning algorithms to mine the data to discover trends in the skill requirements that are changing, a quantitative determination of the matching degree of the content of the textbook with external requirements, and produces a diagnostic report. The update decision-making layer determines the priority and specific content of the update for textbooks depending on the results of the diagnosis; there is three types of operations for decision making: unit addition, unit revision and unit deletion. Regarding unit deletion, based on the fourth-quarter 2024 analysis, content related to ‘Traditional Paper-based Filing Procedures’ and ‘Manual Pulse Measurement Logs’ was removed. These units showed a matching degree of less than 0.15 with modern job requirements and were identified as obsolete, thereby reducing cognitive load and making room for intelligent nursing modules without increasing the overall textbook volume. The effect verification layer carries out test evaluation of

the revised textbooks and collects the feedback of teachers and students and checks the update effect.

Taking data analysis from the fourth quarter of 2024 as an example, the diagnostic report reports that the average matching degree of the information technology application skills cluster had fallen to 0.21, evidence of the need to focus on the supplementation of relevant content. Based on this, the decision making team decided to add three new textbook units, namely “Operation of Intelligent Health Monitoring Equipment,” “Community Health Data Collection and Analysis,” and “Remote Nursing Communication Skills,” and to revise the practical project design of the “Electronic Health Record Management” unit. After the piloting of the updated textbooks in pilot classes, student satisfaction with the information technology application skillsrelated content was evaluated and found to be increased from 57% to 82%, while teachers in the pilot classes reported the new units to be highly feasible and to have the potential to support practical teaching.

B. EVALUATION OF THE MECHANISM’S OPERATIONAL EFFECTIVENESS

To check the effectiveness of the dynamic update mechanism, a comparative analysis was done on classes using the original and the updated version of textbooks in the spring and autumn semester of 2024. In the spring semester, 78 students were using the original textbook, whereas in the autumn semester, 82 students were using the dynamically updated textbook. There were no significant differences between the two groups in terms of entrance exam scores, previous courses grades. The comparative indicators were the self-assessment scores of job skills and the evaluation of the students during the course, and the participation of the student in competitions.

The self-assessment of job competencies was based on a five-point scale with 47 elements of competency. Table 4 in-

TABLE 4. Comparison of teaching effects before and after the implementation of the dynamic update mechanism

Evaluation indicators	Spring Semester (Original Textbook)	Fall Semester (Updated Textbook)	range of change
Number of students	78	82	-
Average self-assessment score of job competency (five-point scale)	3.42	3.89	+0.47
• Self-assessment of chronic disease management capabilities	3.28	3.75	+0.47
• Self-assessment of information technology application skills	2.61	3.24	+0.63
• Self-assessment of health education ability	3.35	3.76	+0.41
Average course assessment score (out of 100)	79.2	83.7	+4.5
• Comprehensive case analysis question score rate	68%	79%	+11%
Number of participants in the competition	9	12	-
Number of competition winners	4	8	-
Competition winning rate	44.4%	66.7%	+22.3%
• Comprehensive case analysis question score rate	68%	79%	+11%
Number of participants in the competition	9	12	-
Number of competition winners	4	8	-
Competition winning rate	44.4%	66.7%	+22.3%

dicates that in the fall semester, the scores students had rated themselves in chronic disease management, the application of information technology, and health education increased by 0.47, 0.63, and 0.41 points, respectively compared to the spring semester and with statistically significant differences. Regarding course assessment scores, the average score in the fall semester was 83.7, representing a statistically significant improvement over the scores recorded in the spring semester (79.2). The most important improvement was observed in the comprehensive case analysis questions as the average rate of scoring increased from 68% to 79%. In terms of the participation in competition, 12 students in the fall semester participated in the nursing skills competition at the school level and 8 of them received awards. In the spring semester, 9 students participated with 4 winning awards. The proportion of award victors to participants was higher in the fall semester than in the spring semester.

The data in Table 4 shows that the implementation of the dynamic update mechanism has significantly improved teaching effectiveness, especially in the area of information technology application skills, which was a weak point in the original textbook. Students' self-assessment scores improved the most, reflecting the relevance and effectiveness of the updated content.

C. SUPPORTING CONDITIONS AND OPTIMIZATION DIRECTIONS FOR THE MECHANISM'S OPERATION

The effective working of a dynamic update mechanism requires supporting conditions present. Regarding data sources, the continuous collection of job postings requires establishment and maintenance of stable data interfaces with recruitment platforms and acquisition of the competition and certificate data requires maintenance of communication with relevant organizers. At present, job postings have mainly relied on public available online data collection, while incomplete data collection of job postings from some of the SMEs may influence the zero of the data analysis.

Competition data's scoring criteria is ambiguous and one has to manually intervene to deconstruct competency components, adding extra workload for preprocessing. In terms of technical support, the accuracy of the natural language processing models in identifying nursing terminology needs improvement. Tests demonstrate the reason why the quality of the vector representations obtained by the Word2Vec model is not high for some low-frequency professional terms, resulting in biased clustering result. Future work could include the introduction of domain-specific pre-trained models and the fine-tuning of the model with nursing professional corpora for enhanced accuracy of competency extraction. Meanwhile, the vector space model for judging suitability of the textbook content has weak ability to reflect semantic relationships between units and competency elements. It is worth researching on the introduction of knowledge graph technology to build semantic association network for nursing competency ontology. In terms of organizational support, the dynamics update mechanism is the collaboration between the textbook writing team, data analysis team and teaching implementation team. Current operation has identified problems such as poor information flow and long response times for update decisions. In order to meet the

need of all three levels, it is recommended to establish a regular mechanism of consultation, holding update decision-making meeting on a quarterly basis to make a quick determination of update content according to diagnostic reports. Simultaneously, the mechanism of tracking the effectiveness of an update in textbooks should be set up to get user feedback and start a closed loop while continuously optimizing the update strategy.

V. CONCLUSION

This study uses the loose-leaf textbook "Community Nursing Practice" as a medium. Through job competency mapping, textbook suitability assessment, competition certifi-

cate mapping analysis, and innovation and entrepreneurship project mining, it achieves a quantitative diagnosis of the match between textbook content and external needs, and guides the dynamic iteration of the textbook accordingly. The results show that this mechanism can effectively identify areas where textbook content is lagging behind, supplement new competency modules in a targeted manner, and significantly improve teaching effectiveness and students' self-assessment of job competency. This research provides an operable technical path for the digital transformation of vocational education textbooks and has theoretical and practical value for promoting the synchronized development of nursing education and industry. Future research will further optimize the data analysis model, expand the data collection scope, and explore the applicability of the dynamic update mechanism in other nursing courses and specialized engineering disciplines. This cross-domain expansion will ensure that the educational framework remains responsive to the evolving technical requirements of both healthcare services and modern manufacturing.

AUTHOR CONTRIBUTIONS

Conceptualization –Shanshan Li and Chuyao Sun; methodology – Shanshan Li and Chuyao Sun; investigation – Shanshan Li and Chuyao Sun; writing-original draft preparation – Shanshan Li and Chuyao Sun. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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