

# Preoperative Concerns of Older Patients Undergoing Non-cardiac Surgery: A Systematic Review and Meta-analysis



Marianna Qu<sup>1,\*</sup>, Winnie Liu<sup>2,\*</sup>, Ellene Yan<sup>3,4</sup>, Aparna Saripella<sup>3</sup>, Marina Englesakis<sup>5</sup>, David He<sup>6</sup> and Frances Chung<sup>3,4,\*</sup>

<sup>1</sup>Queen's University School of Medicine, Queen's University, Kingston, ON, Canada

<sup>2</sup>Michael DeGroot School of Medicine, McMaster University, Hamilton, ON, Canada

<sup>3</sup>Department of Anesthesia and Pain Management, Toronto Western Hospital, University Health Network, University of Toronto, Toronto, ON, Canada

<sup>4</sup>Institute of Medical Science, Temerty Faculty of Medicine, University of Toronto, ON, Canada

<sup>5</sup>Library & Information Services, University Health Network, Toronto, ON, Canada

<sup>6</sup>Department of Anesthesiology and Pain Medicine, Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada

© 2024 The Author(s). Published by Bentham Open.

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



\*Address correspondence to these authors at the Department of Anesthesiology and Pain Management, Toronto Western Hospital, University Health Network, University of Toronto, 399 Bathurst Street, Toronto, ON, M5T 2S8, Canada; Tel: 416-470-4253, Queen's University School of Medicine, Queen's University, Kingston, ON, Canada and Michael DeGroot School of Medicine, McMaster University, Hamilton, ON, Canada; E-mails: [Frances.Chung@uhn.ca](mailto:Frances.Chung@uhn.ca), [mqu@qmed.ca](mailto:mqu@qmed.ca) and [winnie.liu@medportal.ca](mailto:winnie.liu@medportal.ca)

Published: August 23, 2024



Cite as: Qu M, Liu W, Yan E, Saripella A, Englesakis M, He D, Chung F. Preoperative Concerns of Older Patients Undergoing Non-cardiac Surgery: A Systematic Review and Meta-analysis. Open Anesthesiol J, 2024; 18: e25896458322437. <http://dx.doi.org/10.2174/0125896458322437240801050504>

Send Orders for Reprints to [reprints@benthamscience.net](mailto:reprints@benthamscience.net)

**S-Table 1. Demographics and characteristics of included studies.**

Author, Year (Country)	Study Design	Type of Surgery %	Sample Size (n)	Age Mean ± SD	Female %	Anesthesia %	Setting
<i>Non-cardiac mixed surgery</i>							
Karakoyun, 2021 (Turkey) [39]	RCT	*Mixed	46	NR	NR	GA	OP, preop clinic
Lim, 2020 (Korea) [40]	CS	*Mixed	140	73.3 ± 6.2	60	GA: 82.9 RA: 17.1	IP, one day prior
Lobato, 2014 (Colombia) [41]	CS	*Mixed	199	NR	NR	GA, Local	NR, preop clinic
Maurice-Szamburski, 2013 (France) [42]	CS	*Mixed	78	NR	NR	NR	OP, one day prior
<i>Emergent orthopedic surgeries</i>							
Jung, 2021 (Korea) [43]	PC	Hip fracture	75	80.2 ± 7.0	61.3	GA	IP, on admission
Yoo, 2018 (Korea) [44]	CS	Hip fracture	152	78.2 ± 12.2	69.7	GA, Spinal	IP, one day prior
<i>Elective orthopedic surgeries</i>							
Raghavan, 2019 (Canada) [45]	PC	THA/TKA	62	62 ± 10	56.5	GA, RA	OP, preop clinic
Li, 2018 (China) [46]	CS	TKA	128	65.4 (NR)	84	NR	OP, preop clinic
Luo, 2015 (China) [47]	CS	Spinal surgery	46	NR	NR	NR	IP, preop clinic and morning of surgery
Lee, 2012 (Korea) [48]	CS	TAA	85	60 ± 9.54	38.8	NR	IP, on admission

Author, Year (Country)	Study Design	Type of Surgery %	Sample Size (n)	Age Mean ± SD	Female %	Anesthesia %	Setting
Park, 2007 (Korea) [49]	CS	TKA	97	68.9 ± 6.7	100	NR	OP, on admission
<i>Surgeries of high mental and physical burden</i>							
**Jovanovic, 2022 (Serbia) [50]	CS	CEA	385	67.1 ± 7.4	20.8	GA:41.6 RA: 58.4	NR, one day prior
**Jovanovic 2021 (Serbia) [51]	CS	CEA	385	67.1 ± 7.4	20.8	GA:41.6 RA: 58.4	NR, one day prior
Buehrer, 2015 (Switzerland) [52]	PC	CEA	59	70.7 ± 9.9	17	GA:97 LA/RA: 3	IP, on hospitalizations
Mauricio, 2021 (Portugal) [53]	CS	Cancer mixed	109	60 ± 13.5	47	NR	NR, one day prior
Brandt, 2012 (Canada) [54]	CS	Hemithyroidectomy (Cancer)	30	54 ± 2	80	NR	OP, preop clinic
Khalil, 2020 (Egypt) [55]	RCT	*Abdominal	86	68.4 ± 5.2	57.0	GA: 86 (100)	IP, on admission

Abbreviations: PC: prospective cohort; CS: cross-sectional; RCT: randomized-control trial; NR: not reported; IP: in-patient; OP: out-patient; GA: general anesthesia; RA: regional anesthesia; LA: local anesthesia; TKA: total knee arthroplasty; THA: total hip arthroplasty; TAA: total ankle arthroplasty; IC: intervention cohort; CC: control cohort.

\*Mixed surgeries: various surgical specialties (breast, vascular, ophthalmology, general, gynecologic surgery, neurosurgery, oral, orthopedic surgery, plastic, urologic, abdominal, otolaryngology, cardiac, and others.)

\*\*Jovanovic 2021 and Jovanovic 2022 were two separate studies that were conducted within the same sample of 385 patients.

**S-Table 2. Quality assessment of included cross sectional studies.**

Author, Year	1. Were the criteria for inclusion in the sample clearly defined?	2. Were the study subjects and the setting described in detail?	3. Were objective, standard criteria used for measurement of the condition?	4. Were confounding factors identified?	5. Were strategies to deal with confounding factors stated?	6. Were the outcomes measured in a valid and reliable way?	7. Was appropriate statistical analysis used?	Total Score /7	Total %	Study Quality
Yoo, 2018 [44]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	No(0)	Yes(1)	Yes(1)	6	85.7	High
Li, 2018 [46]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Park, 2007 [49]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Lee, 2012 [48]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Lim, 2020 [40]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Lobato, 2014 [41]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Maurice-Szamburski 2013 [42]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Mauricio, 2021 [53]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	No(0)	Yes(1)	Yes(1)	6	85.7	High
Jovanovic, 2021 [51]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	No(0)	Yes(1)	Yes(1)	6	85.7	High
Jovanovic, 2022 [50]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	No(0)	Yes(1)	Yes(1)	6	85.7	High
Luo, 2015 [47]	Yes(1)	No(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High

**Note:** These questions can be Graded with '1' for yes and '0' for no, unclear.

Answers: '1' for Yes and '0' for No, Unclear.

The following question was Not Applicable (NA) and was removed from the quality appraisal: "Was the exposure measured in a valid and reliable way?"

**S-Table 3. Quality assessment of included cohort studies.**

Author, Year	1. Were confounding factors identified?	2. Were strategies to deal with confounding factors stated?	3. Were the outcomes measured in a valid and reliable way?	4. Was appropriate statistical analysis used?	Total Score /4	Total %	Study Quality
Jung, 2021 [43]	Yes(1)	No(0)	Yes(1)	Yes(1)	3	75	High
Raghavan, 2019 [45]	Yes(1)	No(0)	Yes(1)	Yes(1)	3	75	High
Brandt, 2012 [54]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	4	100	High
Buehrer, 2015 [52]	Yes(1)	Yes(1)	Yes(1)	Yes(1)	4	100	High

**Note:** These questions can be Graded with '1' for yes and '0' for no, unclear

Answers: '1' for Yes and '0' for No, Unclear

The following questions were Not Applicable (NA); therefore, they were removed from the quality appraisal:

- 1) Were the two groups similar and recruited from the same population?
- 2) Were the exposures measured similarly to assign people to both exposed and unexposed groups?
- 3) Was the exposure measured in a valid and reliable way?
- 4) Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?
- 5) Was the follow up time reported and sufficient to be long enough for outcomes to occur?
- 6) Was follow up complete, and if not, were the reasons to loss to follow up described and explored?
- 7) Were strategies to address incomplete follow up utilized?

**S-Table 4. Quality assessment of included RCTs.**

Author, Year	1. Were treatment groups treated identically other than the intervention of interest?	2. Were outcome assessors blind to treatment assignment?	3. Were outcomes measured in the same way for treatment groups?	4. Were outcomes measured in a reliable way?	5. Were participants analysed in the groups to which they were randomized?	6. Was appropriate statistical analysis used?	7. Was the trial design appropriate and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	Total score /7	Total %	Study Quality
Karakoyun, 2021 [39]	Yes(1)	Unclear(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High
Khalil, 2020 [55]	Yes(1)	Unclear(0)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	Yes(1)	6	85.7	High

**Note:** These questions can be Graded with '1' for yes and '0' for no, unclear

Answers: '1' for Yes and '0' for No, Unclear

The following questions were Not Applicable (NA); therefore, they were removed from the quality appraisal:

- 1) Was true randomization used for assignment of participants to treatment groups?
- 2) Was allocation to treatment groups concealed?
- 3) Were treatment groups similar at the baseline?
- 4) Were participants blind to treatment assignment?
- 5) Were those delivering the treatment blind to treatment assignment?
- 6) Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analysed?

**S-Table 5. Description of study specific measures assessing preoperative concerns.**

Study	Measure			Method		
	Items	Format	Response	Domains Assessed (n)	Mode	Validity
Khalil, 2021 [55]	9	MCQ	Multi-choice <sup>a</sup>	7	Self-admin	LR, pilot
Lim, 2020 [40]	9	Likert scale	1-5	4	Self-admin	Reliability
Lobato, 2014 [41]	11	NRS	1-10	4	Self-admin	qualitative <sup>b</sup>
Jung, 2021 [43]	5	MCQ	Single choice <sup>c</sup>	5	Self-admin	past survey
Yoo, 2018 [44]	25	Likert scale	1-4	6	Interview	qualitative <sup>d,e</sup>
Li, 2018 [46]	61	Likert scale	1-4	7	Self-admin	past survey <sup>e</sup>
Luo, 2015 [47]	16	MCQ	Multi-choice <sup>a</sup>	5	Self-admin	qualitative <sup>f</sup>
Lee, 2012 [48]	65	Likert scale	1-4	7	Self-admin	past survey <sup>e</sup>
Park, 2007 [49]	65	Likert scale	1-4	7	Self-admin	past survey <sup>e</sup>
Jovanovic, 2022 [51]	15	Likert scale	1-5	5	Interview	LR, past survey
Brandt, 2012 [54]	19	WSCI-T	1-9	5	Self-admin	various <sup>g</sup>
Raghavan, 2019 [45]	8	Likert scale	1-5	3	Interview	LR

**Note:** MCQ: multiple choice question; IP: inpatient; OP outpatient; LR: literature review; pilot: pilot study; NRS: numeric rating scale; preop clinic: pre-operative clinic; WSCI-T: Western Surgical Concern Inventory for Thyroidectomies.

a. indicates multiple choice items where several response items can be chosen (e.g., pick top three apply, all that apply).

b. strategies include: literature review, expert panel.

c. indicates multiple choice items where only one item can be chosen (e.g. main cause of anxiety).

d. strategies include: literature reviews, past surveys, expert panel, pilot studies.

e. all studies that used the questionnaire first presented by Trousdale, 2000.

f. strategies include: literature reviews, patient interviews, pilot studies, expert consultation, test-retest.

g. formal inception and validation process of a questionnaire, including patient focus groups, pilot studies and qualitative validation

**S-Table 6. Number of items assessing each concern domain and subdomain.**

Domain	Subdomain	Number of Items	Number of Items Ranking in Top Quartiles	%
Anesthesia	-	32	3	9.4%
-	Associated risks	12	3	0.0%
-	Awareness	6	0	0.0%
-	Postop side effects	14	0	0.0%
Cx	-	55	14	25.5%
-	Cardiovascular complications	16	0	0.0%
-	General Complications	6	4	66.7%
-	Infection	10	3	30.0%
-	Medical Error	8	0	0.0%
-	Paralysis/Nerve injury	7	3	42.9%
-	Reinjury risk	8	4	50.0%
Impact on Daily Life	-	68	6	8.8%
-	Economic	9	0	0.0%
-	Independence	16	1	6.3%
-	Long term dysfunction/disability	11	3	27.3%
-	Psychosocial	14	0	0.0%
-	Return to daily activity	18	2	11.1%
Medical Experience	-	58	4	6.9%
-	Distrust in physician competence	16	2	12.5%
-	Fear of the unknown	15	2	13.3%
-	Hospital environment	11	0	0.0%
-	Quality of care	16	0	0.0%
Pain	-	21	11	52.4%
-	Intraop pain	6	4	66.7%
-	Postop pain	15	7	46.7%
Rehabilitation and Recovery	-	40	9	22.5%
-	Delayed recovery	10	4	40.0%
-	Functional recovery/mobility	20	5	25.0%
-	Postop rehab	10	0	0.0%
Surgery	-	31	9	29.0%
-	Death	6	0	0.0%
-	General	4	2	50.0%
-	Need for reoperation	7	4	57.1%
-	Outcome	14	3	21.4%

**S-Table 7. Distribution of domains and subdomains across all included studies.**

Domain	Subdomain	Brandt, 2012 [54]	Jovanovic, 2022 [50]	Jung, 2021 [43]	Khalil, 2020 [55]	Lee, 2012 [48]	Li, 2019 [46]	Lim, 2020 [40]	Lobato, 2014 [41]	Luo, 2015 [47]	Park, 2007 [49]	Raghavan, 2019 [45]	Yoo, 2012 [44]	Jovanovic, 2021 [51]	Maurice-Szamburski, 2013 [42]	Karakoyun, 2021 [39]	Mauricio, 2021 [53]	Buehrer, 2015 [52]	Grand Total
Anesthesia	Associated risks	1	2	1	1	1	1	3	-	-	1	3	-	1	1	1	1	1	17
-	Awareness	-	1	-	-	1	1	1	-	-	1	1	-	-	-	-	-	-	6
-	Postop side effects	-	5	-	-	2	-	2	-	-	2	3	-	-	-	-	-	-	14
<b>Anesthesia Total</b>		<b>1</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>-</b>	<b>-</b>	<b>4</b>	<b>7</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>39</b>
Complications	Cardiovascular cx	-	1	-	-	5	4	-	-	-	5	-	1	-	-	-	-	-	16
-	General Cx	2	1	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	6
-	Infection	-	-	-	-	3	3	-	-	-	3	-	1	-	-	-	-	-	10
-	Medical Error	-	-	-	1	2	3	-	-	-	2	-	-	-	-	-	-	-	8
-	Paralysis/Nerve injury	-	1	-	-	1	1	-	-	1	1	2	-	1	-	-	-	-	7
-	Reinjury risk	-	-	-	-	2	2	-	-	-	2	-	2	-	-	-	-	-	8
<b>Complications Total</b>		<b>2</b>	<b>3</b>	<b>-</b>	<b>2</b>	<b>13</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>13</b>	<b>2</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>55</b>
Impact on Daily Life	Economic	-	-	-	-	2	2	-	-	1	2	-	2	1	-	-	-	-	9
-	Independence	-	-	-	1	5	4	-	-	-	5	-	1	-	-	-	-	-	16
-	Longterm dysfunction/disability	-	-	-	-	3	2	-	1	-	3	-	2	-	-	-	-	-	11
-	Psychosocial	7	-	1	-	-	3	-	1	1	-	-	1	1	-	-	-	-	14

Domain	Subdomain	Brandt, 2012 [54]	Jovanovic, 2022 [50]	Jung, 2021 [43]	Khalil, 2020 [55]	Lee, 2012 [48]	Li, 2019 [46]	Lim, 2020 [40]	Lobato, 2014 [41]	Luo, 2015 [47]	Park, 2007 [49]	Raghavan, 2019 [45]	Yoo, 2012 [44]	Jovanovic, 2021 [51]	Maurice-Szamburski, 2013 [42]	Karakoyun, 2021 [39]	Mauricio, 2021 [53]	Buehrer, 2015 [52]	Grand Total
-	Return to daily activity	2	-	-	-	5	3	-	1	1	5	-	1	1	-	-	-	-	18
<b>Impact on Daily Life Total</b>		<b>9</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>15</b>	<b>14</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>15</b>	<b>-</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>68</b>
<b>Medical Experience</b>	Distrust in physician competence	-	1	-	1	4	4	-	1	-	4	-	1	-	-	-	-	-	16
-	Fear of the unknown	3	-	-	-	4	-	-	2	1	4	-	1	1	-	-	-	-	15
-	Hospital environment	-	-	-	1	2	3	-	1	1	2	-	1	1	-	-	-	-	11
-	Quality of care	1	-	-	-	3	2	-	2	4	3	-	1	4	-	-	-	-	16
<b>Medical Experience Total</b>		<b>4</b>	<b>1</b>	<b>-</b>	<b>2</b>	<b>13</b>	<b>9</b>	<b>-</b>	<b>6</b>	<b>6</b>	<b>13</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>58</b>
<b>Pain</b>	Intraop pain	-	1	-	-	1	1	-	1	-	1	-	1	-	-	-	-	-	6
-	Postop pain	1	1	1	1	2	3	1	-	1	3	-	1	1	-	-	-	-	15
<b>Pain Total</b>		<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>-</b>	<b>2</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>21</b>
<b>Rehabilitation and Recovery</b>	Delayed recovery	-	-	-	1	2	3	-	-	-	2	-	2	-	-	-	-	-	10
-	Functional recovery/mobility	-	-	-	-	6	6	-	-	-	6	-	2	-	-	-	-	-	20
-	Postop rehab	-	-	1	-	3	2	-	-	-	3	-	1	-	-	-	-	-	10
<b>Rehabilitation and Recovery Total</b>		<b>-</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>11</b>	<b>11</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>40</b>
<b>Surgery</b>	Death	-	-	-	-	1	1	1	-	1	1	-	1	-	-	-	-	-	6
-	General	-	1	1	1	-	1	1	-	-	-	1	-	1	-	1	1	1	11
-	Need for reoperation	-	-	-	-	2	2	-	-	-	2	-	1	-	-	-	-	-	7
-	Outcome	-	-	-	-	3	4	1	-	3	2	-	1	-	-	-	-	-	14
<b>Surgery Total</b>		<b>-</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>8</b>	<b>2</b>	<b>-</b>	<b>4</b>	<b>5</b>	<b>-</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>38</b>
<b>Grand Total</b>		<b>17</b>	<b>15</b>	<b>5</b>	<b>9</b>	<b>65</b>	<b>61</b>	<b>9</b>	<b>11</b>	<b>15</b>	<b>65</b>	<b>8</b>	<b>25</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>319</b>

## Appendix. MEDLINE search strategy.

S.No	Searches	Results
1	Perioperative care/	15962
2	exp Preoperative care/	72725
3	exp Preoperative Period/	9430
4	Perioperative Period/	3971
5	exp Perioperative Nursing/	13953
6	Patient Selection/ and (exp Surgical Procedures, Operative/ or su.fs.)	32949
7	Surgical Clearance/	47
8	"Referral and Consultation"/ and (exp Surgical Procedures, Operative/ or su.fs.)	10030
9	Waiting Lists/ and (exp Surgical Procedures, Operative/ or su.fs.)	8324
10	(before adj2 operat????).mp,kw.	17402
11	(before adj2 surgery).mp,kw.	49050
12	(before adj3 procedur*).mp,kw.	11037
13	(prior adj8 arthroplasty).mp,kw.	714
14	(prior adj2 operat????).mp,kw.	2488
15	(prior adj4 surgery).mp,kw.	23322
16	(prior adj3 (undergo* or procedur*)).mp,kw.	7563
17	perioperat*.mp,kw.	117025
18	peri-operat*.mp,kw.	7715
19	periprocedur*.mp,kw.	6343
20	peri-procedur*.mp,kw.	1399
21	peroperat*.mp,kw.	4765
22	peroperat*.mp,kw.	4765
23	preadmission?.mp.	1608
24	pre-admission?.mp.	1200
25	preoperat*.mp,kw.	342550
26	pre-operat*.mp,kw.	34182
27	preprocedur*.mp,kw.	4281
28	pre-procedur*.mp,kw.	2779
29	preanesth*.mp,kw.	8936
30	pre-anesth*.mp,kw.	497
31	preanaesth*.mp,kw.	308
32	pre-anaesth*.mp,kw.	363
33	(ahead adj3 operat????).mp,kw.	29
34	(ahead adj3 surgery).mp,kw.	64
35	(ahead adj3 surgical*).mp,kw.	20

S.No	Searches	Results
36	(ahead adj3 procedur*).mp,kw.	18
37	(await* adj2 (surgery or operation or procedure?)).mp,kw.	991
38	((clear or clears or cleared or clearing or clearance?) adj2 (surgery or operation or procedure?)).mp,kw.	1101
39	(in advance adj3 surger*).mp,kw.	83
40	(in advance adj3 surgical*).mp,kw.	32
41	(in advance adj3 operat*).mp,kw.	49
42	(in advance adj3 procedur*).mp,kw.	57
43	(preceeding adj3 surger*).mp,kw.	7
44	(preceeding adj3 surg*).mp,kw.	11
45	(preceeding adj3 operat*).mp,kw.	6
46	(preceeding adj3 procedur*).mp,kw.	6
47	(preced* adj3 surger*).mp,kw.	891
48	(preced* adj3 surgical*).mp,kw.	306
49	(preced* adj3 operat*).mp,kw.	403
50	(preced* adj3 procedur*).mp,kw.	534
51	((prior adj3 (undergo or undergoes or undergoing)) and (surgery or surgeries or surgical* or operat*)).mp.	827
52	((wait*3 adj1 list*3) and (surgery or surgeries or surgical* or operat*)).mp.	7950
53	(waitlist*3 and (surgery or surgeries or surgical* or operat*)).mp.	919
54	((patient?? adj3 consult*) and (clinic* or an?esth or surg*)).mp.	8116
55	((patient?? adj3 counsel*) and (clinic* or an?esth or surg*)).mp.	11461
56	(patient?? adj3 registration*).mp.	2502
57	((during adj2 consult*) and (clinic* or an?esth or surg*)).mp.	2329
58	((prior adj2 consult*) and (clinic* or an?esth or surg*)).mp.	330
59	((prior adj2 registrat*) and (clinic* or an?esth or surgery or surgeries or surgical* or operat*)).mp.	97
60	((time adj2 operation?) and (clinic* or an?esth or surg*)).mp.	19387
61	((time adj2 registrat*) and (clinic* or an?esth or surg*)).mp.	449
62	or/1-61 [ Preoperative & related terms ]	638939
63	exp Aged/ or "Aged, 80 and Over"/ or Frail Elderly/	3441011
64	exp Geriatrics/	31395
65	exp Geriatric Assessment/	32062
66	Geriatric Psychiatry/	2513
67	exp Health Services for the Aged/	18166
68	exp Geriatric Nursing/	13845
69	Geroscience/	108
70	Centenarians/	82
71	Nonagenarians/	87
72	Octogenarians/	161
73	"older patient?".mp.	44588
74	"older than 1#".mp.	106
75	"older than 6#".mp.	8698
76	"older than 7#".mp.	3821
77	"older than 8#".mp.	1512
78	"older than 9#".mp.	169
79	("over 1##" adj8 year?).mp.	2884
80	("over 6#" adj8 year?).mp.	12867
81	("over 7#" adj8 year?).mp.	5867
82	("over 8#" adj8 year?).mp.	3174
83	("over 9#" adj8 year?).mp.	1115
84	((old?? or advance?) adj (age or aging or ageing)).mp.	95211
85	((old?? or elder?? or senior?) adj (patient? or citizen?? or person? or people or geriatric* or population?)).mp.	227196
86	(older adj4 group? adj8 patient?).mp.	5211
87	(aged adj2 "10# years").mp.	1297
88	(aged adj2 "6# years").mp.	52146
89	(aged adj2 "65 years").mp.	23857
90	(aged adj2 "7# years").mp.	29072
91	(aged adj2 "8# years").mp.	15803

S.No	Searches	Results
92	(aged adj2 "9# years").mp.	5191
93	(elder* adj1 patient?).mp.	70777
94	(old adj age).mp.	29699
95	(old* adj1 patient?).mp.	87408
96	(older adult* or older client* or older patient* or older person* or older people).mp.	171276
97	oldest old?.mp.	2722
98	6#-year-old?.mp.	72379
99	7#-year-old?.mp.	50963
100	8#-year-old?.mp.	18141
101	9#-year-old?.mp.	2554
102	10#-year-old?.mp.	477
103	11#-year-old?.mp.	100
104	centenarian*.mp.	2086
105	elder?.mp.	18298
106	elderly.mp.	263726
107	geriatri*.mp.	111082
108	geroscienc*.mp.	355
109	grandfather*.mp.	1434
110	grandma??.mp.	137
111	grandmother*.mp.	2808
112	grandpa??.mp.	48
113	grandparent*.mp.	3600
114	nonagenarian*.mp.	1525
115	octagenarian*.mp.	46
116	octogenarian*.mp.	3436
117	oncogeriatric*.mp.	190
118	onco-geriatric*.mp.	42
119	orthogeriatric*.mp.	493
120	ortho-geriatric*.mp.	36
121	psychogeriatric*.mp.	1765
122	psycho-geriatric*.mp.	125
123	retiree*.mp.	1658
124	retirement?.mp.	20934
125	senior citizen*.mp.	1519
126	septuagenarian*.mp.	404
127	sexagenarian*.mp.	98
128	supercentenarian*.mp.	116
129	super-centenarian*.mp.	8
130	or/63-129 [ Elderly or Aged over 60 years ]	3676582
131	62 and 130 [ Preoperative + Elderly ]	246110
132	Checklist/ and Patients/	21
133	Interview/ and exp Patients/	89
134	Patient Health Questionnaire/	909
135	"Surveys and Questionnaires"/ and exp Patients/	8142
136	interview?.ti,ab. and patient??.ab. /freq=2	81679
137	interview?.ti,ab. and (patient?? or inpatient?? or outpatient??).ti.	40927
138	assessment?.mp.	1582191
139	checklist*.mp.	46212
140	check-list*.mp.	2965
141	dimension?.mp.	187125
142	index??.mp.	1179123
143	indices.mp.	174129
144	indicator?.mp.	388538
145	instrument?.mp.	216207
146	inventories.mp,kw.	6724
147	inventory.mp.	105558

S.No	Searches	Results
148	questionnaire?.mp.	830428
149	rating?.mp,kw.	230733
150	(scale or scales).mp.	881130
151	(score or scores).mp,kw.	1008105
152	(subscale or subscales).mp,kw.	47060
153	(sub-scale or sub-scales).mp,kw.	2238
154	(survey? or surveyed or surveying).mp.	1117248
155	(tool? or toolkit? or tool-kit?).mp.	768127
156	or/132-155 [ Surveys / Questionnaires / Inventories etc. ]	5562761
157	131 and 156 [ Preoperative + Elderly + Surveys/Questionnaires ]	106348
158	Attitude/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	9743
159	exp "Activities of Daily Living"/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	65973
160	exp Attitude to Health/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	332026
161	exp Life Style/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	27031
162	Patient Preference/	10577
163	Quality of Life/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	182478
164	"Value of Life"/ and (exp Patients/ or (patient?? or inpatient?? or outpatient??).mp.)	1572
165	exp Emotions/ and exp Patients/	4932
166	exp Emotions/ and patient??,ti,ab. /freq=2	76065
167	"patient?? concern?? inventor* ".mp.	62
168	"what matter? ".mp. and (exp Patients/ or (patient?? or inpatient?? or outpatient?? or participant*).mp.)	725
169	(patient?? adj4 ((day? or daily) adj3 activ*).mp.	4608
170	(patient?? adj4 (activit* adj4 living)).mp.	1095
171	(patient?? adj4 (lifestyle? or life-style?)).mp.	4706
172	(patient?? adj3 anxiet*).mp.	13765
173	(patient?? adj3 anxious*).mp.	2027
174	(patient?? adj3 apprehen*).mp.	348
175	(patient?? adj3 attitud*).mp.	8107
176	(patient?? adj3 challeng*).mp.	18244
177	(patient?? adj3 communication?).mp.	18808
178	(patient?? adj3 emotion*).mp.	6622
179	(patient?? adj3 experienc*).mp.	145534
180	(patient?? adj3 fear*).mp.	3168
181	(patient?? adj6 misgiv*).mp.	10
182	(patient?? adj6 qualm*).mp.	5
183	(patient?? adj4 (unmet adj2 need?)).mp.	2077
184	(patient?? adj5 concern*).mp.	42258
185	(patient?? adj4 qualit* of life*).mp.	73812
186	(patient?? adj4 value? adj2 life).mp.	93
187	((patient?? adj2 perspectiv*) and life).mp.	4091
188	(patient?? adj3 prefer* adj3 outcome?).mp.	526
189	(patient?? adj3 "point? of view?").mp.	1466
190	(patient?? adj1 (value or values)).mp.	3831
191	(patient?? adj3 (worry or worries or worried or worrying)).mp.	970
192	or/158-191 [ Patient Concerns & related terms ]	835009
193	157 and 192 [ Preoperative + Elderly + Surveys/Questionnaires + Patient Concerns ]	18203
194	exp Qualitative Research/	80425
195	Evaluation Studies as Topic/	122472
196	Evaluation Studies/	261805
197	Feasibility Studies/	82297
198	Grounded Theory/	2625
199	"Health Services Needs and Demand"/	55120
200	Hermeneutics/	544
201	Interview/	29738
202	Narration/	10008
203	Narrative Medicine/	209



S.No	Searches	Results
204	Needs Assessment/	32358
205	Nursing Methodology Research/	16407
206	Observational Studies as Topic/	8601
207	Observational Study/	139603
208	Patient Reported Outcome Measures/	13123
209	Personal Narrative/	6199
210	Pilot Projects/	145936
211	exp Program Evaluation/	83465
212	"Surveys and Questionnaires"/	556373
213	((discourse* or discours*) adj3 analys#s).mp.	2642
214	((purpos* adj4 sampl*) or (focus adj group*)).mp.	73434
215	(account or accounts or unstructured or open-ended or "open ended" or text or texts or textual).mp.	526002
216	(action research or cooperative inquir* or co operative inquir* or co- operative inquir*).mp.	4695
217	(constant adj (comparative or comparison)).mp.	5202
218	(corbin* adj2 strauss*).mp.	335
219	(emic or etic or hermeneutic* or heuristic* or semiotic* or (data adj1 saturat*) or participant observ*).mp.	22843
220	(evaluat* adj2 (study or studies)).mp.	587161
221	(field adj (study or studies or research)).mp.	16447
222	(grounded adj (theor* or study or studies or research or analys#s)).mp.	13264
223	(humanistic or existential or experiential or paradigm*).mp.	158808
224	(life stor* or women* stor*).mp.	1467
225	(life world or life-world or conversation analys#s or personal experience* or theoretical saturation).mp.	15737
226	((lived or life) adj experience*).mp.	14850
227	(merleau adj ponty*).mp.	227
228	(observational adj (study or studies or research)).mp.	217674
229	(social construct* or (postmodern* or post- structural*) or (post structural* or poststructural*) or post modern* or post-modern* or feminis* or interpret*).mp.	536100
230	(van adj kaam*).mp.	42
231	(van adj manen*).mp.	462
232	biographical method?.mp.	30
233	cluster sampl*.mp.	7675
234	colaizzi*.mp.	878
235	content analys#s.mp.	34869
236	ethnograph*.mp.	11658
237	ethnological research.mp.	8
238	ethnonursing.mp.	124
239	foucault*.mp.	843
240	glaser*.mp.	846
241	heidegger*.mp.	713
242	human science.mp.	249
243	narrative analys#s.mp.	1539
244	observational method*.mp.	758
245	phenomenol*.mp.	24923
246	qualitative.mp.	276640
247	spiegelberg*.mp.	72
248	theoretical sampl*.mp.	776
249	(content analys* or thematic analys* or narrative analys*).mp.	66210
250	(ethnol* or ethnog* or ethnonurs* or emic or etic).mp.	184947
251	(feasib* adj2 (study or studies)).mp.	90074
252	(grounded adj3 theor*).mp.	14201
253	(hermeneutic* or phenomenolog* or lived experience*).mp.	32550
254	(integrat* adj1 model?).mp.	7013
255	(meta-ethnog* or metaethnog* or meta-narrat* or metanarrat* or meta-interpret* or metainterpret*).mp.	982
256	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud*).ti,ab.	1835
257	(multiple adj1 perspective?).mp.	1235
258	(needs adj2 assessment*).mp.	37575
259	(personal adj1 (story or stories)).mp.	591

S.No	Searches	Results
260	(personal adj1 account???.mp.	1044
261	(pilot adj3 (program* or project? or initiative? or study or studies or trial?)).mp.	176140
262	(program* adj3 evaluat*).mp.	86626
263	(qualitative adj5 metaanaly*).mp.	4
264	(qualitative adj5 meta-analy*).mp.	767
265	(therapeutic adj1 model?).mp.	962
266	(treatment? adj1 model?).mp.	4133
267	(unmet adj2 need?).mp.	24488
268	action research.ti,ab.	4301
269	contextual*.mp.	44666
270	focus group?.mp.	57901
271	frame work*.mp.	422
272	framework*.mp.	275262
273	giorgi*.mp.	742
274	multimethod inquir*.mp.	1
275	multi-method inquir*.mp.	2
276	multiperspective?.mp.	148
277	multi-perspective?.mp.	247
278	narrative?.mp.	59647
279	phenomenological*.mp.	17724
280	qualitative*.mp.	317438
281	questionnaire?.mp.	830428
282	survey?.mp.	1082974
283	thematic.mp.	46423
284	theme.mp.	25065
285	themes.mp.	86497
286	or/194-285 [ Qualitative Research or Questionnaires & Related Terms ]	4081337
287	193 and 286 [ Preoperative + Elderly + Surveys/Questionnaires + Patient Concerns + Qualitative Research ]	10628
288	exp Surgical Procedures, Operative/	3511178
289	exp Specialties, Surgical/	217998
290	exp Surgeons/	16202
291	(open adj1 reduction?).mp,kw.	11692
292	adenectom*.mp,kw.	311
293	adrenalectom*.mp,kw.	25875
294	(aneurysm* adj2 repair*).mp,kw.	10234
295	angioplast*3.mp,kw.	77308
296	appendectom*.mp,kw.	15422
297	arthrectom*.mp,kw.	33
298	arthroplast???.mp,kw.	93787
299	athrectom*3.mp,kw.	4050
300	CABG.mp,kw.	18366
301	caesarean*.mp,kw.	21499
302	cardiac ablat*.mp,kw.	316
303	(cardiac adj2 catheter* adj2 ablat*).mp,kw.	124
304	cardiomyoplast*3.mp,kw.	978
305	(carotid adj2 endarterectom*3).mp,kw.	13693
306	cervicectom*.mp,kw.	15
307	cesarean*.mp,kw.	68312
308	cholecystectom*.mp,kw.	38251
309	colectom*.mp,kw.	25046
310	coronary artery bypass surger*.mp,kw.	7851
311	(coronary adj3 bypass*).mp,kw.	69696
312	(coronary adj2 catheter* adj2 ablat*).mp,kw.	10
313	(coronary adj3 catheteri*).mp,kw.	1921
314	(coronary adj2 radiofrequenc* adj2 ablat*).mp,kw.	6
315	cystectom*.mp,kw.	17628

S.No	Searches	Results
316	dissectom*.mp,kw.	6673
317	diskectom*.mp,kw.	7268
318	duodenectom*.mp,kw.	671
319	esophagectom*.mp,kw.	15042
320	fundectom*.mp,kw.	95
321	gastrecom*.mp,kw.	48381
322	glossectom*.mp,kw.	1445
323	gonadectom*.mp,kw.	3989
324	(heart adj2 radiofrequenc* adj2 ablat*).mp,kw.	25
325	(heart adj2 valve? adj2 repair*).mp,kw.	108
326	(heart adj2 valve? adj2 replac*).mp,kw.	1565
327	hemiarthroplast???.mp,kw.	3448
328	hemi-arthroplast???.mp,kw.	159
329	hemicolectom*.mp,kw.	3988
330	hemi-colectom*.mp,kw.	97
331	hepatectom*.mp,kw.	40282
332	(hybrid-maze adj2 procedure*).mp,kw.	4
333	hypophysectom*.mp,kw.	14325
334	iridectom*.mp,kw.	1892
335	jejunectom*.mp,kw.	93
336	laparoscop*.mp,kw.	145229
337	laparotom*.mp,kw.	56914
338	laryngectom*.mp,kw.	11994
339	lobectom*.mp,kw.	19747
340	lumpectom*.mp,kw.	3309
341	lymphadenectom*.mp,kw.	17673
342	lymph-adenectom*.mp,kw.	61
343	lymphectom*.mp,kw.	47
344	mandibulectom*.mp,kw.	945
345	mastectom*.mp,kw.	42924
346	mastoidectom*.mp,kw.	2649
347	maxillectom*.mp,kw.	1517
348	mesohepatectom*.mp,kw.	68
349	meso-hepatectom*.mp,kw.	2
350	metastasectom*.mp,kw.	2809
351	MIDCAB.mp,kw.	416
352	(mitral valve? adj2 repair*).mp,kw.	5823
353	(mitral valve? adj2 reparat*).mp,kw.	12
354	myectom*.mp,kw.	1819
355	myomectom*.mp,kw.	3742
356	necrosectom*.mp,kw.	992
357	nephrectom*.mp,kw.	50449
358	neurosurg*.mp,kw.	82605
359	obstetr*.mp,in,kw,kf.	487588
360	oesophagectom*.mp,kw.	1679
361	oncosurg*.mp.	186
362	onco-surg*.mp.	52
363	oophorectom*.mp,kw.	9713
364	operation?.tw.	423684
365	orchidectom*.mp,kw.	3065
366	orchiectom*.mp,kw.	18596
367	pancreatetectom*.mp,kw.	18766
368	pancreaticoduodenectom*.mp,kw.	11714
369	pancreatico-duodenectom*.mp,kw.	217
370	parathyroidectom*.mp,kw.	8980
371	para-thyroidectom*.mp,kw.	9

S.No	Searches	Results
372	pharyngectom*.mp,kw.	1554
373	pharyngolaryngoesophagectom*.mp,kw.	111
374	pharyng*esophagectom*.mp,kw.	140
375	pneumonectom*.mp,kw.	30906
376	pneumonectom*.mp,kw.	30906
377	proctocolectom*.mp,kw.	5042
378	prostatect*.mp,kw.	40095
379	quadrantectom*.mp,kw.	552
380	reoperat*.mp,kw.	117690
381	resect*.mp,kw.	163
382	resect*.mp,kw.	357130
383	rhinectom*.mp,kw.	108
384	salpingectom*.mp,kw.	2777
385	salpingo-oophorectom*.mp,kw.	4960
386	second-look*.mp.	5093
387	segmentectom*.mp,kw.	3698
388	segmentectom*.mp,kw.	3698
389	splenectom*.mp,kw.	30713
390	subsegmentectom*.mp,kw.	235
391	sub-segmentectom*.mp,kw.	13
392	surgeon*.mp,kw.	208767
393	surger*.mp,kw.	2833655
394	surgical*.mp,kw.	1445354
395	take-back?.mp.	333
396	takeback?.mp.	52
397	thymectom*.mp,kw.	10410
398	thyroidectom*.mp,kw.	30792
399	tonsillectom*.mp,kw.	12437
400	transfusion*.mp,kw.	155491
401	(transmyocardia* adj5 ablat*).mp,kw.	5
402	(transmyocardia* adj3 revasculari*).mp,kw.	604
403	transplant*.mp,kw.	787910
404	trisectionectom*.mp.	240
405	trisegmentectom*.mp,kw.	366
406	tri-segmentectom*.mp,kw.	9
407	tumorectom*.mp,kw.	883
408	urectom*.mp,kw.	10
409	uvulectom*.mp,kw.	92
410	vaginectom*.mp,kw.	281
411	vulvectom*.mp,kw.	974
412	or/288-411 [ Surgery ]	5612851
413	287 and 412 [ Preoperative + Elderly + Surveys/Questionnaires + Patient Concerns + Qualitative Research + Surgery Component; limits applied: English, adults, years >=2000 - present ]	9515
414	limit 413 to english language	8933
415	limit 414 to yr="2000 -Current"	8338
416	limit 415 to ("all infant (birth to 23 months)" or "newborn infant (birth to 1 month)" or "infant (1 to 23 months)" or "preschool child (2 to 5 years)" or "child (6 to 12 years)" or "adolescent (13 to 18 years)" or "young adult (19 to 24 years)" or "adult (19 to 44 years)")	4830
417	415 not 416	3508
418	limit 415 to ("middle age (45 to 64 years)" or "middle aged (45 plus years)" or "all aged (65 and over)" or "aged (80 and over)")	8212
419	417 or 418	8287
420	419 not (exp animals/ not (exp animals/ and exp humans/))	8287
421	limit 419 to humans	8286
422	420 or 421	8287
423	from 422 keep 1-4999	4999
424	remove duplicates from 423	4995
425	from 422 keep 5000-8287	3288
426	remove duplicates from 425	3288

S.No	Searches	Results
427	424 or 426	8283
428	427 [ Preoperative + Elderly + Surveys/Questionnaires + Patient Concerns + Qualitative Research + Surgery Component; limits applied: English, adults, years >=2000 - present ]	8283

## PRISMA 2020 CHECKLIST

Section and Topic	Item #	Checklist Item	Location where Item is Reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	Pg 1.
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Pg 2-3
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pg 4
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Pg 5
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Pg 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Pg 5
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Pg 5
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pg 6
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pg 6
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Pg 6-8
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Pg 6-8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Pg 8-9
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Pg 7-8
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pg 7-8
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pg 7-8
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Pg 7
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Pg 8
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	NA
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	NA
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	NA
<b>RESULTS</b>			

Section and Topic	Item #	Checklist Item	Location where Item is Reported
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Pg 9
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Figure 1 (PRISMA Flowchart)
Study characteristics	17	Cite each included study and present its characteristics.	Pg 9-10 Supplementary Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Pg 10 Supplementary table 2-4
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Pg 9-12 Supplementary table 5, 6, 7
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Pg 9-12 Supplementary table 2-4
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pg 11 Figure 2
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	NA
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	NA
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	NA
<b>DISCUSSION</b>			-
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pg 12-15
	23b	Discuss any limitations of the evidence included in the review.	Pg 15
	23c	Discuss any limitations of the review processes used.	Pg 15
	23d	Discuss implications of the results for practice, policy, and future research.	Pg 15
<b>OTHER INFORMATION</b>			-
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	PROSPERO registration: CRD42023442055
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	PROSPERO
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	NA
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	This work is partially supported by Ontario Ministry of Health Innovation Fund, University Health Network Foundation, and ResMed Foundation.
Competing interests	26	Declare any competing interests of review authors.	FC: reports research support from the Ontario Ministry of Health Innovation Grant, ResMed Foundation, University Health Network Foundation, Consultant to Takeda, and STOP-Bang Questionnaire proprietary to University Health Network. All other authors declare that they have no conflict of interest.
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	The data that support the findings of this study can be found within the main manuscript and supplementary material. However, if further data is to be requested (i.e. data extraction templates) are available from the corresponding author, [FC], on special request.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>