

Supplement 1

CASP General SR Checklist: Collation of critical appraisal responses

Veneri et al.		Overall Confidence Rating: Low	
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

✓	3. Were all relevant primary research studies likely to have been included in the systematic review?		
✓	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?		
✓	5. Did the researchers extract, and present information on the individual primary research studies appropriately and transparently?		

C. Are the results of the systematic review trustworthy?

	6. Did the researchers analyze the results of the individual primary research studies appropriately?		✓
	7. Did the researchers report any limitations of the systematic review and, if so, do the limitations discussed cover all the issues in your critical appraisal?	✓	

CASP General SR Checklist: Collation of critical appraisal responses

Miranda et al.		Overall Confidence Rating: Critically Low	
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

	3. Were all relevant primary research studies likely to have been included in the systematic review?		✓
	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?	✓	
✓	5. Did the researchers extract, and present information on the individual primary research studies appropriately and transparently?		

C. Are the results of the systematic review trustworthy?

	6. Did the researchers analyze the results of the individual primary research studies appropriately?		✓
	7. Did the researchers report any limitations of the systematic review and, if so, do the limitations discussed cover all the issues in your critical appraisal?		✓

CASP General SR Checklist: Collation of critical appraisal responses

Kumar et al.	Overall Confidence Rating: Critically Low		
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

	3. Were all relevant primary research studies likely to have been included in the systematic review?	✓	
	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?		✓
	5. Did the researchers extract, and present information on the individual primary research studies appropriately and transparently?	✓	

C. Are the results of the systematic review trustworthy?

	6. Did the researchers analyze the results of the individual primary research studies appropriately?		✓
	7. Did the researchers report any limitations of the systematic review and, if so, do the limitations discussed cover all the issues in your critical appraisal?		✓

CASP General SR Checklist: Collation of critical appraisal responses

Taylor et al.		Overall Confidence Rating: High	
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

✓	3. Were all relevant primary research studies likely to have been included in the systematic review?		
✓	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?		

✓	5. Did the researchers extract, and present information on the individual primary research studies appropriately and transparently?		
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C. Are the results of the systematic review trustworthy?

✓	6. Did the researchers analyze the results of the individual primary research studies appropriately?		
✓	7. Did the researchers report any limitations of the systematic review and, if so, do the limitations discussed cover all the issues in your critical appraisal?		

CASP General SR Checklist: Collation of critical appraisal responses

Gopu et al.		Overall Confidence Rating: High	
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

✓	3. Were all relevant primary research studies likely to have been included in the systematic review?		
✓	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?		

C. Are the results of the systematic review trustworthy?

✓	6. Have the results of the systematic review been reported comprehensively, and interpreted appropriately? Has any subgroup analysis been designed appropriately, and the results interpreted accurately?		
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	7. Did the authors report on how precise the results of the systematic review were, and the implications?	✓	
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CASP General SR Checklist: Collation of critical appraisal responses

NTP Monograph		Overall Confidence Rating: High	
Yes	Checklist Question	Can't Tell	No

A. Is the basic study design valid for a systematic review?

✓	1. Did the systematic review address a clearly formulated research question?		
✓	2. Did the researchers search for appropriate study designs to answer the research question?		

B. Is the systematic review methodologically sound?

✓	3. Were all relevant primary research studies likely to have been included in the systematic review?		
✓	4. Did the researchers assess the validity or methodological rigour of the primary research studies included in the systematic review?		

C. Are the results of the systematic review trustworthy?

✓	6. Have the results of the systematic review been reported comprehensively, and interpreted appropriately? Has any subgroup analysis been designed appropriately, and the results interpreted accurately?		
✓	7. Did the authors report on how precise the results of the systematic review were, and the implications?		

Supplement 2

MATRIX OF EVIDENCE

TOPIC: Neurotoxic Impacts of Fluoride Exposure

Primary Studies	Systematic Reviews					
	Miranda 2021	Gopu 2022	Veneri 2023	Kumar 2023	NTP 2024	Taylor 2025
Study ID						
Aravind 2016	1	1	1		1	1
Chen 1991	1	1	1	1	1	1
Eswar 2011	1	1	1	1	1	1
Guo 1991	1	1			1	1
Hong 2001	1		1	1	1	1
Karimzade 2014	1	1	1	1	1	1
Khan 2015	1				1	1
Kundu 2015	1	1			1	1
Lu 2000	1	1	1		1	1
Nagarajappa 2013	1				1	
Poureslami 2011	1		1	1	1	1
Qin 2008	1	1			1	
Razdan 2017	1	1			1	1
Saxena 2012	1	1	1		1	
Sebastian 2015	1	1	1	1	1	1
Seraj 2012	1	1	1	1	1	1
Sharma 2009	1					

Shivaprakash 2011	1		1		1	1
Sudhir 2009	1				1	
Trivedi 2007	1	1	1		1	1
Trivedi 2012	1			1	1	1
Wang 2007	1	1	1	1	1	1
Wang 2008	1	1	1	1	1	1
Wang 2006	1			1	1	1
Xiang 2003	1	1	1	1	1	1
Yu 2018	1	1		1	1	1
Zhao 1996	1	1	1	1	1	1
Hong 2001b					1	1
Choi 2015		1			1	
Chunyuan 2011		1				
Cui 2018		1			1	1
Ding 2011		1	1		1	1
Li 2008		1			1	1
Lou 2020		1				
Ren 2008		1			1	1
Wang Liu 2020					1	1
Wang 2019		1				
Wang 2008		1			1	
Wei 2014		1			1	
Xu 2020		1				
Yang 2008		1			1	
Zhao 2021		1				1

Kumar 2021		1				
Sharma 2016		1				
Bashash 2018		1				
Bashash 2017		1	1	1	1	1
Jimenez 2017		1				1
Martinez 2016		1				
Rocha-Amador 2007		1	1		1	
Soto-Barreras 2019		1			1	
Barberio 2017 b		1			1	
Green 2019		1		1	1	1
Till 2020		1	1	1	1	1
Li 2008		1				
Broadbent 2015		1	1	1	1	1
Saeed 2020		1				
Ahmad 2022			1			1
Li 2008			1			1
Seraj 2007			1			
Wang 2021			1			1
Yu 2021			1			
Zhang 2015			1		1	1
Das and Mondal 2016			1		1	1
Farmus 2021			1	1		
Feng 2022			1			1
Goodman 2022			1			1

Li 1995			1	1	1	1
Xiang 2011			1		1	
An 1992				1	1	
Xu 1994				1	1	1
Yao 1996				1	1	1
Yao and Yang 1997				1	1	1
Zhang 1998				1	1	1
Lu 2008				1		
Wang 2001				1	1	1
Seraj 2006				1	1	1
Fan 2007				1	1	1
Ibarluezea 2021				1		1
Thomas 2014				1		
Tianjin 2018				1		
Bai 2014					1	1
Cui 2020					1	1
He and Zhang 2010					1	
Jin 2017					1	
Kang 2011					1	1
Li 2009					1	1
Li 2010					1	1
Lin 1991					1	
Liu 2000					1	
Luo 2018					1	
Mondal 2016					1	1

Pratap 2013					1	
Sun 1991					1	
Wang 2005					1	1
Wang 2012					1	1
Wang 2017					1	
Zhang 2015					1	1
Zhao 2018					1	1
Jin 2016					1	
Mustafa 2018					1	
Wang, Yu 2020						1
Wang Duan 2020		1			1	
Cantoral 2021						1
Guo 2021						1
Lou 2021						1
Prabhakar 2021						1
Saeed 2021						1
Tian 2022						1
Dewey 2023						1
Grandjean 2023						1
Lin 2023						1
Xia 2023						1
Rocha-Amador 2009					1	
Li 1994 (2008)					1	

Overall results

Number of columns (number of reviews)	c	6
Number of rows (number of index publications)	r	114
Number of included primary studies (including double counting)	N	287
Covered area	$N/(rc)$	41.96%
Corrected covered area	$(N-r)/(rc-r)$	30.35%
Interpretation of overlap	Very High overlap	
Structural Zeros	X	0
Corrected covered area (adjusting by structural zeros)	$(N-r)/(rc-r-X)$	30.35%
N° of non-overlapped primary studies	In 1 SR	24
Number of overlapped primary studies	In 2 SRs	32

	In 3 SRs	15
	In 4 SRs	10
	In 5 SRs	9
	In 6 SRs	9
	In 7 SRs	0
	In 8 SRs	0
	In 9 SRs	0
	In 10 SRs	0
	In 11 SRs	0
	In 12 SRs	0
	In 13 SRs	0
	In 14 SRs	0
	In 15 or more SRs	0