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Research Synthesis Methods

RESEARCH ARTICLE

Knowledge user involvement is still uncommon in published rapid reviews—a meta-research cross-sectional study

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Abstract

Background

Involving knowledge users (KUs) such as patients, clinicians, or health policymakers is particularly relevant when conducting rapid reviews (RRs), as they should be tailored to decision-makers' needs. However, little is known about how common KU involvement currently is in RRs.

Objectives

We wanted to assess the proportion of KU involvement reported in recently published RRs (2021 onwards), which groups of KUs were involved in each phase of the RR process, to what extent, and which factors were associated with KU involvement in RRs.

Methods

We conducted a meta-research cross-sectional study. A systematic literature search in Ovid MEDLINE and Epistemonikos in January 2024 identified 2,493 unique records. We dually screened the identified records (partly with assistance from an artificial intelligence (AI)-based application) until we reached the a priori calculated sample size of 104 RRs. We dually extracted data and analyzed it descriptively.

Results

The proportion of RRs that reported KU involvement was 19% (95% confidence interval [CI]: 12%–28%). Most often, KUs were involved during the initial preparation of the RR, the systematic searches, and the interpretation and dissemination of results. Researchers/content experts and public/patient partners were the KU groups most often involved. KU involvement was more common in RRs focusing on patient involvement/shared decision-making, having a published protocol, and being commissioned.

Conclusions

Reporting KU involvement in published RRs is uncommon and often vague. Future research should explore barriers and facilitators for KU involvement and its reporting in RRs. Guidance regarding reporting on KU involvement in RRs is needed.

This article was awarded Open Data badge for transparent practices. See the Data availability statement for details.

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Highlights

What is already known?

- Although knowledge user (KU) involvement can increase the relevance of rapid reviews (RRs) for decision-making, previous studies have shown that only 26%–43% of RRs involved KUs. Following the increased production of RRs in recent years, alongside new RR methods guidance emphasizing the importance of KU involvement, we wanted to know where we stand with KU involvement in RRs.

What is new?

- KU involvement in RRs is still very uncommon and its reporting is limited. If an RR involved KUs, these were most often researchers/content experts or public/patient partners. They were most often involved at the beginning and the end of the RR process.

Potential impact for RSM readers

- Our study highlights that KU involvement and its reporting in rapid evidence synthesis can still be greatly improved. Developing and evaluating methods for KU involvement that work within time and resource constraints would be essential to improve KU involvement in RRs. In addition, guidelines for RRs should emphasize the importance of reporting KU involvement.

1. Background

Rapid reviews (RRs) are a type of evidence synthesis that use modified systematic review (SR) methods to accelerate the review process and complete the review in a timely and resource-efficient manner.[1] RRs are appealing to healthcare decision-makers because they can synthesize evidence quickly, particularly in urgent situations. Involving knowledge users (KUs) when conducting evidence syntheses is recommended to increase the review's relevance.[2,3] We define KUs as individuals who are likely to use the synthesized evidence to make informed decisions about clinical or health policy interventions or who might be affected by these decisions.[4] By applying this definition, KUs can include individuals such as clinicians or other healthcare providers, health policymakers, patients, members of patient organizations, caregivers, or the general public.[2]

KU involvement is especially relevant in the context of RRs, as certain KUs often commission or request RRs. To make the RR as valuable and relevant as possible, close collaboration with the end user, e.g., the commissioner, is recommended by RR guidance.[5,6] However, involving KUs is not yet the norm. Previous studies have shown KU involvement to range from 26% to 43% in RRs.[7-9] In particular, the involvement of patients, who are primarily affected by health decisions but are usually not the commissioners of RRs, is often neglected. Notably, only 6% of the 103 RRs analyzed by Garritty et al. involved patients in the RR process.[8]

There are various methods and levels of engagement for involving KUs in the RR process. According to the Authors and Consumers Together Impacting on eVidencE (ACTIVE) framework,[10] developed for SRs, KU involvement can be seen as a continuum from informing KUs about a review to involving them in one or more phases of the RR process (e.g., formulating the question and choosing the outcomes), or co-producing the complete review with them.[10]

While health policymakers and health organizations had already used RRs before the COVID-19 pandemic,[3,11-15] the urgent need for evidence syntheses during the pandemic has worked as a catalyst for RRs, and the number of published RRs has increased tremendously. A PubMed search for articles with the term "rapid review" in the title retrieved approximately 250 records published until 2019, with more than 1,100 records published between 2020 and September 2024. In parallel to the increased demand for RRs, awareness of the importance of KU involvement has increased. While previous RR methods guidance has already recommended involving stakeholders in the RR process, such as commissioners, policymakers, and health system managers in the RR process,[5,6] the RR methods guidance published online in October 2020 explicitly recommended involving a broad range of KUs, including patients and health professionals, throughout the whole RR process.[16]

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1.1. Aim and research questions

We wanted to assess the proportion of KU involvement reported in recently published RRs (2021 onward). We also wanted to gain insight into which groups of KUs were involved in the specific phases of the RR process and the extent of their involvement. In addition, we wanted to explore whether the proportion of KU involvement was associated with certain factors. Specifically, we wanted to answer the following research questions:

1. What is the proportion of KU involvement reported in RRs published since 2021?
2. In what phases of RRs are KUs involved?
3. To what level are KUs involved in RRs?
4. Which KU groups are involved in RRs?
5. To what extent is KU involvement associated with other factors (*review type, year of publication, review topic, main rationale for choosing a rapid approach, RR protocol in place, citing an RR methods guidance, funding source, region of funding, and timeline of the RR*)?

2. Methods

2.1. Study design

We conducted a meta-research cross-sectional study to assess the proportion of KU involvement reported in RRs published since 2021. We chose this cut-off as new methods guidance for RRs was published online in October 2020, specifically recommending broad KU involvement,[16] and due to the COVID-19 pandemic, the number of published RRs increased markedly. We published our protocol at the Open Science Framework (https://osf.io/gkm58/). When applicable, we adhered to the Strengthening the Reporting of Observational studies in Epidemiology (STROBE)[17] reporting guideline throughout the manuscript.

2.2. Patient and public involvement statement

We involved a patient partner (MS) as a member of the project team, who provided input on the research questions, the data extraction form, the analyses and interpretation of data, and contributed to writing the manuscript.

2.3. Sample size calculation

We used a precision-based approach for sample size determination, where the aim was to enclose the exact two-sided 95% confidence limits for a binomial proportion (Clopper–Pearson method) within an interval at most 0.20 wide, regardless of the actual value of the proportion that we will observe in the sample.[18–20] Therefore, we required a sample size of 104 RRs.

2.4. Identifying eligible RR

We conducted a systematic literature search in Ovid MEDLINE and Epistemonikos.org on January 09, 2024, to identify published RRs. We chose these two databases as we expected them to include most published RRs of studies in humans and health science. The search strategies are presented in detail in Appendix 1 of the Supplementary Material. Search terms were based on terminology identified by Hamel et al.[1] To be eligible during the study selection phase, RRs had to use the term "rapid" in the title or abstract, had to be published in a peer-reviewed journal since 2021, and needed to be focused on a health-related topic. We were interested in any type of rapid evidence syntheses (e.g., RR of interventions, rapid qualitative evidence synthesis, rapid scoping review, etc.) published in any language and from any geographic region. We excluded publications that did not define themselves

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as rapid evidence syntheses, such as systematic reviews, and we excluded methods studies about RRs and protocols of RRs. We focused on RRs of studies in humans, as these are mostly used for decision-making in health care; therefore, we excluded RRs of laboratory or animal studies. When the RR was only part of a larger study and RR methods were not reported in detail, we also excluded the publication.

2.5. Study selection

We uploaded all identified records to DistillerSR.[21] The use of this software was a deviation from the protocol, as we had originally planned to use Covidence and conduct all abstract/title screening dually and independently. Instead, we decided to use "DistillerSR Artificial Intelligence SYstem" (DAISY) integrated into DistillerSR to support study selection. We conducted a pilot exercise to calibrate the title/abstract screening among the whole team (B.N.S., U.G., C.K., D.L., L.A., E.P., A.G., and A.C.), using a sample of 50 records to screen.

At the title/abstract level, we screened 33% of the identified records dually by independent screeners. Because we had very high agreement in our inclusion/exclusion decisions (κ of 0.93), we switched to single human screening and AI confirmation. This means, the remaining 67% of records were screened by one person and the AI screening tool DAISY (part of the systematic review software DistillerSR). Disagreements between the human and the AI screener were resolved by the principal investigator (B.N.S.).

We exported the list of all potentially relevant records to an Excel sheet and assigned computer-generated random numbers to each record. We then screened the full-texts dually and independently in order of their randomly assigned number until we reached 104 eligible RRs (see Figure 1).

2.6. Data extraction

We created a data extraction form in Excel. We pilot-tested the data extraction form on the same four RRs with all team members involved in extracting data. We discussed and clarified any uncertainties that arose during this phase and revised the form. After incorporating feedback from the piloting exercise, we conducted dual data extraction of the remaining 100 RRs (B.N.S., C.K., U.G., E.P., D.L., A.G., and A.C.). We extracted information on RR characteristics (first author's name, year of publication, journal, type of RR, focus of the RR, rationale for choosing a rapid approach, RR protocol in place, citing an RR methods guidance, commissioner/funding, timeline of the RR) and if KU involvement was reported. If there were hints of KU involvement, but it was somewhat unclear (e.g., mentioning names in the acknowledgment section without specifying their role in the RR), we contacted the corresponding author of the RR and asked for clarification. When an RR reported KU involvement, we extracted to what extent different groups of KUs were involved for each phase of the RR and if any information on potential conflicts of interest of KUs was reported. Based on feedback from the patient partner (MS), we also extracted whether authors used a framework to report KU involvement, whether they indicated if KU involvement was mandatory (e.g., if a funder made it mandatory), whether KUs were compensated for their contributions, whether they were mentioned as co-authors, or whether the authors explicitly reflected on KU involvement.

2.7. Data analysis

Our primary outcome of interest was the proportion of KU involvement reported in RRs published since January 2021. We applied a broad definition of KU involvement. We considered KU involvement to be any involvement of at least one person who can be regarded as KU during at least one step of the review process. To define a KU, we considered any person who potentially uses synthesized evidence for decision-making in health care, comprising individuals such as clinicians, healthcare providers, health policymakers, commissioners, patients, members of patient organizations, caregivers, or the general public. As reporting of KU involvement was sometimes unclear, we focused on the proportion

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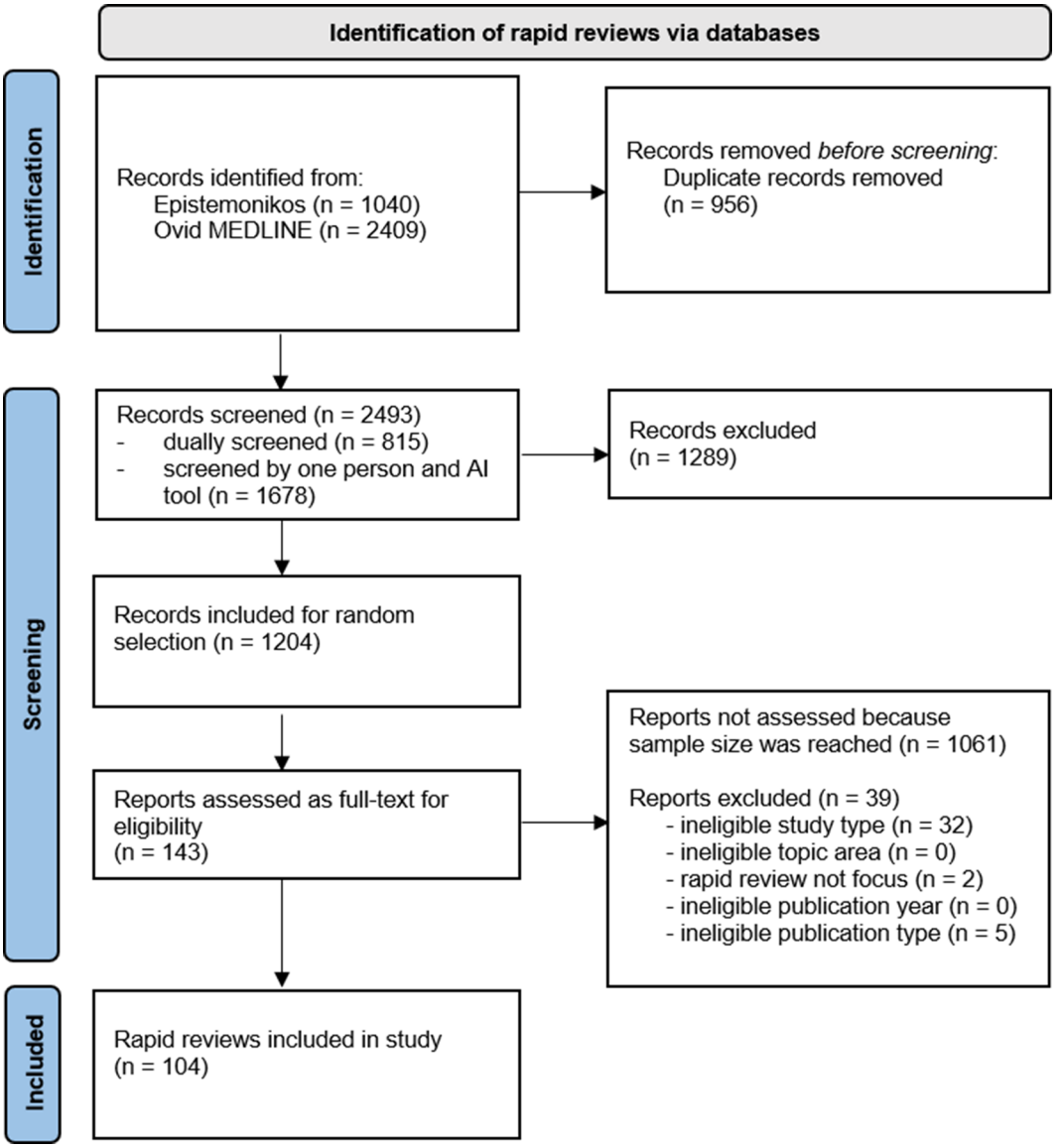


Figure 1. *PRISMA 2020 Flow diagram.*

of *reported* KU involvement, which may differ from the actual KU involvement if not reported in the peer-reviewed paper. If an RR only reported names in the acknowledgment sections without clarifying their role in the RR process, we did not consider this as KU involvement. To calculate the proportion of KU involvement in RRs, we took the number of RRs with explicitly reported KU involvement of any kind and divided it by the total number of all 104 analyzed RRs.

We used a descriptive approach to summarize the KU groups that were involved and the intensity of KU involvement (e.g., one-time or regular involvement) in each RR phase (preparation [e.g., formulating the research question and deciding on outcomes], searching, study selection, data extraction, risk of bias assessment, synthesis, interpreting findings, communication of results).

To explore whether other factors were associated with KU involvement, we also chose a descriptive approach. We looked at the following factors: review type, year of publication, review topic, main

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rationale for choosing a rapid approach, RR protocol in place, citing an RR methods guidance, funding source, region of funding, and timeline of the RR. We calculated the proportion of RRs with KU involvement within these subgroups and compared it with the proportion of the general sample. We did not compute statistical tests as the nature of the analysis was exploratory and due to the small amount of data. All analyses were performed using Microsoft Excel.

Since the proportion of RRs with unclear KU involvement was considerable ($n = 11$), we contacted their authors and asked for clarification. Five of eleven authors replied to us. We used the provided information in a sensitivity analysis presented at the end of the results section. However, the main analyses for all research questions focused on reported KU involvement. We chose not to mix KU involvement reported in the publication and KU solely described via email, as we received responses from only five out of eleven contacted authors, and we did not contact the 70 authors of RRs without any mention of KU involvement.

3. Results

Out of 2,493 records identified by our literature search, we included 104 randomly selected RRs[22-125] that fulfilled our eligibility criteria (see Figure 1; PRISMA 2020[126]).

3.1. Characteristics of included RRs

Our sample consisted of a diverse range of RR types, with the largest groups being RRs of interventions (31%; 32/104) and rapid scoping reviews (30%; 31/104). Most of the included RRs focused on research questions regarding noncommunicable diseases (33%; 35/104), COVID-19 (31%; 32/104), or healthcare delivery and systems (29%; 30/104). Over half of the RRs (53%; 55/104) did not report a rationale for conducting the evidence synthesis rapidly. Those giving a rationale mentioned "time constraints and the need to make an urgent decision" as the main reason for choosing a rapid approach (39%; 41/104). Half of the RRs had reported having a protocol in place, and 84% (87/104) cited RR methods guidance. Only 12% (13/104) of the RRs were commissioned; others reported general research funding (55%; 57/104). Commissioners or funding bodies were mainly from Europe (40%; 28/70), North America (29%; 20/70), and Australia/New Zealand (14%; 10/70). The median time from conducting the last search to submitting the RR for publication was 6 months, ranging from 0 to 31 months in 67 RRs reporting this information. The median time from the last search to the publication of the RR was 11.5 months, ranging from 1–49 months in 88 RRs reporting this data. For more details on the characteristics of the included RRs, see Table 1.

3.2. Reported knowledge of user involvement in RRs

3.2.1. Proportion of KU involvement

Of the 104 included RRs, 20 reported KU involvement. This results in a *proportion of reported KU involvement of 19%* (95% confidence interval [CI] 0.12–0.28). In additional 11% (11/104) of RRs, KU involvement was unclear. There were hints, such as names mentioned in the acknowledgments section, but no explicit description of KU involvement throughout the publication. In the remaining 70% (73/104) of RRs, KU involvement was clearly not mentioned. We contacted the authors of the 11 RRs with unclear KU involvement via email. Five clarified that they did involve KU, the other six did not respond.

For the following analysis, we focused on the 20 RRs that reported KU involvement in the publication.[25,30,31,40,41,48,49,57,59,75,83,85,89,97,99,103,109,115,119,120] We considered the five additional RRs that reported KU involvement upon request[36,64,104,113,114] in a sensitivity analysis at the end of the results section.

Table 2 gives more information on the characteristics of the RRs with reported KU involvement.

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Table 1. *Characteristics of included rapid reviews.*

Characteristics of RR	Number of RR (%)
Review type (n = 104)	
RR of intervention	32 (31)
RR of diagnostic test accuracy or prognosis	8 (8)
Rapid scoping review	31 (30)
Rapid qualitative evidence synthesis	13 (12)
Rapid realist review	3 (3)
Other rapid review (e.g., mixed-method, economic, overview)	17 (16)
Year of publication (n = 104)	
2021	51 (49)
2022	18 (17)
2023	30 (29)
2024	5 (5)
Review topic (n = 104)	
COVID–19	32 (31)
Other infectious diseases	3 (3)
Noncommunicable diseases	35 (33)
Healthcare delivery/system	30 (29)
Patient involvement/shared decision-making	4 (4)
Main rationale for choosing a rapid approach (n = 104)	
Time constraints/urgent decision-making need	41 (39)
Resource limitation (costs, personnel)	3 (3)
Fast-evolving research field	5 (5)
Not reported	55 (53)
RR protocol in place (n = 104)	
Yes (publicly available)	35 (34)
Yes (not publicly available)	18 (17)
No protocol	1 (1)
Unclear (no protocol mentioned)	50 (48)
Citing an RR methods guidance (n = 104)	
Yes	87 (84)
No	17 (16)
Funding source (n = 104)	
Explicitly commissioned	13 (12)
General research funding	57 (55)
No funding or not reported	34 (33)
Region of funding/commissioning source (n = 70)	
Africa	0 (0)
Asia	4 (6)
Australia/New Zealand	10 (14)
Europe	28 (40)
North America	20 (29)
South America	1 (1)
International	5 (7)
Not reported	2 (3)
Timeline of RR	Median (range) in months
Last search date to submission (n = 67)	6 (0–31)
Last search date to publication (n = 88)	11.5 (1–49)
Time for overall RR conduct explicitly reported (n = 8)	3.25 (1–6)

Abbreviations: COVID-19, coronavirus disease 2019; RR, rapid review; *n*, number of reviews.

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Table 2. *Details of rapid reviews with reported knowledge user involvement.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Barnett (2022)[119]	RR of intervention	Mental, behavioral or neurodevelopmental disorders	NR	Yes publicly available	Yes	United Kingdom	20 months	No; No; Yes	No; Yes; Yes	Multiple steps; Patient and/or public partners, healthcare professionals, policymakers, content experts/researchers
Bryant (2022)[59]	Rapid Scoping review	Mental, behavioral, or neurodevelopmental disorders	Time constraints/decision-making need	Yes publicly available	Yes	Australia	28 months	No; No; No	No; No; No	Single step; Patient and/or public partners

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Table 2. *Continued.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Butow (2023)[103]	Rapid Scoping review	COVID–19	Time constraints/ decision-making need	NR	Yes	No funding reported	26 months	No; No; No	No; No; No	Single step; Healthcare professionals, patient, and/or public partners
Carroll (2021)[49]	Rapid Realist review	Patient involvement /shared decision-making	NR	NR	Yes	Canada	NR	No; No; No	No; No; Yes	Multiple steps; Content experts/ researchers
Clyne (2022)[115]	Other types of RR	COVID–19	Time constraints/ decision-making need	Yes publicly available	Yes	Ireland	6 months	No; No; No	No; No; No	Single step; Policymakers, healthcare professionals

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Table 2. *Continued.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Corp (2023)[40]	Other types of RR	Mental, behavioral, or neurodevelopmental disorders	Time constraints/ decision-making need	Yes publicly available	Yes	United Kingdom	22 months	ACTIVE Framework; No, No	No; No; Yes	Multiple steps; Patient and/ or public partners
Gentry (2021)[120]	Rapid Scoping review	Mental, behavioral, or neurodevelopmental disorders	Time constraints/ decision-making need	Yes (not publicly available)	Yes	United Kingdom	11 months	No; No; No	No; No; No	Multiple steps; Content experts/ researchers
Ghidei (2022)[99]	RR of intervention	Healthcare delivery/ system	Time constraints/ decision-making need	NR	No	Canada	16 months	No; No; No	No; No; No	Single step; Content experts/ researchers
Gkiouleka (2022)[57]	Rapid QES	Healthcare delivery/ system	NR	Yes (not publicly available)	Yes	United Kingdom	14 months	No; No; No	No; No; No	Single step; Content experts/ researchers

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Table 2. *Continued.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Kadowaki (2021)[89]	RR of intervention	Other chronic diseases	NR	NR	Yes	Japan	9 months	No; No; No	Commissioner/funder was KU; Unclear; No	Multiple steps; Commissioner/funder
Karlsson (2023)[48]	Rapid QES	Patient involvement /shared decision-making	NR	Yes publicly available	Yes	Denmark	16 months	GRIPP II; No; No	No; Yes; Yes	Multiple steps; Patient and/or public partners
O'Reilly (2021)[97]	RR of intervention	COVID–19	Time constraints/decision-making need	Yes publicly available	Yes	Ireland	3 months	No; Yes; No	No; No; No	Single step; Healthcare professionals
Palese (2023)[31]	Rapid QES	Healthcare delivery/system	NR	Yes (not publicly available)	Yes	No funding	15 months	No; No; No	No; Yes; No	Multiple steps; Content experts/researchers

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Table 2. *Continued.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Russell (2023)[30]	RR of intervention	Mental, behavioral, or neurodevelopmental disorders	Time constraints/ decision-making need	Yes publicly available	Yes	Australia	9 months	No; No; No	No; No; No	Multiple steps; Patient and/or public partners, content experts/ researchers
Ryan (2023)[41]	Rapid QES	COVID–19	Time constraints/ decision-making need	Yes publicly available	Yes	International	26 months	No; No; No	No; No; No	Single step; Content experts/ researchers
Stich (2023)[25]	RR of intervention	Mental, behavioral, or neurodevelopmental disorders	Time constraints/ decision-making need	NR	Yes	Canada	15 months	No; No; No	Funder/ commissioner was KU; No; No	Multiple steps: Patient and/or public partners

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Table 2. *Continued.*

Author (year)	RR type	Focus of the RR	Rationale for rapid approach	Protocol	RR guidance cited	Funding region	Timeline (last search to publication of RR)	KU-framework; Mandatory KU involvement; CoI statements for KU	KUs compensated; KUs mentioned as authors; reflection on KU involvement	KU involvement during RR steps; KU groups involved
Stirling (2021)[85]	Rapid Scoping review	Healthcare delivery/ system	Fast-evolving research field	Yes publicly available	Yes	No funding reported	10 months	No; No; No	No; Yes; No	Multiple steps; Healthcare professionals
Toft (2022)[109]	Rapid Scoping review	Patient involvement /shared decision-making	NR	Yes (not publicly available)	Yes	Denmark	18 months	No; No; No	No; Unclear; No	All steps; Content experts/ researchers
Upshaw (2021)[83]	RR of prognosis	COVID–19	NR	Yes publicly available	Yes	Canada	11 months	No; No; No	No; No; No	Single step; Content experts/ researchers
Wingert (2021)[75]	RR of prognosis	COVID–19	Time constraints/ decision-making need	Yes publicly available	Yes	Canada	10 months	No; No; No	No; No; No	Multiple steps; Content experts/ researchers

Abbreviations: ACTIVE, Authors and Consumers Together Impacting on eVidencE; CoI, conflict of interest; GRIPP, Guidance for Reporting Involvement of Patients and the Public; KU, knowledge user; NR, not reported; RR, rapid review; QES, qualitative evidence synthesis.

Explanation: other type of review = e.g., economic review, mixed methods review

3.2.2. Knowledge user involvement during RR phases

Seventy percent (14/20) of the RRs with KU involvement engaged KUs in the *preparation of the RR* to ensure the topic and research questions are relevant to the KU's needs. Half of the RRs (10/20) involved KUs during *searching* to help with the development of the search strategy, find the best search terms, and ensure that all important sources were searched. Forty percent (8/20) of the RRs involved KUs during the *interpretation* of findings and *communication of results* (writing the report, disseminating the results). Only a small proportion (5%–15%) involved KUs during *study selection, data extraction, risk of bias assessment*, and *synthesis* (see Table 3).

3.2.3. Level of KU involvement

Reporting on the level of KU involvement was rather vague. Often, authors used general terms such as *working closely* or *being consulted* without further specifications of how frequently and in what way (e.g., via survey, workshops, meetings, written feedback) this was done. To determine whether involvement was continuous or only once during the project, we assessed whether KUs were involved in one, multiple, or all steps of the RR process. Forty percent (8/20) reported KU involvement *only during one step of the review process*, 55% (11/20) involved them in *multiple steps of the review process*, and 5% (1/20) involved the KUs *throughout the whole RR process* (see Table 3).

In 20% of RRs (4/20), the involved KUs were clearly part of the review author team. No publication reported financial compensation of the involved KUs; the involved KU was the commissioner in 10% of the RRs (2/20), so one can assume the KU could contribute during working hours. One RR provided a conflict-of-interest statement for KUs (see Table 2).

In 20% of RRs (4/20), authors explicitly reflected on KU involvement: One RR (5%) provided a lived experience commentary, one RR (5%) focused per se on the topic of patient involvement, and two (10%) described the value of involving KUs in the process. These two were the only ones that used a KU involvement tool (ACTIVE Framework[10] or GRIPP II[127]) (see Table 2).

3.2.4. KU groups involved

In 80% (16/20) of the RRs, only one KU group was involved. In the remaining 20% (4/20) RRs, multiple KU groups were involved.

Overall, 55% (11/20) involved *content experts/researchers* from across the relevant research fields; 35% (7/20) involved *patient and/or public partners* ranging from consumers and patients with lived experience to carers and local community organizations. In 25% (5/20) of the RRs, *healthcare professionals* were involved. Two RRs involved *policymakers* and one the *commissioner/funder*. When involving multiple KU groups, three RRs engaged "patient and/or public partners" along with "healthcare professionals," "researchers/content experts," or "healthcare professionals, policymakers, and researchers/content experts." A fourth RR involved "healthcare professionals" along with "policymakers" (see Table 2).

3.2.5. Factors associated with KU involvement in RRs

To determine if those RRs with KU involvement differed in any factors of interest, we calculated the proportion of KU involvement per subgroup (review type, year of publication, review topic, rationale for rapid approach, protocol, RR methods guidance, funding source, and funding country). As the general proportion of RRs with reported KU involvement was 19% in the sample, we considered this as the expected proportion (black line in Figure 2). As the number of RRs in the subgroups analyzed was often small, the results need to be interpreted with caution. Factors that might be associated with a higher proportion of KU involvement were review topics on patient involvement/shared decision-making and RRs that were explicitly commissioned. A lower proportion of KU involvement was seen in RRs that did not cite an RR methods guidance or reported no funding. For further details, see Figure 2.

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Table 3. *Involvement of knowledge users during the rapid review process.*

Rapid review	Knowledge user involvement during steps of the rapid review process							
Author (year)	Preparation	Search	Study selection	Data extraction	Risk of bias assessment	Synthesis	Interpretation	Communication
Barnett (2022)[119]	Yes	Yes					Yes	Yes
Bryant (2022)[59]	Yes							
Butow (2023)[103]	Yes							
Carroll (2021)[49]		Yes					Yes	
Clyne (2022)[115]	Yes							
Corp (2023)[40]		Yes					Yes	
Gentry (2021)[120]	Yes							Yes
Ghidei (2022)[99]	Yes							
Gkiouleka (2022)[57]			Yes					
Kadowaki (2021)[89]	Yes			Yes		Yes		Yes
Karlsson (2023)[48]	Yes			Yes		Yes	Yes	Yes
O'Reilly (2021)[97]	Yes							
Palese (2023)[31]							Yes	Yes
Russell (2023)[30]	Yes	Yes					Yes	Yes
Ryan (2023)[41]		Yes						
Stich (2023)[25]	Yes	Yes						
Stirling (2021)[85]	Yes	Yes	Yes				Yes	
Toft (2022)[109]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upshaw (2021)[83]		Yes						
Wingert (2021)[75]	Yes	Yes						Yes
Proportion of rapid reviews that involved knowledge users in this step	70% (14/20)	50% (10/20)	15% (3/20)	15% (3/20)	5% (1/20)	15% (3/20)	40% (8/20)	40% (8/20)

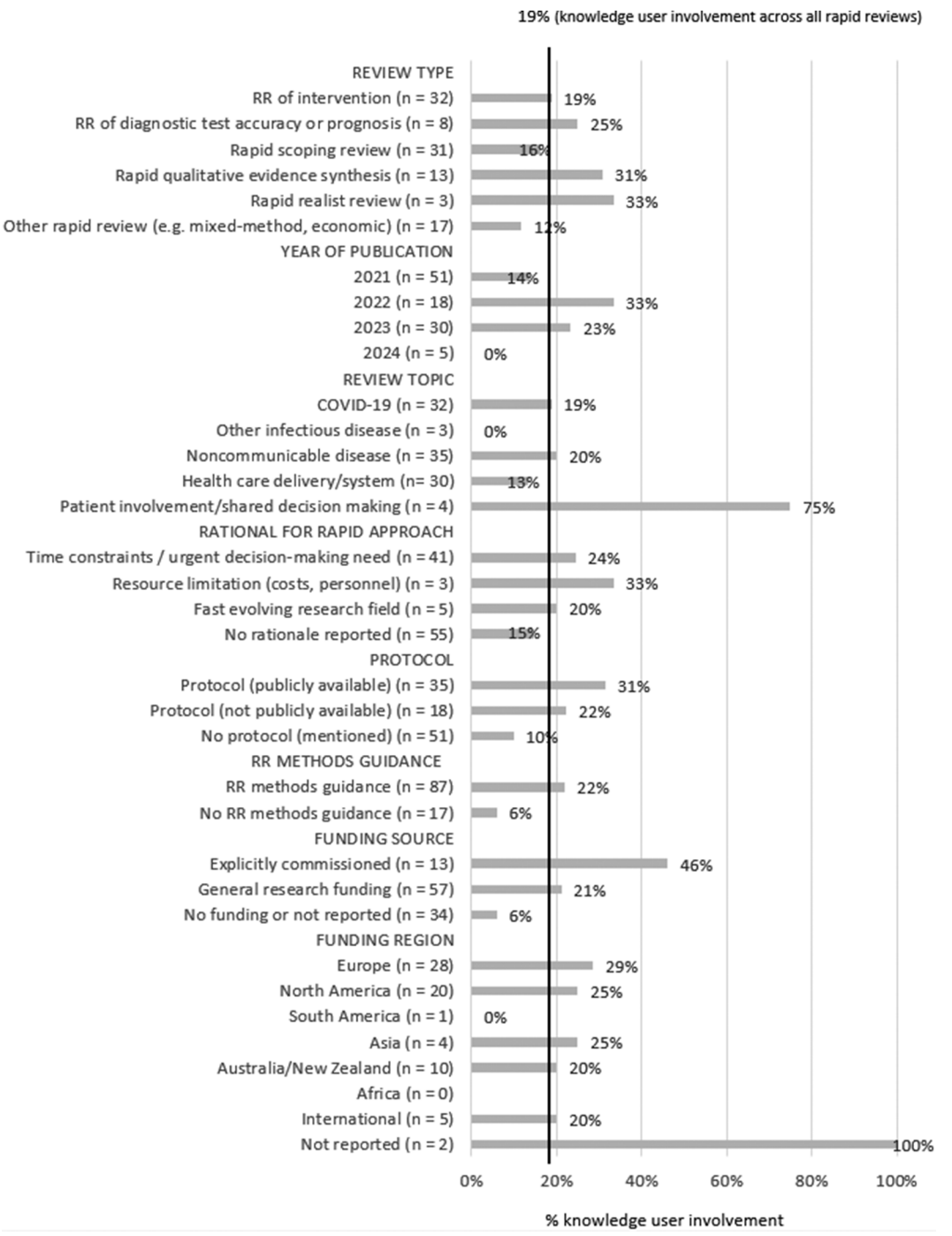


Figure 2. *Reported knowledge user involvement per subgroup.*

When assessing the time from the last literature search to the submission of the RR, the median time for RRs with KU involvement was 7 months (range 1–26, $n = 15$), compared to 6 months (range 0–31, $n = 67$) in the general sample. When analyzing the time from the search to the final publication of the RR, the median time for RRs that involved KUs was 15 months (range 3–28; $n = 19$) compared to the general sample (median 11.5 months; range 1–49; $n = 88$).

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3.2.6. Sensitivity analysis

Authors of five RRs[36,64,104,113,114] provided information on KU involvement upon request via email. We did not include this information in the main analysis as outlined in the methods section. To explore the impact of this decision on our research questions, we conducted sensitivity analyses adding these five RRs and calling it "clarified KU involvement."

Proportion of KU involvement. When adding these five RRs, the proportion of "clarified KU involvement" was 24% (95% CI 0.16–0.33).

Characteristics of RRs. Of these five RRs, two were RRs of interventions, two were rapid scoping reviews, and one was categorized as "other RR type." One focused on infectious disease, two on noncommunicable diseases, and two on healthcare delivery. Four of them cited RR methods guidance, three had a published protocol, and all five had funding. The time from the last search to publication ranged from 6 to 17 months.

Phases and level of KU involvement. When adding these five RRs, the proportion of KU involvement during the RR phases did not change markedly compared to the main analysis based on the 20 RRs. KU involvement was 68% during preparation (17/25), 56% during searching (14/25), 20% during study selection (5/25), 16% during data extraction (4/25), 8% during risk of bias assessment (2/25), 16% during synthesis (4/25), 48% during interpretation (12/25), and 48% (12/25) during communication.

Interestingly, four of these five RRs had KU listed as co-authors. One RR involved KU in all phases of the review, three in multiple phases, and one only in one phase.

Groups of KU involved. When adding these five RRs to the main analysis, the proportion of RRs involving content experts/researchers was still the largest at 48% (12/25), followed by patient and/or public partners at 40% (10/25), and healthcare professionals at 24% (6/25). None of these five RRs involved a funder or a policymaker.

Factors associated with KU involvement. When adding these five RRs to the exploratory analysis of factors associated with KU involvement, we did not observe major changes to our main analysis (see Figure 3).

4. Discussion

Out of 104 RRs, only 19% (n = 20) reported KU involvement. This is lower than in previous studies, where KU involvement ranged from 26% to 43%.[7-9] Additionally, 11% of the 104 assessed RRs had "unclear" KU involvement, with acknowledgments listing individuals but not clarifying their roles. When contacted, five authors replied, and all confirmed KU involvement that had not been reported in their RRs. This could be an indicator of potential underreporting of KU involvement and lack of awareness that KU involvement should be reported. In four of the five RRs, the KUs were part of the author team. Eventually, research teams considered the acknowledgment of RR contribution by co-authorship to be sufficient and that it did not need to be reported separately. In RRs with KU involvement, KUs typically contributed to early phases of the RR process (topic refinement, search), aligning with previous findings,[7] or at the end, with interpreting and disseminating the findings. Although KU involvement is recommended throughout the whole RR process, it might be appropriate not to include some KU groups in all phases. For example, commissioners could have inherent interests or even conflicts of interest regarding specific findings and therefore should not be involved in the analysis part.

Garrity et al. found that while patient involvement was similarly reported in published and non-published RRs, commissioner involvement was underreported in published RRs.[8] This may reflect why some RRs commissioned for urgent decision-making are not published in journals, or the strict word limit that most journals demand precludes authors from reporting KU involvement clearly. In our sample, one-third of the RRs were on COVID-19 and conducted for urgent decision-making needs, which may have precluded author teams from KU involvement. Time from the last search to submission of the publication was 1 month longer (median) in RRs with KU than in the general sample. While this

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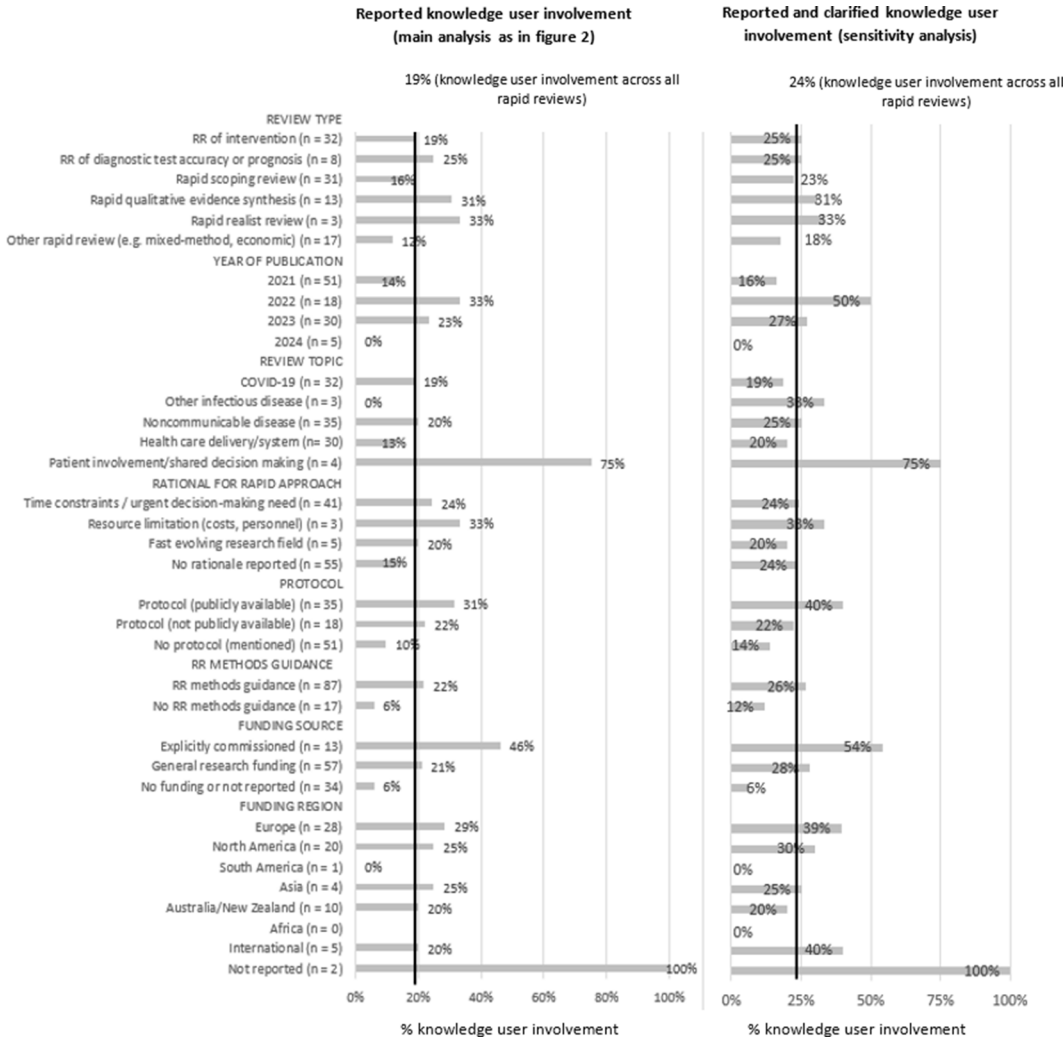


Figure 3. *Knowledge user involvement per subgroup (main analysis vs. sensitivity analysis).*

can be perceived as a marginal difference in the overall review timeline, it can be significant in the context of urgent decision-making needs.

In our sample, content experts/other researchers were most often reported as KUs. It is possible that not all review teams were aware that involving other experts in the field could be considered as KU involvement. Patients and public partners were the second most often involved KU groups ($n = 7$ RRs). Similar results have been shown by Garritty et al.[8] in a sample of published and non-published RRs from 2016. However, newer RR methods guidance[128] explicitly recommends their involvement to ensure the RRs are relevant for those affected by health-care decisions.

Exploratory analysis indicated factors associated with higher KU involvement, namely a focus on patient involvement/shared decision-making, explicit commissioning, or having a published protocol. In contrast, RRs that did not cite any RR methods guidance or that reported no funding had less often reported KU involvement. These factors may serve as facilitators or barriers, though the small subgroup sizes caution against overinterpretation. Ongoing research, such as the Multi Stakeholder Engagement (MUSE) consortium's work[129] will shed further light on KU involvement by focusing exclusively on evidence syntheses with KU involvement, allowing for a larger sample size.

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An interesting finding of our study was the diversity of RR types. Although originally focused on assessing intervention benefits and harms, many RRs are now being conducted as rapid scoping or qualitative evidence syntheses, reflecting a broader application of the RR process. This aligns with the evolving taxonomy of evidence synthesis, where "rapid" is considered a production mode rather than a specific review type.[130]

Our study, while comprehensive in its review of KU reporting across various RR types, has limitations. First, we focused on reported KU involvement, which may not capture actual involvement, as our findings suggest underreporting. This highlights the need for specific reporting guidelines for KU involvement in RRs. Second, we only analyzed published RRs, which may not fully reflect KU involvement in non-published RRs conducted for decision-making purposes. However, we wanted to assess the current situation in published RRs, as this is the product that is accessible to the research and decision-making community globally. Third, we used AI to assist with screening rather than dually screening all records. However, given the high agreement within the team and our random sampling approach, this likely had minimal impact on the results. Finally, we included only reviews explicitly labeled "rapid," even though we searched using terms like "swift" or "targeted," relying on the authors' definitions of RR as we could not verify methods from abstracts alone. However, we assessed the methods of the included RRs and all applied at least one methods abbreviation compared to the traditional SR approach, so we are confident that our sample truly represented RRs.

Despite these limitations, our study provides valuable insights into the current state of KU involvement in RRs and highlights future research needs. Reporting remains scarce, likely due to the time and resource constraints inherent in RR processes and the strict word limits demanded by many journals. Many researchers may also not be aware that they should report KU involvement. Future research should explore barriers and facilitators to KU involvement in RRs, with a particular focus on the challenges posed by the rapid approach. A systematic review assessing challenges of public and patient involvement in evidence syntheses found influencing factors on both sides: the KUs and the researcher teams. One hindering factor on both sides was a lack of time.[131] The MUSE consortium also plans to conduct a qualitative evidence synthesis on barriers and facilitators of KU involvement in systematic reviews.[129] We would like to emphasize that there should be a specific attention to the assessment of KU involvement in the RR context, as factors like limited time and resources might differ in comparison to the traditional systematic review context. Developing and evaluating resource-efficient methods for KU involvement that work within time and resource constraints would also be essential to improve KU involvement in RRs. Future research should learn from best practice examples such as RR-producing entities like the COVID-END (COVID 19 Evidence Network to support Decision-Making) project[132] and the SPOR (Strategy for Patient-Oriented Research) Evidence Alliance,[133] which regularly include the public in the RR process. Additionally, to explore the actual extent of the underreporting of KU involvement or the perceptions and inherent definitions of authors, it would be interesting to assess KU involvement in a random sample via questioning the RR authors and comparing this information with the KU involvement reported in publications. Also, the forthcoming PRISMA-RR reporting guideline (OSF Link[134]) should include a specific item on KU involvement, detailing who was involved, at what phases of the review, and how. The broad range of RR types also indicates a need for future methods studies assessing the impact of RR methods on different types of rapid evidence synthesis, such as rapid scoping reviews or rapid qualitative evidence syntheses.

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