Has the Publication of *China Guidelines for Pharmacoeconomic Evaluations 2020* Influenced the Study Quality of Economic Evaluations in China? A Systematic Review

Shihuan Cao , Wanxian Liang, Changhao Liang, Huansen Lin, Chenxi Gao, Lujia Yang, Yuming Liu, Yusi Suo, Kexin Liu, Yunzheng Chen, *Xuejing Jin

Beijing University of Chinese Medicine, Beijing, China

INTRODUCTION & OBJECTIVES

- *China Guidelines for Pharmacoeconomic Evaluations 2020* (*China PE Guidelines 2020*): considered as a methodological guide for economic evaluations (EEs) research as well as a standard for evaluating EEs' quality
- To systematically review the economic evaluations published in Chinese since 2016;
- To critically appraise EEs' study quality with the criteria of *China PE Guidelines 2020*.

METHODS

Databases

- China National Knowledge Infrastructure (CNKI), Wanfang Data, VIP Database, China Biology Medicine disc (CBM disc)

Search strategy (taking CNKI for example)

- SU = '药物经济' (Pharmacoeconomics) + '卫生经济' (health economics)+ '经济学评价' (economic evaluations) + '经济性评价' (economic evaluations) + '经济评价' (economic evaluations) + '成本-效果' (cost-effectiveness) + '成本-效用' (cost-utility) + '成本-效益' (cost-benefit) + '最小成本' (cost-minimization) AND FT = '患者' (patients)+ '病人' (patients)
- Time frame： 2016.1.1 - 2022.7.10

Eligibility criteria

- Inclusion: EEs comparing costs and outcomes of different interventions on human beings published in Chinese since 2016.
- Exclusion:

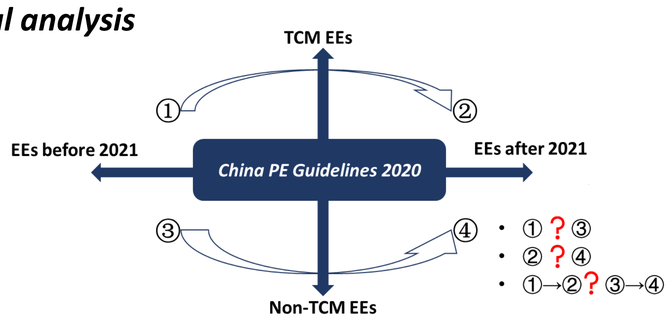
(1) only focused on cost or efficacy/effectiveness of interventions;
(2) not original studies in Chinese;
(3) any of conference abstracts, reviews, letters, editorials, commentaries, protocols or not available for access to the full article.

Assessment tool of study quality

- *China Guidelines for Pharmacoeconomic Evaluations 2020*

Assessment aspects	Descriptions in *China PE Guidelines 2020*
Study perspective	"More than one perspective can be used in a pharmacoeconomic evaluation, but the perspective should remain consistent throughout the study."
Time horizon	"In pharmacoeconomic evaluations, researchers should clearly justify the choice of the selected time horizon."
Cost identification	" All resources related to the intervention should be included to prevent omission or double counting."
Discounting	"The same discount rate is recommended for both cost and health outcomes. It is recommended 5% per year to be used as the discount rate for the base case and 0%~8% in the sensitivity analysis."
Health outcomes	A. "Studies including the final end-points are preferred for use in pharmacoeconomic evaluations." B. "Quality-adjusted life year (QALY) is recommended as the utility measurement."
Evaluation techniques	A. "If possible, a CUA should be conducted. Other techniques can also be used with the justifications provided." B. "In CUA and CEA, the decision-making is based on an incremental analysis."
Uncertainty analysis	"Researchers should conduct a comprehensive analysis of different types of uncertainties in a pharmacoeconomic evaluation, including uncertainties in methodology, inputs, and models, etc."

Statistical analysis



- Comparing the study quality before and after the publication of *China PE Guidelines 2020* (before 2021 and after 2021);
- Using studies related and unrelated to traditional Chinese medicine (TCM) as two subgroups.

CONTACT INFORMATION

- First author: shcbucm@163.com
- Corresponding author: jinxuejing2018@163.com

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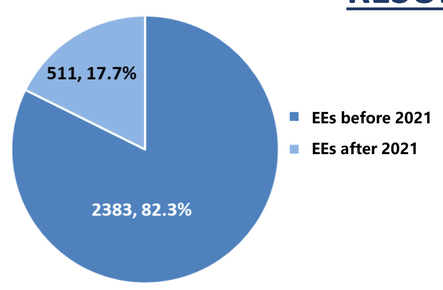
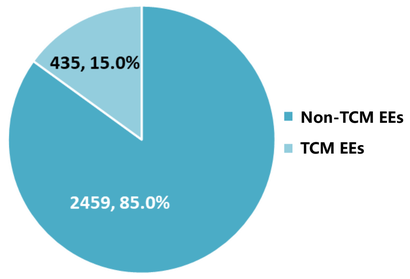
RESULTS





➢ **Before the publication of *China PE Guidelines 2020***

	TCM EEs N = 372（15.6%）	Non-TCM EEs N = 2011（84.4%）	P value
Cost identification—Study perspective			**P＜0.001**
Matching	28 (7.5)	46 (2.3)	
Not matching	18 (4.8)	174 (8.7)	
Not clear	16 (4.3)	170 (8.5)	
Not appliable	310 (83.3)	1621 (80.6)	
Time horizon			**P＜0.001**
≤1 year	272 (73.1)	1059 (52.7)	
＞1 year	20 (5.4)	348 (17.3)	
Not clear	80 (21.5)	604 (30.0)	
Uncertainty analysis			**P=0.024**
Yes	168 (45.2)	783 (38.9)	
No	204 (54.8)	1228 (61.1)	

➢ **After the publication of *China PE Guidelines 2020***

	TCM EEs N = 63（12.3%）	Non-TCM EEs N = 448（87.7%）	P value
Study perspective			**P=0.005**
Clear	32 (50.8)	147 (32.8)	
Not clear	31 (49.2)	301 (67.2)	
Time horizon			**P=0.019**
≤1 year	20 (31.7)	95 (21.2)	
＞1 year	6 (9.5)	106 (23.7)	
Not clear	37 (58.7)	247 (55.1)	
Discounting			**P=0.022**
Yes	7 (11.1)	117 (26.1)	
No	2 (3.2)	22 (4.9)	
Not appliable	54 (85.7)	309 (69.0)	
Cost identification—Study perspective			**P＜0.001**
Matching	16 (25.4)	29 (6.5)	
Not matching	8 (12.7)	71 (15.8)	
Not clear	8 (12.7)	47 (10.5)	
Not appliable	31 (49.2)	301 (67.2)	
Health outcomes—Evaluation types			**P=0.030**
Matching	62 (98.4)	397 (88.6)	
Not matching	0 (0)	31 (6.9)	
Not appliable	1 (1.6)	20 (4.5)	

➢ **Comparison of TCM/non-TCM EE studies before and after the publication of *China PE Guidelines 2020***

	TCM EEs N = 435		P value	Non-TCM EEs N = 2459		P value
	Before 2021 N = 372 （85.5%）	After 2021 N = 63 （14.5%）		Before 2021 N = 2011 （81.8%）	After 2021 N = 448 （18.2%）	
Study perspective			**P < 0.001**			**P＜0.001**
Clear	**62 (16.7)**	**32 (50.8)**		**390 (19.4)**	**147 (32.8)**	
Not clear	310 (83.3)	31 (49.2)		1621 (80.6)	301 (67.2)	
Cost identification—Study perspective			**P < 0.001**			**P＜0.001**
Matching	**28 (7.5)**	**16 (25.4)**		**46 (2.3)**	**29 (6.5)**	
Not matching	18 (4.8)	8 (12.7)		174 (8.7)	71 (15.8)	
Not clear	16 (4.3)	8 (12.7)		170 (8.5)	47 (10.5)	
Not appliable	310 (83.3)	31 (49.2)		1621 (80.6)	301 (67.2)	
Incremental analysis			**P < 0.001**			**P＜0.001**
Yes	**172 (46.2)**	**45 (71.4)**		**846 (42.1)**	**275 (61.4)**	
No	200 (53.8)	18 (28.6)		1165 (57.9)	173 (38.6)	
Uncertainty analysis			**P=0.001**			**P＜0.001**
Yes	**168 (45.2)**	**43 (68.3)**		**783 (38.9)**	**251 (56.0)**	
No	204 (54.8)	20 (31.7)		1228 (61.1)	197 (44.0)	

CONCLUSIONS

- The publication of *China PE Guidelines 2020* has played a positive role in improving the study quality of economic evaluations.
- Researchers need to attach more importance to identifying study perspective.
- To better support decision-making, the quality of EEs in China remains to be improved.