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Mapping the evolution of research agendas in Chinese psychology: An LDA topic-modelling analysis of two core journals, 2003–2025

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Abstract

This study examines the long-term evolution of research agendas in Chinese psychology through a topic-modelling analysis of 6,987 cleaned article records published in Acta Psychologica Sinica and Advances in Psychological Science between 2003 and 2025. Using Latent Dirichlet Allocation (LDA), stage-specific topic modelling, topic-prevalence analysis, and topic-trajectory visualisation, we identify how core research topics changed across three historical stages and how the two journals differed in their roles in organising research agendas. The findings suggest that the research agendas represented in these two journals shifted from a configuration centred on basic cognition, developmental psychology, and experimental paradigms toward broader engagement with mental health, socioemotional processes, culture and language, applied decision-making, digital technologies, artificial intelligence, machine learning, and evidence synthesis. Topic trajectories further suggest that agenda change was not a process of simple replacement, but one of continuity, differentiation, and recombination. The two journals also displayed a relatively stable functional division: *Acta Psychologica Sinica* was more oriented toward empirical problem development and methodological updating, whereas *Advances in Psychological Science* played a stronger role in theoretical synthesis, mechanism-oriented review, and agenda consolidation. By analysing Chinese psychology as a case of research-agenda evolution in a non-English academic system, this study contributes to broader discussions on disciplinary development, knowledge production, and the interaction between local scholarly traditions and changing social contexts.

1. Introduction

Over the past two decades, the development of psychology in China has remained closely connected to changing real-world issues in the context of broader social transformation (Huang et al., 2021). At the same time, national strategic priorities, shifts in policy focus, and the evolution of disciplinary traditions and research paradigms have continuously shaped the topics and directions of psychological research in China (Xin, 2018). In the course of disciplinary development, research objects, substantive concerns, and methodological systems are continually influenced by organisational environments, resource conditions, and changing disciplinary tasks, and therefore exhibit dynamic patterns of adjustment (Santos, 2024). Compared with approaches that focus only on a specific research area or a single methodological trajectory, examining research agendas and topic evolution makes it easier to identify the centres of attention, problem structures, and their changing trends over a longer time span (Xu & Xu, 2024). Systematically identifying the evolutionary characteristics of research agendas in Chinese psychology, and further analysing their stage-based differences and possible driving factors, therefore provides an important entry point for understanding the development of psychology in China.

Existing studies on the development of Chinese psychology have mainly proceeded through disciplinary-historical reviews, thematic research overviews, and hotspot identification based on bibliometric analysis, knowledge mapping, and large-scale data analysis, thereby offering different kinds of summaries of the field's developmental trajectory (Ge et al., 2021). These studies provide useful

references for understanding the disciplinary foundations, major topics, and broader trends of Chinese psychology. However, from the perspective of the long-term evolution of research agendas, there is still room for further development. First, although qualitative reviews can capture the overall outline of disciplinary development, the organisation and synthesis of evidence are more easily affected by researchers' subjective judgment (Ghosh & Choudhury, 2025), and such reviews are limited in transparency and reproducibility, making it difficult to systematically explain the latent thematic structure and distributional patterns embedded in large-scale corpora (Park et al., 2025). Second, analyses based on keyword frequency or co-occurrence relationships are helpful for identifying research hotspots and their surface-level associations, but because they rely primarily on term co-occurrence information, they often have difficulty accounting for deeper semantic structures across topics, as well as the migration and evolution of related topics across periods (Yuan et al., 2025). Third, existing research on the development of Chinese psychology has largely proceeded from disciplinary history, thematic field reviews, or specific methodological approaches, providing stage-specific or partial accounts of relevant issues. Yet a more systematic overall examination is still lacking regarding the structural shifts, stage-based differences, and internal linkages of the core research agenda of Chinese psychology over a longer time span. It is therefore necessary to conduct a more structured and dynamic analysis of research agendas in Chinese psychology on the basis of large-scale text corpora and with the aid of topic modelling and related methods (Mostafa et al., 2025).

Against this background, text mining, and topic modelling in particular, provides a new analytical path for identifying latent topics, revealing patterns of topic distribution, and tracing their dynamic evolution in large-scale academic corpora (Wang et al., 2024). Among these methods, Latent Dirichlet Allocation (LDA) can identify latent thematic structures on the basis of term co-occurrence patterns in texts, characterise topic content through document–topic and topic–word distributions, and further support the analysis of topic prevalence, shifts in prominence, and evolutionary trajectories (Hwang & Lee, 2024). Compared with approaches that rely solely on explicit keywords or co-occurrence relations, topic modelling and related text-mining methods are better suited to uncovering contextual and semantic linkages among terms, and to tracing how research agendas emerge, persist, and shift over longer periods (Rejeb et al., 2025). On this basis, the present study uses topic modelling to conduct a systematic analysis of articles published in core psychology journals in China, with the aim of presenting the long-term dynamics of research agendas more clearly.

Specifically, this study examines articles published in *Acta Psychologica Sinica* and *Advances in Psychological Science* between 2003 and 2025 in order to investigate the structural distribution, stage-based changes, and evolutionary trajectories of research agendas in Chinese psychology. These two journals were selected because *Acta Psychologica Sinica* has long served as a major window onto the research level of psychology in China and has concentrated a substantial body of high-quality original research across subfields, whereas *Advances in Psychological Science* has consistently published reviews and commentaries on new progress, emerging developments, and recent findings across psychological research domains. Together, the two journals are highly representative in terms of disciplinary coverage, academic influence, and agenda presentation, and therefore provide an

appropriate sample for observing changes in the core research agenda of Chinese psychology. This study addresses three questions. First, what stage-based patterns characterised the core research agenda of Chinese psychology between 2003 and 2025? Second, how do these changes correspond to broader policy contexts and disciplinary transformations? Third, what roles did different journals play in the production of psychological knowledge and the formation of research agendas in China? By addressing these questions, this study provides structured empirical evidence for understanding the developmental trajectory and knowledge-production mechanisms of Chinese psychology. More broadly, it uses Chinese psychology as a case through which to examine how research agendas evolve in non-English academic systems under changing disciplinary, institutional, and social conditions.

2. Data and Methods

2.1 Data sources

To address the research questions outlined above, this section describes the study sample, the temporal scope, and the analytical approach. This study draws on articles published in *Acta Psychologica Sinica* and *Advances in Psychological Science* to examine the evolution of core research agendas in Chinese psychology between 2003 and 2025. The selection of these two journals is based on two considerations. First, both journals are highly representative within Chinese psychology and can reliably reflect changes in core research agendas over time. Second, the two journals differ in their dominant publication profiles, with one emphasising empirical research and the other focusing on review-based synthesis, thereby allowing the evolution of research agendas to be observed across different types of scholarly outputs. Including both journals within a unified analytical framework therefore makes it possible to trace long-term changes in core research agendas through the distribution and configuration of different forms of academic production.

In terms of temporal coverage, the study defines the overall retrieval boundary from January 1, 2003 to December 31, 2025. Articles published in the two journals within this period were retrieved from CNKI. A total of 7,401 bibliographic records were initially retrieved, including 3,149 records from Acta Psychologica Sinica and 4,252 records from Advances in Psychological Science. After removing duplicate records, non-research items, records without usable titles, abstracts, or keywords, and other entries that did not meet the inclusion criteria, a final cleaned analytical dataset of 6,987 valid article records was retained, including 2,899 records from Acta Psychologica Sinica and 4,088 records from Advances in Psychological Science. The final cleaned analytical dataset provided the empirical basis for topic identification, topic-prevalence estimation, and evolutionary-trajectory analysis. The annual distribution of the initially retrieved records in the two journals is shown in Fig. 1.

2.2 Periodisation

After defining the sample scope, the research period must be further divided into stages in order to compare structural differences in research agendas across periods (Guillén-Pacho et al., 2025). To

present more clearly the changing characteristics of research agendas in Chinese psychology across different historical phases from 2003 to 2025, this study divides the overall observation period into three stages. This periodisation is primarily based on two considerations: first, the long-term patterns of topic change in research agendas; and second, the related policy priorities and the broader background of disciplinary development. It should be noted that this stage division is intended mainly to facilitate the comparative analysis of research agendas and does not constitute a causal identification design in the strict sense.

The first stage can be characterised as a period of disciplinary foundation building and research-paradigm consolidation, covering 2003 to 2012. In light of the developmental trajectory of psychology in China and the publication profiles of the two core journals, research during this period was largely oriented toward disciplinary foundation building, the standardisation of research paradigms, and closer alignment with international frontiers. Major topics were concentrated in areas such as basic cognition, developmental psychology, experimental research, and research methods. A total of 2,845 cleaned article records were included in this stage.

The second stage can be characterised as a period of applied expansion and systemic consolidation, covering 2013 to 2021. Considering both the developmental trajectory of Chinese psychology during this period and the relevant policy background, issues such as mental health, social governance, and educational development received broader attention. While continuing to build on basic research, the research agenda also expanded toward areas such as social emotion, culture and language, and judgment and decision-making, overall exhibiting a more pronounced pattern of applied expansion and systemic development. A total of 2,933 cleaned article records were included in this stage.

The third stage can be characterised as a period of digital transformation and methodological integration, covering 2022 to 2025. In light of recent developments in psychological research and the associated policy background, digital technologies, artificial intelligence, big data analytics, and evidence synthesis have entered the field more prominently. Building on the earlier expansion toward applied concerns, the research agenda in this period displays stronger features of technological integration and interdisciplinarity. A total of 1,209 cleaned article records were included in this stage.

On this basis, the study further uses topic modelling to identify the internal topic structure of each stage and combines topic-prevalence analysis with path visualisation to present patterns of change.

2.3 Methods

This study adopted Latent Dirichlet Allocation (LDA) as the core analytical method to identify and analyse the thematic structure of articles published in core psychology journals in China (Hankar et al., 2025). LDA treats each document as a probabilistic mixture of multiple latent topics and identifies the semantic structure of these topics through patterns of term co-occurrence. It is therefore well suited to large-scale text analysis, particularly for identifying latent topics and examining topic distributions, changes in topic prevalence, and temporal evolutionary processes (Li et al., 2025).

2.3.1 Corpus construction and text preprocessing

The title, keywords, and abstract of each article were used as the initial corpus for analysis. Given the characteristics of Chinese text processing, the keywords extracted from the initial corpus were first added to the custom dictionary of the Jieba tokenizer in order to improve the recognition accuracy of domain-specific terms. A stopword list was then applied to remove common function words and high-frequency non-substantive Chinese terms that did not contribute to topic discrimination, such as “□□” (research), “□□” (results), “□□” (this study), and “□□” (basis/evidence) (Li, 2025). After tokenisation and stopword filtering, a document–term matrix was constructed as the input for subsequent topic modelling (Muthusami et al., 2024). Common synonymous expressions and abbreviations were manually standardised where necessary; for example, variants such as “□□□□□□” and “ERP” were harmonised to improve consistency in topic representation. The standardisation process was conducted before model estimation to reduce lexical fragmentation caused by different expressions referring to the same concept.

2.3.2 Stage-specific modelling and determination of the number of topics

For the topic-modelling stage, LDA models were estimated separately for each journal within each period, resulting in six stage-by-journal corpora. This design allowed the analysis to capture both stage-based changes in research agendas and differences in topic organisation between the two journals (Lee et al., 2024). Rather than fitting a single model to the full corpus, stage-specific modelling was adopted in order to identify more clearly the internal topic structure of each period and its distinctive patterns of change, thereby improving cross-stage interpretability (Xu et al., 2025). This analytical strategy is consistent with the logic of time-slice analysis and longitudinal topic research, which examine stage-based differences and evolutionary trends in thematic structures by estimating separate models for different periods over a long time span (Su et al., 2025). It also helps avoid the mutual dilution of long-span corpora within a single model, which could otherwise reduce the interpretability of stage comparisons.

To determine the number of topics, candidate LDA models were first estimated with topic numbers ranging from 1 to 9. In the preliminary perplexity comparison, candidate models were estimated with five passes, alpha = 1/K, and eta = 0.01, where K denotes the number of topics. Perplexity values were used to assess the overall model-fit tendency across different topic numbers. On this basis, pyLDAvis was used to examine topic separation, inter-topic distance, and the distribution of salient terms in candidate models. The final LDA models were estimated separately for each journal-period corpus using TF-IDF-weighted document–term matrices. For *Acta Psychologica Sinica*, the final topic numbers were K = 2, K = 4, and K = 4 for Stages 1–3, respectively. For *Advances in Psychological Science*, the final topic numbers were K = 2, K = 2, and K = 2 for Stages 1–3, respectively. All final models were estimated with ten passes, alpha = 8.5, and eta = 0.01. The final topic solution was determined by jointly considering perplexity

trends, pyLDAvis visualisation, keyword interpretability, and representative article contents, so as to balance statistical adequacy with substantive interpretability (Herhausen et al., 2025).

2.3.3 Topic interpretation and labelling

Topic labelling was based on the top-weighted keywords generated by the LDA model, in combination with the core research questions, principal research objects, and commonly used methods reflected in the corresponding articles (Romero et al., 2024). The values reported in parentheses in Tables 1–3 indicate LDA-generated topic-word weights rather than word frequencies or topic-prevalence values. Topic names were therefore not assigned solely on the basis of model output, but were generated through interpretive synthesis grounded in both statistical results and domain knowledge, together with the content of representative documents (Pham et al., 2024). This procedure was intended to establish a clearer correspondence between the model results and disciplinary semantics, thereby improving the interpretability of the identified topics.

2.3.4 Topic prevalence analysis

To assess the relative change of topics across years, this study examined topic activity at the annual level using two related indicators. First, document–topic probability distributions were used to calculate the mean probability share of each topic across articles published in a given year. Second, for descriptive visualisation, each article was assigned to its dominant topic, and annual topic counts were calculated to show the relative activity of topics across years. These indicators were used to describe temporal changes in topic prominence rather than to estimate causal trends.

2.3.5 Analysis of topic evolutionary trajectories

To further identify patterns of continuity, differentiation, and recombination across stages in the research agenda, Sankey diagrams were generated using the PySankey library in Python to visualise topic flows between stages. In these diagrams, topics from different stages appear as nodes, while links between nodes indicate the continuation, branching, or recombination of topics from one stage to the next. Topic links between adjacent stages were determined by calculating cosine similarity between weighted topic-embedding vectors. Specifically, a CBOW Word2Vec model was trained on the tokenised corpus with vector_size = 100, window = 5, min_count = 1, and epochs = 100. For each LDA topic, the top-weighted terms were extracted, and a topic vector was constructed by averaging their word embeddings weighted by the corresponding LDA-generated topic-word weights. Cosine similarity was then used to estimate the semantic association between topics in adjacent stages. Links in the Sankey diagrams represent topic pairs with relatively strong semantic similarity, and link width is proportional to the corresponding cosine similarity score. Therefore, the Sankey diagrams should be interpreted as visualisations of semantic continuity, differentiation, and recombination between adjacent-stage topics, rather than as probabilistic models of document-level topic transitions. This path visualisation makes it possible to present more intuitively the migratory relationships of research agendas across different stages.

Taken together, by combining topic identification, topic-prevalence analysis, and path visualisation, this study seeks to provide a relatively systematic account of the evolution of research agendas in Chinese psychology from 2003 to 2025 at three levels: structural distribution, temporal trends, and stage-based transitions. The overall analytical workflow is presented in Fig. 2.

3. Results

3.1 Identification of topic structures across stages

Based on the stage-specific LDA models, this study identified and labelled the topic structure of articles published in core psychology journals in China between 2003 and 2025. Overall, the topic structures across the three stages show both the continued extension of foundational themes and a gradual shift of research agendas toward applied expansion, methodological upgrading, and interdisciplinary integration. Relatively stable differences in topic distribution can also be observed between the two journals across stages. *Acta Psychologica Sinica* shows a stronger orientation toward empirical research, whereas *Advances in Psychological Science* is more concentrated on theoretical review, mechanism integration, and the introduction of emerging frontiers.

The topic structure of the first stage is characterised overall by the coexistence of foundational research and theoretical introduction. In *Acta Psychologica Sinica*, two topics were identified: “experimental research on developmental populations and basic cognitive abilities” and “experimental research on information processing and advanced cognitive mechanisms.” The former mainly involves developmental and foundational cognitive issues such as preschool children, false-belief understanding, and numerical representation, whereas the latter centres on higher-order cognitive processes including working memory, executive function, attentional control, and reaction time. In *Advances in Psychological Science*, two additional topics were identified: “theoretical and paradigmatic reviews in cognitive neuropsychology” and “reviews of mechanisms and applications in social and health psychology.” These topics reflect not only the systematic introduction of international frontier theories, classical paradigms, and core techniques, but also an early expansion of psychological research toward social and health-related domains such as well-being, stereotypes, post-traumatic stress disorder, and emotion regulation. The corresponding topic labels and top-weighted keywords are summarised in Table 1. The values in parentheses indicate LDA-generated topic-word weights.

Table 1
Topic structures in Stage 1 across two journals

Acta Psychologica Sinica		*Advances in Psychological Science*	
Topic 1: Experimental research on developmental populations and basic cognitive functions	Topic 2: Experimental research on information processing and higher-order cognitive mechanisms	Topic 1: Theoretical and paradigmatic reviews in cognitive neuroscience and neuropsychology	Topic 2: Reviews of mechanisms and applications in social and health psychology
preschool children (0.007)	reaction time (0.006)	theoretical models (0.003)	mental health (0.003)
adolescents (0.005)	event-related potentials (ERP) (0.004)	brain mechanisms (0.003)	neural basis (0.003)
executive function (0.003)	working memory (0.003)	research paradigms (0.002)	brain mechanisms (0.002)
working memory (0.003)	priming effect (0.003)	neural mechanisms (0.002)	emotion regulation (0.002)
prospective memory (0.003)	inhibition of return (0.003)	research methods (0.002)	executive function (0.002)
mental rotation (0.003)	false memory (0.003)	event-related potentials (ERP) (0.002)	stereotypes (0.002)
reaction time (0.003)	inductive reasoning (0.003)	fMRI (0.002)	subjective well-being (0.002)
accuracy (0.003)	problem solving (0.003)	executive function (0.002)	psychological mechanisms (0.002)
influencing factors (0.003)	interaction effects (0.003)	cognitive control (0.002)	influencing factors (0.002)
sex differences (0.002)	temporal processes (0.003)	neural basis (0.001)	post-traumatic stress disorder (PTSD) (0.001)

The topic structure in the second stage became markedly more diverse, with research expanding from basic cognition to multiple domains, including emotion, health, language, culture, and applied decision-making. In *Acta Psychologica Sinica*, four topics were identified: “experimental research on attention, memory, and cognitive control,” “applied research on emotion, learning, and cognition,” “research on social emotion and mental health,” and “research on language, culture, and social cognition.” The first two topics continued the tradition of basic cognition and experimental research, whereas the latter two more clearly pointed to problem-oriented inquiry into mental health, social emotion, and issues embedded in local cultural contexts. In *Advances in Psychological Science*, two topics emerged during this stage: “meta-analytic research on mechanisms in basic cognition and development” and “review-based research on applications in mental health and decision-making.” On the one hand, these topics

indicate the growing importance of evidence synthesis and mechanism-oriented integration; on the other hand, they also suggest that applied concerns had become a major object of theoretical review and agenda consolidation. The Stage 2 topic labels and top-weighted keywords are summarised in Table 2.

Table 2
Topic structures in Stage 2 across two journals

Acta Psychologica Sinica				*Advances in Psychological Science*	
Topic 1: Experimental research on attention, memory, and cognitive control	Topic 2: Applied research on emotion, learning, and cognition	Topic 3: Research on socioemotional processes and mental health	Topic 4: Research on language, culture, and social cognition	Topic 1: Mechanism-oriented meta-analyses in basic cognition and development	Topic 2: Review-based research on mental health and decision-making
attentional bias (0.005)	face recognition (0.008)	loneliness (0.004)	self-referential processing (0.004)	neural mechanisms (0.003)	depression (0.003)
inhibition of return (0.004)	emotional valence (0.004)	well-being (0.004)	stereotypes (0.004)	working memory (0.002)	well-being (0.002)
visuospatial working memory (0.004)	late positive potential (LPP) (0.003)	moral emotions (0.003)	moral concepts (0.003)	cognitive neural mechanisms (0.002)	risk decision-making (0.002)
executive function (0.004)	directed forgetting (0.003)	negative emotions (0.003)	negation (0.003)	underlying mechanisms (0.002)	emotion regulation (0.002)
interference effect (0.004)	retrieval-induced forgetting (0.003)	emotion regulation (0.003)	chinese character processing (0.003)	psychological mechanisms (0.002)	psychological mechanisms (0.002)
ego depletion (0.003)	working memory (0.003)	self-efficacy (0.003)	chinese reading (0.003)	neural basis (0.002)	attentional bias (0.002)
language processing (0.003)	conceptual processing (0.003)	underlying mechanisms (0.003)	situational models (0.003)	brain mechanisms (0.002)	meta-analysis (0.002)
attentional orienting (0.003)	attentional control set (0.003)	influencing factors (0.003)	situational models (0.003)	executive function (0.001)	self-control (0.001)
interaction effect (0.003)	Q-matrix (0.003)	moderating effects (0.003)	cognitive reappraisal (0.003)	cognitive function (0.001)	intrinsic motivation (0.001)
event-related potentials (ERP) (0.003)	semantic association (0.003)	outcome evaluation (0.003)	event-related potentials (ERP) (0.003)	research paradigms (0.001)	underlying mechanisms (0.001)

The topic structure in the third stage further exhibited features of digitalisation, methodological integration, and interdisciplinary development. In *Acta Psychologica Sinica*, four topics were identified: “research on social cognition and behaviour in the networked era,” “methodology-driven research on education and cognition,” “emotion, cooperation, and cognitive neural mechanisms,” and “applied research on mental health and development.” These topics suggest that empirical research had moved beyond traditional laboratory-based questions toward more complex and socially embedded problem domains, including online social contexts, educational assessment, cooperative behaviour, emotional mechanisms, and mental health. In *Advances in Psychological Science*, two topics emerged: “interdisciplinary research on social, consumer, and health psychology” and “from neural mechanisms to artificial intelligence and meta-analysis.” This pattern indicates that the objects of theoretical integration were no longer confined to single domains, but had increasingly shifted toward cross-cutting issues, methodological innovation, and higher-level evidence synthesis. The Stage 3 topic labels and top-weighted keywords are summarised in Table 3.

Table 3
Topic structures in Stage 3 across two journals

Acta Psychologica Sinica				***Advances in Psychological Science***	
Topic 1: Research on social cognition and behaviour in the networked era	Topic 2: Methodology-driven research on education and cognition	Topic 3: Emotion, cooperation, and cognitive neural mechanisms	Topic 4: Applied research on mental health and development	Topic 1: Interdisciplinary research on social, consumer, and health psychology	Topic 2: From neural mechanisms to artificial intelligence and meta-analysis
prosocial behaviour (0.010)	Q-matrix (0.010)	positive emotion (0.010)	meta-analysis (0.009)	mental health (0.004)	autism spectrum disorder (ASD) (0.003)
decision-making (0.007)	reading comprehension (0.009)	emotion regulation (0.008)	marital satisfaction (0.009)	psychological mechanisms (0.004)	artificial intelligence (0.003)
social distance (0.007)	boundary conditions (0.007)	fairness (0.008)	peer victimization (0.008)	green consumption (0.003)	machine learning (0.003)
internet (0.007)	simulation studies (0.007)	cooperative behaviour (0.007)	negative emotion (0.007)	double-edged sword effect (0.003)	cultural context (0.003)
strangers (0.006)	standardisation (0.007)	hyper-scanning (0.007)	group identity (0.006)	prosocial behaviour (0.003)	boundary conditions (0.003)
leadership (0.006)	event-related potentials (ERP) (0.007)	prosocial behaviour (0.006)	cognitive reappraisal (0.006)	social media (0.002)	meta-analysis (0.003)
interaction effects (0.005)	chinese reading (0.006)	emotional valence (0.006)	suicidal ideation (0.006)	altruistic behaviour (0.002)	dyslexia (0.002)
influencing factors (0.005)	episodic memory (0.006)	cognitive reappraisal (0.006)	well-being (0.005)	cognitive neural mechanisms (0.002)	theoretical frameworks (0.002)
mental health (0.005)	self-efficacy (0.005)	altruistic behaviour (0.005)	aggressive behaviour (0.005)	social norms (0.002)	moderating effects (0.002)
executive function (0.005)	psychological resilience (0.005)	resting state (0.005)	underlying mechanisms (0.005)	regulatory effects (0.002)	cognitive neural mechanisms (0.002)

Taken together, the topic structures across the three stages suggest that research agendas in Chinese psychology did not evolve through the simple disappearance of older topics and the complete replacement by new ones. Instead, while foundational themes remained present, the agenda gradually expanded toward applied problems, cross-cutting issues, and technology-oriented directions. This shift is reflected not only in the growing number and diversity of topics, but also in the differentiated ways in which the two journals organised and presented research content.

3.2 Temporal dynamics of topic prevalence

After identifying the topic structures across stages, examining the temporal dynamics of topic prevalence provides a more detailed understanding of the relative prominence of different topics over time. To this end, the present study examined annual topic activity using document–topic probability distributions and dominant-topic counts, and visualised the results using a topic-prevalence heatmap (Fig. 3). The evolution of research agendas in Chinese psychology from 2003 to 2025 does not follow a pattern of linear substitution, in which one topic replaces another. Instead, it reflects a dynamic process characterised by the persistence of foundational topics, the gradual strengthening of applied themes, and the late-stage emergence of technology-related topics.

In the first stage, topics related to basic cognition occupied a dominant position in the overall structure. In particular, research on information processing, working memory, executive function, and developmental cognition exhibited relatively high prevalence. At the same time, although topics in social and health psychology had entered the research landscape, their overall prevalence remained relatively limited and they had not yet become central components of the core research agenda. This suggests that during the period of disciplinary foundation building and policy exploration, research agendas in Chinese psychology were still primarily centred on basic theory, experimental research, and methodological paradigms.

In the second stage, the distribution of topic prevalence became more diversified. While traditional themes such as attention, memory, and cognitive control remained visible, applied and context-oriented topics—including socioemotional processes, mental health, emotion regulation, well-being, risk decision-making, and language and culture—became more prominent in the annual topic-prevalence patterns. Because the topic models were estimated separately by stage and journal, these changes are interpreted as descriptive shifts in topic configuration rather than as direct longitudinal estimates of the same topic across the entire period. This indicates that research agendas in this stage were no longer confined to basic cognitive problems, but gradually developed into a structure in which basic research and real-world concerns coexisted.

In the third stage, changes in topic prevalence further reflect a coupling between emerging technologies, methodological innovation, and applied themes. Topics such as social cognition in the networked era, methodology-driven research in educational cognition, neural mechanisms of emotion and cooperation, and research on mental health and development all exhibited relatively high levels of prevalence. At the same time, interdisciplinary research, artificial intelligence, machine learning, meta-analysis, and neural

mechanisms emerged as new areas of increasing prominence. These patterns indicate that the structure of topic prevalence in the third stage differs substantially from the previous two stages, with research priorities increasingly oriented towards digitalisation, methodological integration, and interdisciplinary development.

Overall, the temporal dynamics of topic prevalence suggest three descriptive patterns: foundational topics remained visible across stages, applied themes became more prominent in the middle stage, and technology- and method-related topics became more salient in the later stage. These findings provide a temporal basis for the subsequent analysis of topic evolutionary trajectories.

3.3 Stage-based transitions in topic evolutionary trajectories

If topic-structure identification shows what topics were present in each stage, and topic-prevalence analysis shows which topics were more active at different points in time, then trajectory analysis further reveals how these topics were sustained, differentiated, and recombined across stages. The Sankey diagrams indicate that semantic relationships among topics in both journals exhibit a certain degree of continuity: foundational topics identified in the first stage did not disappear, but instead extended into new research directions in the second and third stages through different pathways. At the same time, the two journals display distinct modes of trajectory organisation, reflecting two different patterns of evolution: empirical advancement and theoretical integration.

In *Acta Psychologica Sinica*, the two first-stage topics, “experimental research on developmental populations and basic cognitive functions” and “experimental research on information processing and higher-order cognitive mechanisms,” underwent substantial differentiation in the second stage. Content related to basic cognition and experimental paradigms showed strong semantic continuity with the second-stage topic “experimental research on attention, memory, and cognitive control,” while also showing semantic connections with “applied research on emotion, learning, and cognition,” “research on socioemotional processes and mental health,” and “research on language, culture, and social cognition.” This indicates that topic evolution in *Acta Psychologica Sinica* did not take the form of a simple replacement of basic research by applied research. Rather, while retaining its experimental tradition, the journal gradually extended its research objects toward more complex problem domains involving emotion, learning, health, and sociocultural contexts.

From the second to the third stage, the trajectory of *Acta Psychologica Sinica* further shows the parallel development of applied deepening and methodological upgrading. The second-stage topics “research on socioemotional processes and mental health” and “applied research on emotion, learning, and cognition” showed semantic continuity with the third-stage topics “applied research on mental health and development” and “emotion, cooperation, and cognitive neural mechanisms,” respectively. At the same time, the earlier tradition of cognitive research and experimentation further differentiated into “research on social cognition and behaviour in the networked era” and “methodology-driven research on education

and cognition." This suggests that, by the third stage, trajectory change in *Acta Psychologica Sinica* was no longer reflected only in the expansion of research content, but also in the continued reorganisation of research settings and methodological tools. The topic-evolution pathways for *Acta Psychologica Sinica* are shown in Fig. 4.

Building on these trajectories, a further examination of *Advances in Psychological Science* reveals a different mode of organisation. Its evolutionary path more strongly reflects the continuity of theoretical review and knowledge integration. In the first stage, "theoretical and paradigmatic reviews in cognitive neuroscience and neuropsychology" showed strong semantic continuity with the second-stage topic "mechanism-oriented meta-analyses in basic cognition and development," indicating a shift in review-oriented scholarship from theoretical introduction toward evidence synthesis and mechanism-oriented integration. Meanwhile, "reviews of mechanisms and applications in social and health psychology" in the first stage showed semantic continuity with "review-based research on mental health and decision-making" in the second stage, suggesting that applied concerns became increasingly prominent within review-oriented scholarship.

From the second to the third stage, the trajectory of *Advances in Psychological Science* continued to expand toward interdisciplinary research and methodological integration. The second-stage topics of application-oriented review and mechanism-oriented meta-analysis showed semantic continuity with the third-stage topics "interdisciplinary research on social, consumer, and health psychology" and "from neural mechanisms to artificial intelligence and meta-analysis." This indicates that *Advances in Psychological Science* did not primarily function as a venue for opening up new empirical research problems through topic transitions. Rather, it played a stronger role in reorganising existing research into cross-domain and cross-method knowledge frameworks. The corresponding topic-evolution pathways are shown in Fig. 5.

Taken together, the trajectories of the two journals indicate that stage-based transitions in research agendas in Chinese psychology did not proceed in a linear, single-directional manner. Rather, they were gradually realised through processes of continuity, branching, and recombination across different topics. The trajectory of *Acta Psychologica Sinica* more strongly highlights the expansion from basic experimental research toward real-world problems and contexts of technological integration, whereas the trajectory of Advances in Psychological Science more clearly reflects semantic continuity from theoretical introduction to mechanism-oriented integration, interdisciplinary review, and methodological reflection.

3.4 Differences in topic distribution between the two core journals

Building on the trajectory differences described above, a further comparison of topic distribution across stages makes it possible to see more clearly the stable differences between the two journals in the way they present research content. These differences are not limited to variation in topic selection, but are also reflected in the distinct ways in which the two journals organise research agendas.

In the first stage, *Acta Psychologica Sinica* focused mainly on child development, basic cognition, information processing, and higher-order cognitive mechanisms, with topics showing strong experimental and measurement-oriented features. By contrast, *Advances in Psychological Science* concentrated on the introduction of theoretical models, research paradigms, and methods such as event-related potentials (ERP) and functional magnetic resonance imaging (fMRI) in cognitive neuroscience and neuropsychology, as well as mechanism-oriented reviews in social and health psychology. In this period, the difference between the two journals was primarily reflected in their respective emphases on empirical research topics and theoretical review topics.

In the second stage, *Acta Psychologica Sinica* exhibited a richer differentiation of empirical topics, including not only traditional cognitive experimental research, but also research on real-world issues such as socioemotional processes, mental health, and language and culture. *Advances in Psychological Science*, by contrast, focused primarily on two directions: mechanism-oriented meta-analysis and review-based research on applied topics. Compared with the first stage, the difference between the two journals became clearer in this period: the former presented more content related to the advancement of specific research problems and empirical testing, whereas the latter devoted greater attention to the integration, synthesis, and conceptual refinement of existing studies.

In the third stage, this difference remained evident. Topics in *Acta Psychologica Sinica* were more concentrated on issues such as behaviour in the networked era, methodological approaches to educational cognition, neural mechanisms of emotion and cooperation, and applied research on mental health, reflecting a stronger problem-oriented and context-sensitive profile. *Advances in Psychological Science*, in contrast, placed greater emphasis on the interdisciplinary integration of social, consumer, and health psychology, as well as the systematic organisation of frontier topics and methods such as artificial intelligence, machine learning, neural mechanisms, and meta-analysis. Thus, although both journals in the third stage reflected tendencies towards digitalisation and interdisciplinarity, clear differences remained in their specific modes of presentation.

Overall, *Acta Psychologica Sinica* was more strongly oriented toward specific research problems, experimental design, and methodological updating, whereas *Advances in Psychological Science* was more concentrated on theoretical synthesis, evidence integration, and trend identification. These differences in the presentation of research content provide the direct empirical basis for the subsequent discussion of their functional division.

4. Discussion

4.1 Stage-based evolution of research agendas and their policy correspondence

The results above indicate that research agendas in Chinese psychology exhibited relatively clear stage-based evolutionary patterns between 2003 and 2025. This change did not take the form of a simple

replacement in which one topic exited and another entered independently. Rather, on the basis of accumulated disciplinary concerns, the agenda continuously incorporated new problem domains arising from social needs, policy priorities, and technological conditions. From this perspective, changes in research agendas in Chinese psychology reflect not only continuity in the internal logic of disciplinary development, but also sensitivity to shifts in the external environment.

When this evolutionary process is considered over a longer time span, it becomes clear that research agendas in Chinese psychology moved overall from disciplinary foundation building and the construction of research paradigms, to a growing engagement with real-world problems, and further towards stronger technological integration, methodological diversification, and evidence synthesis. This pattern suggests that the core concerns of Chinese psychology were not fixed, but changed alongside shifting disciplinary tasks, social problem structures, and broader policy and institutional contexts. Observing the development of Chinese psychology from the perspective of research agendas therefore makes it possible to capture its broader evolutionary direction and underlying structural change, rather than remaining at the level of changes in isolated research hotspots (Xu et al., 2024).

It should be emphasised that the policy correspondence identified in this study is more appropriately understood as a stage-based alignment between research agendas and broader policy contexts, rather than as evidence of a one-way causal relationship in which policy directly determines research. More precisely, policy priorities in different periods provided stronger problem incentives, resource support, and contextual demands for certain research directions, while the accumulated concerns, methodological traditions, and knowledge structures within the discipline also shaped how these topics entered the core research agenda. In other words, the evolution of research agendas in Chinese psychology should not be understood as a passive response, but as the outcome of the interaction between externally driven issues and endogenous disciplinary development.

From this perspective, the growing prominence of applied, technological, and cross-cutting content in the second and third stages does not imply a weakening of the importance of basic research. Rather, it reflects an outward expansion and a shift in emphasis built upon an existing disciplinary foundation. The continued presence of traditional themes such as basic cognition, developmental psychology, and social behaviour across different stages demonstrates that the evolution of research agendas in Chinese psychology was not characterised by rupture, but by the coexistence of continuity and reorientation.

4.2 Reconfiguration of research orientations and methodological systems

Beyond changes in research agendas themselves, the present study also suggests a gradual reconfiguration of research orientations and methodological systems in Chinese psychology over the past two decades. This transformation is reflected not only in the expansion of research objects and problem domains, but also in the continuous upgrading of research methods, analytical tools, and modes of evidence organisation. Rather than interpreting this shift simply as the entry of new

technologies into psychology, it is more appropriate to view it as an adjustment in the organisation of research itself.

From the perspective of internal disciplinary development, the first stage can be characterised by a stronger emphasis on identifying foundational problems, establishing experimental paradigms, and introducing classical methods, with the main goal of consolidating the disciplinary foundation and aligning with international frontiers. Beginning in the second stage, research continued to build on foundational work while gradually shifting from the verification of phenomena toward mechanism-based explanation, stronger connections to real-world problems, and greater adaptation to specific contexts. By the third stage, artificial intelligence, machine learning, meta-analysis, and research on neural mechanisms had entered the research agenda more prominently, pushing the field toward multi-method integration, interdisciplinary collaboration, and technology-driven inquiry (Xu et al., 2024). This suggests that the reconfiguration of research orientations in Chinese psychology should not be understood as a localised methodological update, but rather as a broader adjustment at the level of research pathways and evidence systems (Tang et al., 2024).

This transformation has at least two implications. First, it indicates that the mode of knowledge production in psychological research is changing. Research methods are no longer merely neutral tools serving predefined questions; to some extent, they also shape how problems are identified, how they are organised, and how they are transformed into objects that can be analysed and intervened upon (Uher, 2025). Second, it suggests that Chinese psychology is gradually developing a stronger capacity to adapt across contexts. As multiple settings such as education, health, social governance, online environments, and technological platforms enter the field, research no longer remains confined to relatively closed experimental conditions or single theoretical frameworks, but increasingly moves toward a structure that places greater emphasis on integrative explanation and real-world adaptation (Yin & Niu, 2024).

At the same time, this reconfiguration should not be understood as a replacement of traditional experimental or basic research. On the contrary, the incorporation of many new methods and new contexts into the core research agenda during the third stage was made possible precisely by the accumulation of basic theory, experimental techniques, and research paradigms in earlier periods. For this reason, changes in the research orientations and methodological systems of Chinese psychology are better understood as an accumulative expansion rather than a substitutional transformation.

4.3 Functional differentiation of core journals and the structure of knowledge production

Building on the stage-based evolution of research agendas and the reconfiguration of research orientations outlined above, a further comparison of the two core journals helps clarify the organisational logic of knowledge production in Chinese psychology. The present study shows that *Acta Psychologica Sinica* and *Advances in Psychological Science* developed a relatively stable functional differentiation within the research agenda of Chinese psychology. This difference is not limited to variation in article type or topic orientation, but is more fundamentally reflected in the distinct

knowledge-production roles performed by the two journals. The former is more strongly oriented toward the advancement of original research, experimental design, and methodological application, whereas the latter is more concentrated on theoretical synthesis, mechanism-oriented integration, and the consolidation of emerging trends. In this sense, the two journals together constitute an important organisational foundation for the generation, expansion, and integration of research agendas in Chinese psychology. More broadly, this functional differentiation illustrates how non-English academic systems may organise disciplinary knowledge through complementary publication venues rather than through a single dominant journal type.

From the perspective of knowledge-production logic, *Acta Psychologica Sinica* functions more like a platform for problem advancement. By continuously incorporating new research questions, research settings, and methodological approaches, it allows specific empirical studies to enter the centre of scholarly discussion. Whether in the early-stage focus on basic cognition and experimental research, or in the later expansion toward socioemotional processes, mental health, online behaviour, and educational cognition, its trajectories consistently display a strong pattern of empirical advancement. By contrast, *Advances in Psychological Science* functions more like a platform for knowledge organisation. Through reviews, meta-analyses, mechanism-oriented synthesis, and frontier integration, it transforms dispersed research findings into relatively stable agenda frameworks and directional judgments, thereby organising knowledge at a higher level, consolidating trends, and providing entry points for further research.

This dual structure of empirical advancement and theoretical integration is important for understanding why research agendas in Chinese psychology were able to continue expanding over time. Without the former, research agendas might lack sufficient empirical accumulation and problem renewal; without the latter, they might remain fragmented and fail to develop into a clearer knowledge structure and developmental trajectory. In other words, the development of Chinese psychology over the past two decades has depended not only on the emergence of important topics or the introduction of new technologies, but also on the coordinated roles played by different types of journals within the chain of knowledge production.

Accordingly, the differences between the two journals should not be understood merely as differences in topic choice. Rather, they should be viewed as a relatively stable organisational mechanism in the evolution of research agendas in Chinese psychology. It is precisely this mechanism that has enabled Chinese psychology both to continue advancing specific problems at the empirical level and to achieve conceptual clarification, evidence integration, and the diffusion of research directions at the theoretical level.

4.4 Implications and limitations of the present study

Based on the above discussion, one major implication of the present study is that the analysis of disciplinary development should not remain limited to hotspot statistics or the listing of representative achievements, but should instead treat research agendas as a dynamic system characterised by

temporal continuity, structural differentiation, and specific modes of knowledge organisation. From this perspective, it becomes possible to see more clearly how a discipline forms shifting centres of concern, incorporates new content, and reorganises existing knowledge structures across different stages. In the case of Chinese psychology, this analytical framework is useful not only for understanding changes in research agendas and research orientations, but also for clarifying the relative positions of different journals and research directions within the overall structure of knowledge production (ElKattan, 2024).

At the same time, this study also has several limitations. First, the sample was drawn mainly from two core journals, *Acta Psychologica Sinica* and *Advances in Psychological Science*. Although these journals are highly representative of empirical research and theoretical integration, respectively, they cannot fully capture the entire landscape of psychological research in China (Peña-Rocha et al., 2025). Second, the LDA model still involves a degree of interpretive dependence in topic identification and labelling. Although the determination of topic number, the summarisation of keywords, and the assignment of topic labels were all based on a combination of statistical indicators and researcher judgement, a certain degree of subjectivity remains unavoidable (Weston et al., 2023). Third, the stage division adopted in this study was used primarily to present structural shifts in research agendas. Accordingly, the discussion of the relationship between policy priorities and changes in research agendas is more appropriately understood as stage-based correspondence and interpretive analysis, rather than as a strict one-way causal argument. Fourth, because the LDA models were estimated separately by stage and journal, topics across periods should not be interpreted as identical longitudinal variables. Cross-stage comparisons in this study therefore rely on semantic similarity, topic labels, and trajectory visualisation, and should be understood as interpretive comparisons of topic configurations rather than direct estimates of the same topic over time.

Future research could extend the present framework by expanding the sample to include a broader range of core journals, additional databases, and English-language publications, and by incorporating methods such as co-citation analysis, author collaboration network analysis, and citation structure analysis to explore more systematically the formation mechanisms, diffusion processes, and international linkages of research agendas in Chinese psychology (Lim et al., 2024). Comparative analyses involving other disciplines or psychological research systems in other countries could also help identify both shared tendencies and distinctive features in the developmental trajectory of Chinese psychology (Han et al., 2024).

5. Conclusion

In summary, this study examined 6,987 cleaned article records published in Acta Psychologica Sinica and Advances in Psychological Science between 2003 and 2025. Using Latent Dirichlet Allocation (LDA), together with stage-specific modelling, topic-prevalence analysis, and topic-trajectory identification, it provided a systematic account of the structural distribution and long-term evolution of research agendas in Chinese psychology. The findings show that, from 2003 to 2025, the research agendas represented in the two selected core journals displayed clear stage-based evolutionary patterns. Overall, the sampled

journal corpus moved from a period primarily characterised by disciplinary foundation building and the introduction of research paradigms, to an expansion toward applied research oriented to real-world problems, and then further toward a development trajectory marked by the growing prominence of digitalisation, intelligent technologies, and evidence-synthesis approaches.

In terms of changes in research agendas, the sampled journal corpus did not show a simple replacement of one core area of concern by another across stages. Instead, while foundational research remained present, the field continuously incorporated new content related to mental health, socioemotional processes, culture and language, applied decision-making, as well as artificial intelligence, machine learning, and meta-analysis. This pattern reflects an overall shift from foundational exploration toward applied expansion, and from single-method approaches toward multi-method integration. The development of Chinese psychology, therefore, is reflected not only in thematic migration, but also in the ongoing adjustment of research orientations, methodological systems, and modes of problem organisation.

At the same time, this study also found that *Acta Psychologica Sinica* and *Advances in Psychological Science* developed a relatively stable functional differentiation in the knowledge production of Chinese psychology. *Acta Psychologica Sinica* was more strongly oriented toward frontier empirical problems, experimental design, and methodological advancement, and was therefore more sensitive to changes in specific research questions and research settings. *Advances in Psychological Science*, by contrast, was more concentrated on theoretical review, mechanism-oriented integration, and the consolidation of research directions, playing an important role in knowledge organisation, agenda diffusion, and the introduction of emerging frontiers. The coordination between these two types of journals at the levels of empirical advancement and theoretical integration together constituted an important organisational foundation for the continued generation, expansion, and recombination of research agendas in Chinese psychology.

Overall, by approaching Chinese psychology from the perspective of research agenda evolution, this study reveals patterns of thematic migration, reconfiguration of research orientations, and journal-based functional differentiation between 2003 and 2025. The findings suggest that the evolution of research agendas in Chinese psychology was not the product of any single factor, but rather a dynamic process shaped jointly by external problem pressures and internal disciplinary development. Accordingly, this study provides a structured empirical account of research-agenda change represented in two core Chinese psychology journals and offers a comparative case for examining disciplinary evolution and research-agenda change in non-English academic systems.

Declarations

Author Contribution

G.W. and Y.Z. contributed equally to this work. G.W. conceptualized the study, drafted the manuscript, and prepared the figures. Y.Z. performed the data processing and analysis. M.P. contributed resources and provided conceptual input. N.P. supervised the study and reviewed and revised the manuscript. All authors read and approved the final manuscript.

Data Availability

The datasets and documentation supporting this study are available as supplementary files for peer review, including both the initially retrieved bibliographic records and the final cleaned analytical dataset used for the analyses. These materials include the raw bibliographic records, the cleaned analytical dataset, search strategy, inclusion and exclusion criteria, screening and deduplication records, topic-number selection outputs, document–topic distributions, annual topic-prevalence data, cosine-similarity matrices, Sankey-diagram input data, and scripts used for text preprocessing, LDA topic modelling, topic-prevalence analysis, cosine-similarity calculation, and visualisation. The shared datasets contain bibliographic metadata only and do not include copyrighted full-text articles.

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Figures

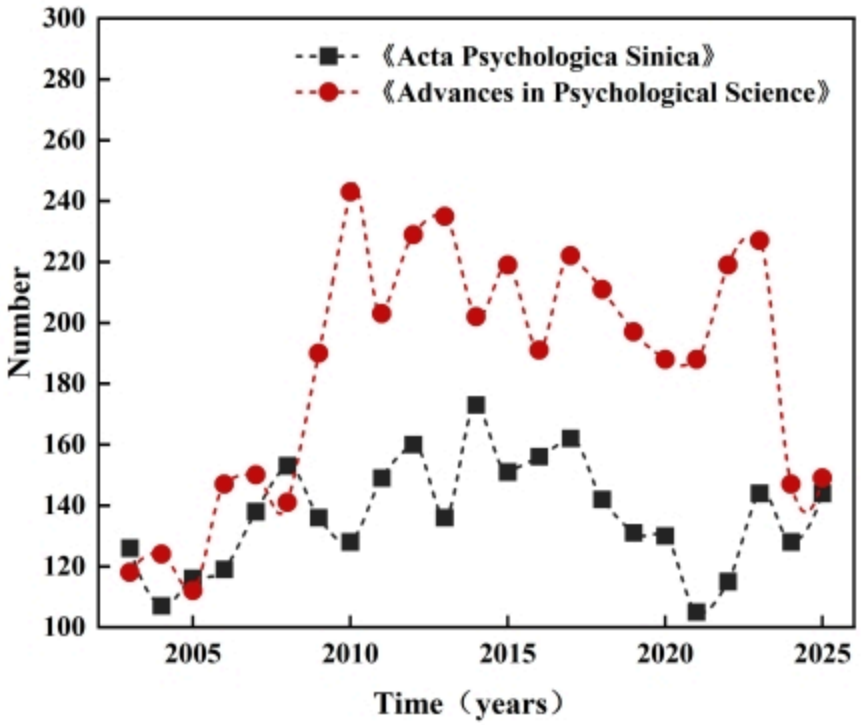


Figure 1

Annual number of publications in the two journals

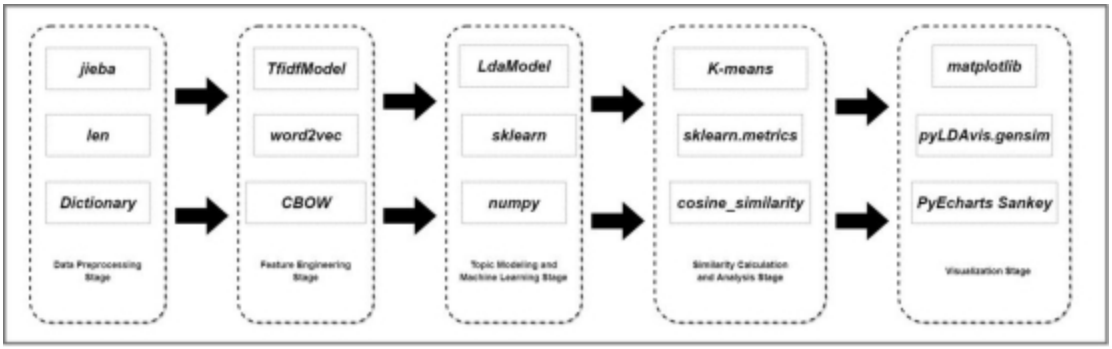


Figure 2

Analytical workflow of the LDA-based topic modelling.

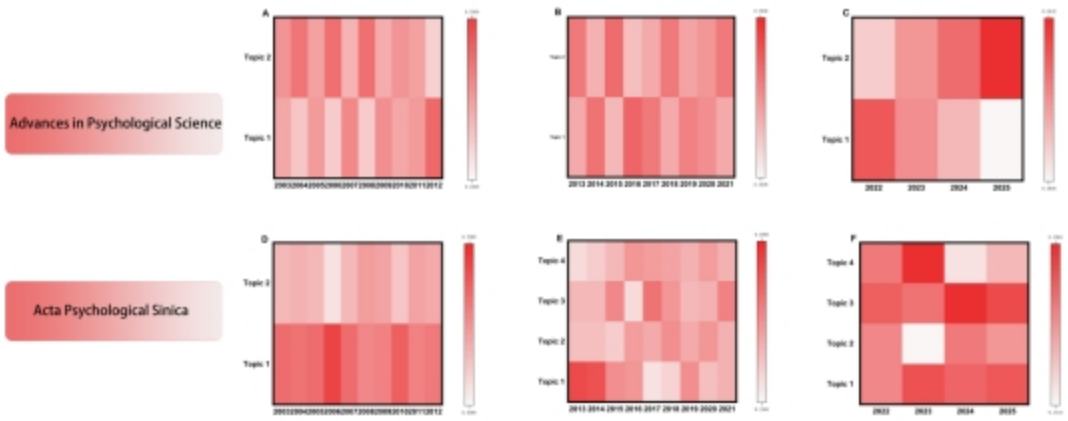


Figure 3

Heatmap of topic prevalence across the three stages in the two journals.

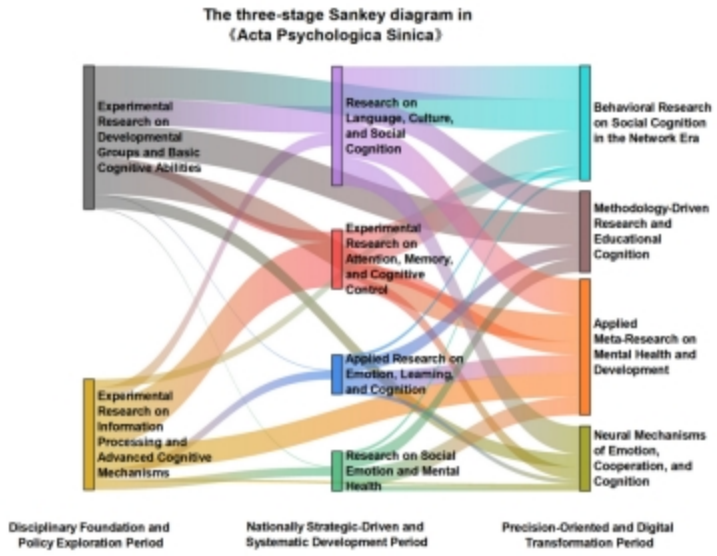


Figure 4

Sankey diagram of research topic evolution across the three stages in *Acta Psychologica Sinica*.

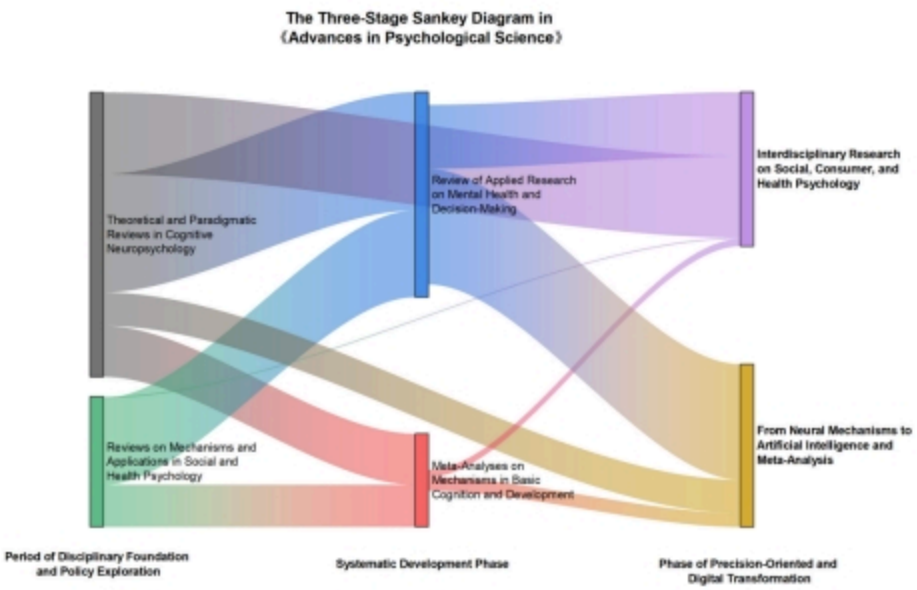


Figure 5

Sankey diagram of topic evolution across the three stages in *Advances in Psychological Science*.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- HSSCSupplementaryDataandCode.zip