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Review

Applying the consensus reporting items for studies in primary care checklist to improve reporting quality in primary care research in China☆

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ABSTRACT

In 2023, the Consensus Reporting Items for Studies in Primary Care (CRISP) Working Group introduced a consensus checklist aimed at enhancing the quality, practicality, and dissemination of research reports in general practice and primary care. The editorial team of the Chinese General Practice and Chinese General Practice Journal translated the CRISP Checklist into Chinese and conducted a review of the current status of primary care research in China. The review identifies major problems in the field, including six common problems: "author-centered orientation," "overemphasis on authority," "uncritically adopting international experience," "lack of rigor in reporting methodologies," "inclusion of excessive and redundant information," and "lack of transparency" Finally, the editorial team encourages authors, editors, and reviewers in China to adopt the CRISP Checklist to improve the quality of primary care research reports. Additionally, the review provides specific recommendations for applying the CRISP Checklist in various subfields, such as discipline development research, clinical research, health services research, health policy research, medical education research, and community epidemiological research.

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Introduction

The Consensus Reporting Items for Studies in Primary Care (CRISP) Checklist (website: https://crisp-pc.org) was developed through years of collaborative research among scholars from the United States, Australia, Netherlands, the United Kingdom, and Canada. Officially introduced in 2023, the checklist aims to improve quality, practicability, and dissemination of primary care research reports, and to promote their application, thereby enhancing patient care and health outcomes in communities.[1] To advance the academic quality and practical value of primary care research reports in China, the editorial team of the Chinese General Practice and Chinese General Practice Journal translated CRISP Checklist and related documents into Chinese. In the review, the authors discuss the potential benefits and applications of the CRISP Checklist in the context of Chinese primary care research.

Primary care research in China

The terms for primary care and general practice are used interchangeably in many countries, encompassing various and systemic definitions. For instance, WONCA Europe has developed a conceptual tree diagram to outline the characteristics of general practice, the role of general practitioners (GPs), and their core competencies.[2] In Australia, the "3P3C" framework highlights how general practice differs from other clinical specialties. Similarly, in the U.S., Starfield et al.[3] identified the "4Cs" as essential characteristics of primary care based on extensive evidence. In China, the *Basic Healthcare and Health Promotion Law 2019* provides a benchmark definition of primary health care, stating: "Basic health care services are essential for maintaining human health, accessible to citizens in line with economic and social development levels, and delivered using appropriate medications, technologies, and equipment for the prevention, diagnosis, treatment, management, and rehabilitation of diseases"[3].

"Primary care" in China encompasses various synonymous terms, such as primary health care, primary care, basic medical services, general practice services, general practice, and community health services. The diverse terminology illustrates the evolution of primary health care across regions and time periods, as well as the perspectives of different stakeholders. For instance, within the government's public health management, the focus is on the grassroots level of the three-tiered medical system. From a social welfare perspective, the emphasis is on the inclusive nature of services. Residents, on the other hand, are more concerned with their place of residence (community/country), while from a disciplinary perspective, the focus is on the professional aspects of general practice. Thus, the concept of primary care in China is evolving into an inclusive framework that integrates elements from basic medicine, clinical care, preventive medicine, rehabilitation medicine, psychology, other humanistic and social sciences. It combines prevention, medical care, rehabilitation, and health education within a community-wide, family-centered, and person-focused new sub-disciplines under clinical medicine that adheres to the bio-psycho-social medical model and implements a comprehensive, continuous, and coordinated primary care approach.[4]

Currently, the volume of research in this field in China is substantial. In 2021 alone, over 3000 primary care research articles were published.[5] However, the overall quality of the researches as evidence in the field remains limited. Recent studies indicate that the majority of reports in this field fall below acceptable quality standards, with many poorly executed articles being published across various journals.[6,7] Therefore, primary care research in China is in the early stages of shifting from a focus on increasing quantity to prioritizing quality improvement. A critical pathway to enhancing research quality is by improving transparency, particularly through rigorous and clear reporting of research context, methodology, and practical applications.

Current challenges in reporting primary care research in China

Currently, there are no widely agreed guidelines for reporting research in this field in China. Many authors adhere to the conventions and structures of their primary academic disciplines, as China has yet to establish a unified research paradigm for general practice and primary care. In the early stages of general practice development in China, contributions from public health and social medicine led to the prominence of population-based epidemiological methods in primary care research. With general practice now defined as one of sub-disciplines under clinical medicine and the rise of evidence-based medicine, there has been a greater emphasis on clinical intervention studies, systematic reviews based on meta-analysis, and the development of clinical guidelines and consensus of experts. In recent years, the intersection of sociological research methods and health service studies has gained popularity, with qualitative studies and mixed-methods research becoming more prevalent.

In addition to the diversity of research paradigms, researchers in this field often mainly come from various disciplines with differing educational backgrounds, such as researchers and graduate students in universities and scientific institutions, as well as full-time researchers and GPs conducting part-time research in medical institutions. The diversity of perspectives, methodologies, and study populations has yet to achieve full alignment regarding fundamental research questions, methods, and applications. Based on a review of manuscripts from recent years, we have identified six widespread, primary issues affecting the quality of primary care research reports in China (Table 1).

Position of Chinese general practice and Chinese general practice journal on the CRISP checklist

The CRISP working group developed the CRISP reporting checklist, statement, and explanatory guidelines with examples[1] through a scoping review,[12] international user assessments,[13,14] and a Delphi study.[15] This process involved gathering feedback from a broad range of stakeholders in primary care research, followed by several rounds of testing and refinement. The checklist reviews papers in this field from the perspective of general practice and primary care, with 10 themes and 24 items that align closely with the core elements of these disciplines. Its goal is to encourage more transparent, detailed, and contextually grounded reporting, ensuring that readers receive sufficient information to evaluate the research question, methodology, and results. This enables readers to assess the academic rationale, the appropriateness of methods or tools, the validity and reliability of the research process, and the critical thinking behind the discussion, recommendations, and study limitations.

As editors of Chinese General Practice and Chinese General Practice Journal, we fully support this initiative. We encourage researchers in general practice and primary care, as well as journal editors and peer reviewers, to adopt the CRISP Checklist in their future studies. Below, we highlight key areas where authors should focus on applying the CRISP Checklist, based on the six main categories of papers commonly published in our journals, following Beasley's classification of primary care research.

Research on discipline development

Discipline development research aligns with what Beasley et al. refer to as "basic research"—studies that contribute to the development of research tools and infrastructure in general practice and primary care.[16] This category also includes research on methodologies, theoretical frameworks, and studies focusing on the functional features of primary care in China. Although fewer papers in this area are published compared to other categories in China,[5] these studies form a crucial foundation for the discipline's growth.

Table 1
Six primary issues affecting the quality of primary care research reports in China.

Issues	Manifestation
Author-Centered Focus Over Reader-Centered Focus	Some authors prioritize publication over the intrinsic knowledge and practical value of their work. As a result, their reports reflect the authors' perspectives rather than addressing the needs of key stakeholders, such as GPs. Consequently, these papers are often difficult for practitioners to understand and apply in practice.
Authority Building Over Cautious Reasoning	Authors accustomed to writing administrative reports often use directive, policy-driven language in academic papers, leading to an over-reliance on policy documents or buzzwords. This approach results in superficial comparisons and rigid recommendations, with insufficient attention to research context, limitations, and assumptions, neglecting scientific evidence.
Uncritical Adoption of International Experience	In cross-national or regional comparative research, some authors uncritically adopt Western experiences or evidence, assuming their superiority without considering differences in context, systems, society, and history. This leads to recommendations that overlook the unique social and clinical realities in China, promoting practices that may not be feasible or appropriate for the Chinese healthcare system.
Methodological Reporting Lacks Rigor	Despite established reporting checklists like CONSORT[8], STROBE[9], PRISMA[10], and COREQ[11], their use remains inconsistent. Some researchers have adopted these tools, but many fail to follow them even when they could, resulting in a lack of adherence to rigorous academic writing standards.
Information Overload	Some authors attempt to showcase complexity or technical proficiency by overloading their papers with excessive information—multiple research questions, methods, and data—resulting in confusion. This overwhelms readers and prevents the paper from offering a clear and useful answer to any single question.
Lack of Transparency	A common issue is the omission or obfuscation of critical details that would allow editors, reviewers, and readers to assess the study's credibility and applicability. Instead, reports often include subjective opinions and unsupported arguments, undermining both the research's reliability and the paper's readability.

From our perspective as associate editors, we fully endorse the recommendations outlined in item 9 of the CRISP Checklist for research related to the translation, development, and validation of research tools. A measurement tool is more than just a questionnaire or checklist; it involves the background of its development, core constructs, conceptual dimensions, and the target population. These elements are intricately linked to the significance and implications of the research outcomes.[17]

Given the complexities surrounding target populations in general practice and primary health care in China—such as community residents theoretically eligible for primary care, actual patients in primary care facilities, and patients contracted with family doctors—the lack of consensus on key outcomes presents challenges. We advise researchers to adhere to fundamental principles when designing and reporting such studies.[18] Specifically, the population used to test a tool should align closely with the target population it was designed to measure. Moreover, authors should discuss the practical relevance of tool-generated results (e.g., specific scores or classifications) within the Chinese clinical or healthcare context, considering whether and how these results can be effectively interpreted and utilized by frontline primary care practitioners.

For research aimed at building research infrastructure, capacity, and methodologies, items 3 and 7 from the CRISP Checklist—particularly the focus on "target population"—are critical. In China, significant differences exist between "research institution personnel" and "clinical healthcare workers" in terms of expertise, clinical experience, research skills, and professional objectives. Clinical research itself also varies widely.[19] We recommend that researchers targeting specific subgroups with distinct characteristics do so to provide more applicable insights than studies conducted on broader populations. Furthermore, terms like "primary care practitioners" or "primary care physicians" should be clearly defined, with detailed analyses of study outcomes and their relevance to specific subgroups.

For research on the functional features of primary care in China, almost all CRISP Checklist items are pertinent, with particular emphasis on items 1, 8, and 10. These address "theoretical foundations," "actual interventions," "health care systems," and "applicability in different contexts." While many organizations consider the functional features of primary care universally applicable and one of the core global theories in the field[20-22], there is still a lack of robust local evidence in China on how this theory integrates with the unique historical development and structure of its healthcare system. Without sufficient discussion of contextual factors such as "background environment," "actual interventions," and "the practical application of theory in the local setting," it is premature to assume that the theory is standardized and universally applicable across China. Designing studies and interpreting results based solely on such assumptions risks producing vague, context-detached conclusions, turning these studies into "self-consistent theoretical arguments" that fail to provide practical recommendations for the Chinese healthcare system.[16,23]

Clinical research

As a sub-discipline of clinical medicine in China, general practice has made significant strides in clinical research over the past three decades. Clinical research in general practice should be a central focus of scientific inquiry,[24,25] as it is rooted in the community health service environment, addressing key populations and the most common clinical challenges. The goal is to explore questions with practical value for clinical practice in China, ensuring outcomes are relevant and applicable to primary care facilities. However, many clinical researchers in general practice come from various medical specialties, and the influence of specialization is often apparent in their reports on "primary care" or "general practice" research.[26,27] Unfortunately, some researchers do not fully grasp the significant differences between medical needs and interventions in primary care versus general hospitals.

Data collection methods and clinical interventions in primary care settings, which lack the defined boundaries of hospitals, differ fundamentally from those employed in general hospitals. The health issues faced by hospital patients, especially inpatients, do not necessarily reflect the concerns of community populations. Currently, community health services in China face challenges such as managing multimorbidity, polypharmacy, chronic disease management, care for vulnerable populations, mental health issues, doctor-patient relationships, and coordination across specialties. These challenges are vital areas for clinical research in general practice.

We encourage clinical researchers in general practice and primary care to carefully follow the CRISP Checklist's emphasis on primary care perspectives in clinical research. Items 4 (study participants), 5 (disease conditions), 8 (interventions), and 10 (study implications) highlight essential information for primary care practitioners. When using hospital patient data or large public health datasets, it is crucial to consider their relevance to local community issues and their implications for the local primary care system.

Additionally, due to a lack of robust research design guidance and familiarity with reporting guidelines, the quality of clinical research papers in general practice varies widely across journals. Common issues include inadequate descriptions of participant characteristics, unclear recruitment processes, insufficient efforts to minimize bias, vague descriptions of interventions, lack of ethical considerations, use of invalidated tools, and unsupported claims beyond the primary outcomes. Dis-

cussions also often fail to address the limitations of the research process and findings, which can mislead readers, policymakers, and stakeholders, ultimately doing more harm than good.[6-7] To address these issues, we recommend combining the CRISP Checklist with existing clinical research reporting guidelines[28] and integrating them early in the research design process. For example, in a study on whether an AI alert system can improve follow-up adherence among type 2 diabetes patients at community health centers, researchers should not only evaluate the intervention's effectiveness and patient acceptance but also focus on the clinical interactions between patients and GPs (as emphasized in item 6), since these interactions play a key role in influencing follow-up behaviors.

Medical education research

Pedagogy and medicine are distinct academic fields, each with its own research paradigms. Medical education, including general practice and primary care education, effectively bridges these two disciplines. However, medical education research differs significantly from traditional biomedical research. While biomedical interventions, such as drug trials, are typically standardized, education interventions—particularly in adult education and training—are often non-standardized, varying based on location, faculty, and specific learning needs.[29] Applying traditional biomedical methods to medical education research may lead to overly localized solutions, limiting broader applicability.[30] Given the similarities between medical education research and general practice and primary care research, the CRISP Checklist is especially relevant for medical education reports.

In general practice and primary care education research, it is essential to report the educational theories, models, and frameworks related to learning, teaching, and instruction, as outlined in item 2C of the CRISP Checklist. Education is a complex domain where researchers must not only assess the effectiveness of an intervention but also understand why and how it works. This requires integrating theories from education, behavioral science, and psychology to explain complex learning processes.[31] We recommend that researchers in general practice education utilize these theories to guide their studies, transforming specific concerns into research questions and designing appropriate methodologies. Additionally, when discussing findings, researchers can extend educational theories to fit the characteristics of the learners.[30] By integrating theory with research, scholars can contribute to broader knowledge rather than addressing only localized issues. It is also crucial to ensure that the chosen theoretical frameworks align with the research questions and practical context.

In China, medical education within universities and specialized hospitals is more developed than general practice and primary care education. Despite the availability of various theories and frameworks, the diversity of educational contexts means there is rarely a universal solution.[30] For instance, China's "5+3" general practitioner training model is tailored to its unique context and cannot be directly compared to programs in other countries. Most Chinese GPs transition from other specialties, and their professional development differs from those formally trained in general practice. Chinese learners are also more accustomed to following instructions, indicating the need for enhanced support in developing independent and critical thinking skills. Educators, meanwhile, tend to rely on traditional, lecture-based methods with less experience in interactive, group-based, or case-based teaching. We suggest that researchers follow items 3, 4, 7, 8a, and 8b of the CRISP Checklist when reporting medical education research, providing detailed information on the research team, teaching team, learners, and educational interventions. This is especially important in China, where the general practice and educational systems are complex and differ significantly from other countries.[32]

Finally, although items 5, 6, and 8c of the CRISP Checklist primarily apply to clinical research, medical education researchers should consider them as well. While the immediate goals of medical education are to improve learner performance and competency, the ultimate aim is to enhance patient outcomes.[33] Thus, medical education research should not focus solely on "teaching for the sake of teaching" but rather on "teaching for the sake of the patient."

Health services research

Over the past three decades, the number of journals and articles focused on health services research has grown rapidly, reflecting the medical research community's increasing emphasis on understanding real-world health needs, resource allocation, service utilization, and the impact of health interventions on health and quality of life. Health services research is a crucial part of medical research, serving as a bridge between clinical diagnostics, interventions, health policies, and real-world health outcomes.[34] Despite the central role of primary care and general practice in meeting global health needs, research in primary care services has not received the attention it deserves in China, largely due to a lack of high-quality studies in this field.

First, as recommended by item 2 of the CRISP Checklist, it is essential to understand the foundational principles of health services and be well-versed in relevant theoretical frameworks when developing research questions. Disciplines such as behavioral science, management, sociology, and economics have produced a variety of classic, validated models, such as the Andersen Model for health services utilization,[35] the Health Belief Model for health behavior,[36] and Prospect Theory for health decision-making.[37] Failing to engage with these established frameworks limits the innovation of health services research. By building on these models and adapting them to the specific contexts of general practice and primary care, researchers can contribute to advancing the field through dialogue with the existing knowledge base.

Context is particularly important in health services research, as discussed in the section on discipline development. The design of primary care and general practice systems is shaped by various factors, including government structures, social and cultural norms, economic conditions, and population demographics. As a result, primary care systems differ significantly across countries, and universal solutions are rare. Instead of focusing solely on potential effects, primary care research must aim to understand under what conditions and why certain services are effective. Many health services studies overlook contextual factors, leading theoretically sound interventions to face practical challenges in new settings. This issue is not limited to primary care but is seen across many healthcare environments, restricting the generalizability of research findings.

In developing models, researchers often abstract general principles from practice, overlooking the importance of context. We suggest reversing this process by incorporating contextual variations into research design, moving from abstraction to practical application. Items 4, 5, and 8 of the CRISP Checklist cover key aspects such as diseases, patients, interventions, and service settings. By following these guidelines, researchers can help clarify the conditions under which an intervention is effective and its underlying mechanisms—critical factors for improving the real-world applicability of research outcomes.

Health policy research

Compared to other subfields, health policy research in primary care and general practice in China is still relatively nascent. Despite recent advancements in resources, expertise, and workforce—leading to notable contributions in evidence-based policy development and the strengthening of primary care systems—high-quality research in this area remains limited.[38] The CRISP Checklist is especially relevant for health policy research, as it ensures that studies are accessible, understandable, and applicable across sectors and populations. Since general practice and primary care are closely tied to promoting health equity and social justice, creating public policies and engaging all stakeholders

in health governance are crucial to enhancing primary care effectiveness and achieving the "Healthy China" strategy.

The inherently multidisciplinary nature of primary care and general practice demands that health policy and systems research incorporate diverse perspectives, drawing from multiple fields and involving a broad range of stakeholders. As a result, the emphasis should be placed on "research questions" rather than strictly adhering to "disciplinary paradigms" or "research methods." We recommend focusing on item 2 of the CRISP Checklist, which advises researchers to clearly define and report the rationale for investigating the research question. This may involve both established and emerging theories, models, or frameworks, and—more importantly—explain why they are appropriate for addressing specific research questions in primary care.

Health policy and systems research in primary care is highly context-dependent, shaped by both the current era and national or regional factors.[39] High-quality policy research should support decision-making aimed at optimizing primary care services and contribute to the improvement of people-centered healthcare systems. The CRISP Checklist, particularly items 8 and 10, highlights the importance of transparency in reporting context, interventions, and outcomes in health policy research. By adhering to these principles in future studies, researchers can enhance the impact and practical value of health policy research in general practice and primary care in China, ultimately supporting policy and practice improvements across regions.[40]

Community epidemiology research

Epidemiology forms the methodological foundation of medical and health research. Community epidemiology, a key subfield, applies core epidemiological principles within community health centers. This field focuses on monitoring, analyzing, and evaluating the causes of diseases, health status, influencing factors, and interventions at the community level. Its aim is to uncover the patterns and causes of community health problems and propose targeted strategies for intervention at both community and population levels. Examples include infectious diseases,[41,42] chronic non-communicable diseases,[43] the burden of multimorbidity,[44,45] and the identification of risk factors, along with the assessment of population-level intervention strategies.[46,47] These are all crucial topics within community epidemiology research in general practice and primary care.

Compared to other research fields, general practice and primary care focus on addressing community-specific health issues and enhancing the role of primary care facilities and professionals. Community-based participatory research has gained prominence internationally as a key strategy for improving health equity.[48] In Europe, the "Community-oriented Primary Care" research approach is recognized as a distinct category in frameworks like the Research Agenda for General Practice/Family Medicine and Primary Health Care in Europe.[49] Currently, community epidemiology research makes up a significant portion of general practice and primary care research in China, employing diverse methods and covering various topics. However, many of these studies still show significant deficiencies in reporting standards.[6]

We recommend that researchers in this field use the CRISP Checklist to improve both the design and reporting quality of their research—from study design through execution, reporting, and peer review. Additionally, we advocate combining the CRISP Checklist with the STROBE checklist, which is widely used in epidemiological studies.[50] This combined approach will help researchers formulate clear, practical research questions while fully considering the context of the study's implementation and application. It promotes transparency in participant selection and recruitment, ensures the representativeness of the study population, establishes valid measurement indicators, controls biases, and supports drawing reasonable conclusions. Furthermore, this approach encourages thorough academic discussion of key results, addresses study limitations, and ensures transparent reporting for readers.

Conclusion

The CRISP Checklist is the result of a collaborative effort among various countries and stakeholders closely involved in primary care research. It embodies core principles of scientific reporting and offers specific, actionable recommendations for improving the quality of research reports in general practice and primary care. The checklist encourages researchers to formulate logical, meaningful research questions, maintain an unbiased academic approach, adopt a critical mindset, and transparently present the background, value, and limitations of their study's design, implementation, and application. This aligns well with the mission of Chinese General Practice and Chinese General Practice Journal, and has significant potential to elevate the quality of research reporting in general practice and primary care in China. Together with the CRISP Working Group, we recommend that Chinese authors and readers utilize the checklist and its guidelines to improve research design and reporting. The editorial teams of Chinese General Practice and Chinese General Practice Journal will also explore integrating the checklist into their interactions with authors to further enhance the quality of published papers.

Furthermore, we agree with the CRISP Working Group's perspective that the checklist is an evolving tool that should be continuously refined to suit different contexts.[1] China's primary care system, shaped by its unique historical background and current circumstances, differs from other countries and healthcare systems. As we translate the CRISP Checklist into Chinese, we invite Chinese researchers to provide constructive feedback and suggestions for improvement as they apply the checklist in their work. This feedback will help refine the checklist, making it more effective for researchers and stakeholders in China. Ultimately, our goal is to ensure that research in general practice and primary care is rigorously designed, reliable, and applicable, fostering the advancement of these disciplines in China. By improving the reporting of research, high-quality and practical studies will serve as a lever for advancing patient care and population health.

Competing interests

H.Y., W.Y., C.Q., L.C., G.J. and Q.J. are editorial members of Chinese General Practice Journal, C.X. and X.Y. are editors of Chinese General Practice Journal, they are not envolved in the editorial review or the decision to publish this article. All authors declare that there are no competing interests.

Declarations

Not applicable.

Authors' contributions

Conceptualization, Y.H. and W.Y.; Methodology, not applicable; Data curation, not applicable; Formal analysis, not applicable; Funding acquisition, not applicable; Project administration, not applicable; Resources, not applicable; Supervision, Y.H., S.E. and P.WR; Validation, Y.H. and X.Y.; Writing–original draft, Y.H., W.Y., C.Q., L.C., G.J., Z.Y., Q.J. and C.X.; Writing–review and editing, Y.H., S.E. and P.WR. All authors have read and agreed to the published version of the manuscript.

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