

Effectiveness and acceptability of asynchronous digital health for routine asthma care: a mixed-methods systematic review

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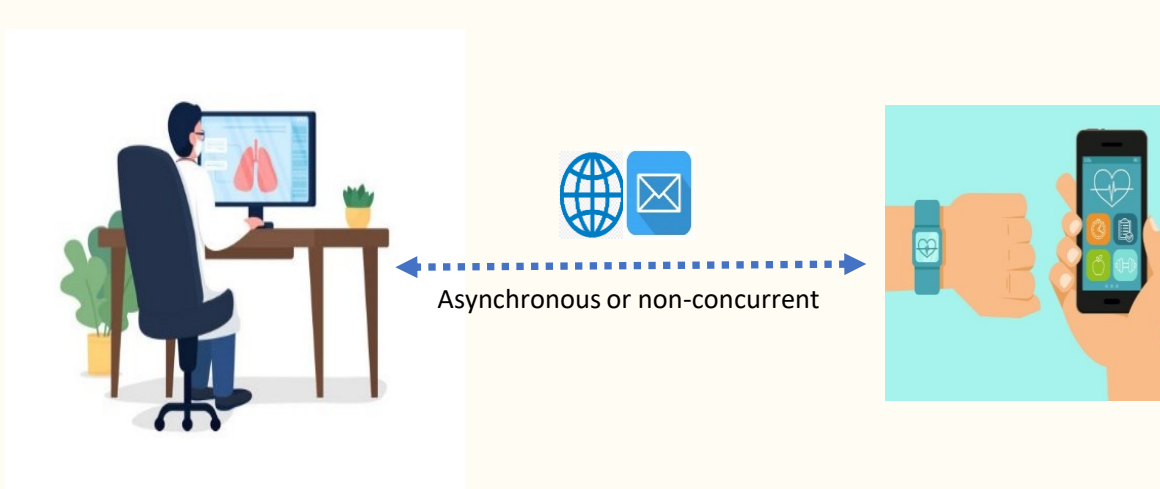


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Introduction

- Asynchronous digital health (e.g., online portal, text, email) can overcome practical barriers, such as time constraints associated with in-person and remote synchronous consultations
- Little is known about the effects and acceptability of asynchronous digital health to support care for individuals with asthma (e.g., routine asthma care)
- Aimed to systematically review the qualitative and quantitative evidence on the use of asynchronous digital health for reviewing asthma.



What does "Reviewing Asthma" mean?

- Exchange of relevant information or notes between patients/caregivers and HCPs +
- Use of any forms of digital health technologies +
- Asynchronous communications, which may or may not involve other modes of communication

Methods

- Adhered to Cochrane methodology, used PRISMA guidelines, and followed results-based convergent design
- Searched six databases (January 2001 to July 2022)
- Methodological quality assessment tools: RoB2, Downs and Black checklist, MMAT, CASP
- Assessed confidence in evidence using GRADE and GRADE CERQual
- Data analysis: meta-analysis (trial data), thematic analysis (qualitative data), narrative synthesis (others)

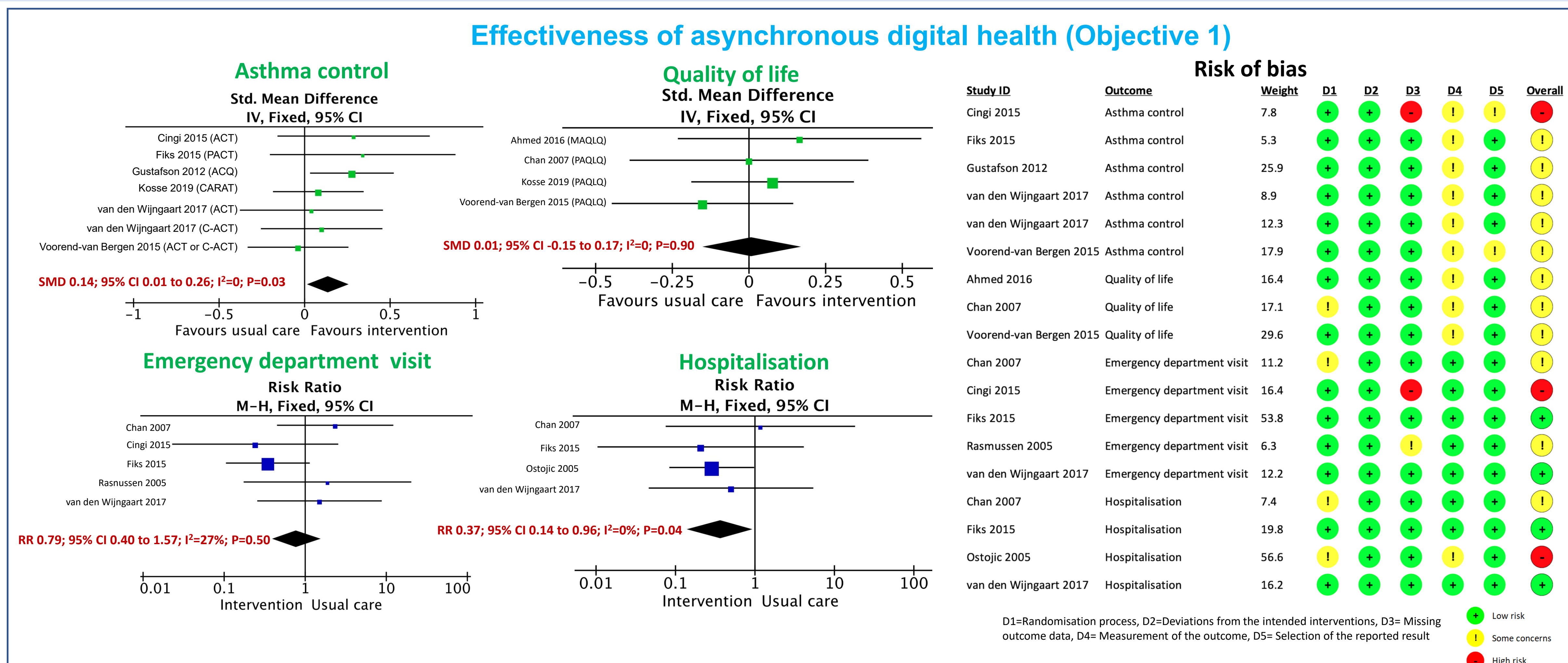
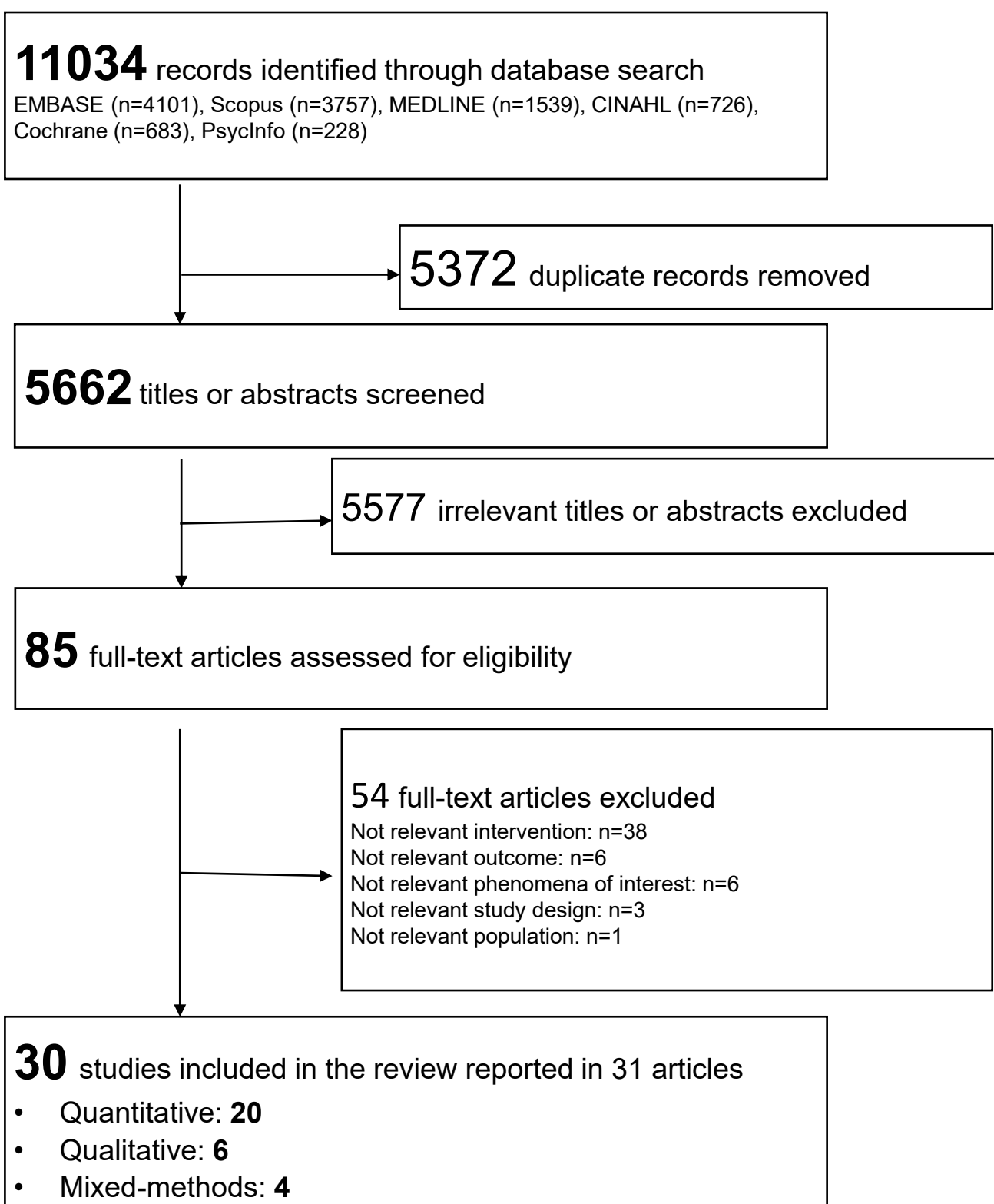
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Asynchronous digital health interventions for reviewing asthma: A mixed-methods systematic review protocol

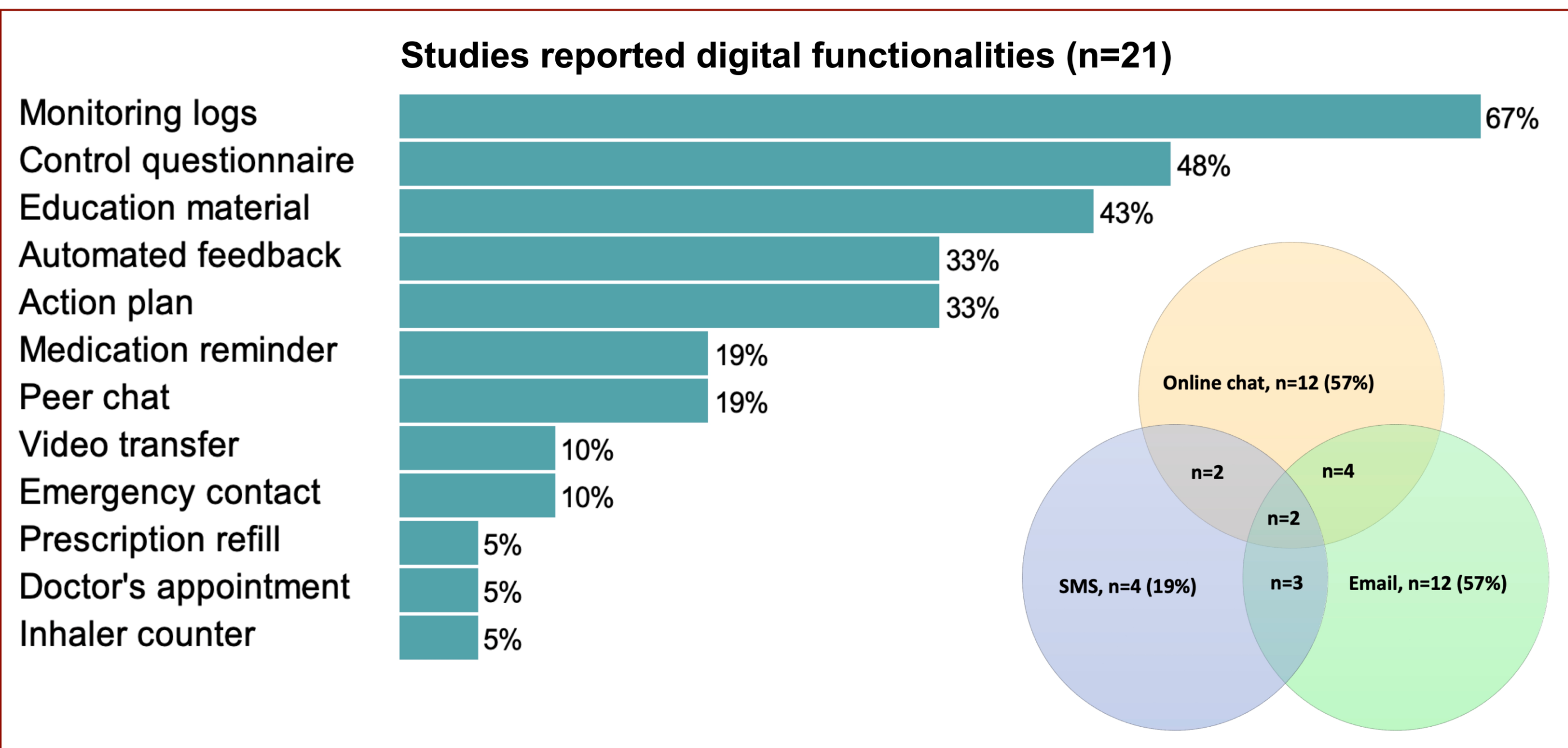
Md. Nazim Uzzaman, Vicky Hammersley, Kirstie McClatchey, Jessica Sheringham, G. M. Monsur Habib, Hilary Pinnock
Published: February 9, 2023 • <https://doi.org/10.1371/journal.pone.0281538>

Results

- 3428 people with asthma (and/or their caregivers) female: 47%, age: 4-69 years), and 140 healthcare professionals
- From 9 countries: high income: n= 28, upper-middle-income: n=2



Digital functionalities used (Objective 2)



Of the included quantitative studies (n=20) and one mixed-methods study that reported digital functionalities, 15 (71%) used web-based portals, four (19%) used mobile applications, and two (10%) used mobile SMS. Only three (14%) studies were linked with existing electronic health records

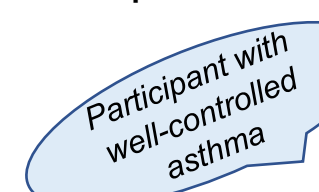
Integrative synthesis (Objective 4)

Overall, the ease of asking quick questions, medication reminders, tailored asthma information, and organised workflow were deemed to be important factors that might positively affect the intervention outcomes.

Views and experiences (Objective 3)

Theme 1: Perceptions of routine reviews

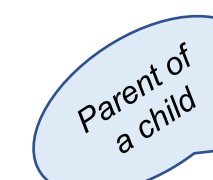
Most patients with well-controlled asthma perceived in-person routine reviews as unnecessary and preferred seeking medical help only when their symptoms worsened. Healthcare professionals echoed convenience yet noted the clinical limitations of remote reviews



"I don't need to see a doctor or nurse personally. If I know she (doctor or nurse) sees my values, then it's okay for me. Maybe when things go worse, I'd like to be examined, but if things go just normally, I don't mind to be in contact just by e-mail."

Theme 2: Pros and cons of using asynchronous digital health

Most patients/carers described asynchronous digital health as a convenient method for reviewing asthma while managing work and family responsibilities. Healthcare professionals expressed concerns that lack of physical examination and reduced face-to-face contact associated with this approach could negatively affect clinical decision-making



"Because it's easier for me to text. If I'm at work or if I'm out and I'm in a situation where I can't take a phone call, then I can always text. My text is really the best because I know it's always available to me."

Theme 3: Implementation barriers and facilitators

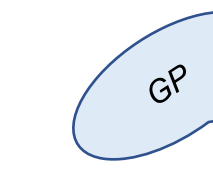
Poorly co-ordinated workflows, lack of integration with electronic health records, high workload and absence of financial reimbursement were identified as major barriers by most healthcare professionals. Accessible two-way communication, prompt responsiveness from practices and families, positive attitude and commitment were the facilitators identified by most professionals and patients/carers.



"...That I'll have not a good ability to manage the in-basket, and that our support team, while excellent, is already stretched, and not...we haven't built a great infrastructure in terms of care coordinators being able to handle first line, so until we feel secure that's in place and really well running, it feels like we are putting the cart before the horse."

Theme 4: Preferred digital functionalities

Flexibility to ask quick questions, log and visualise the trend of peak flows, symptom scores, medication usage and reminders were the most common features wanted by patients and healthcare professionals.



"It would be very useful if the patient is logging their asthma symptoms and peak flow, medication use...because that's then helping us to adjust on treatment. I would love to know if they were taking it (prescribed medication) every day like they're telling me they are."

Confidence in evidence

- GRADE: Very low for asthma control; and low for quality of life, emergency department visit and hospitalisation.
- GRADE-CERQual: Qualitative studies ranged from low to high quality

Conclusion

Asynchronous consultation supported by digital functionalities is an effective and convenient option for non-emergency asthma care.

Funding: Nazim Uzzaman is supported by a University of Edinburgh College of Medicine PhD Studentship (Grant number 34678) funded by the University of Edinburgh College of Medicine and Veterinary Medicine (CMVM) within the Asthma UK Centre for Applied Research (AUKCAR). The PhD studentship is nested in the IMP2ART (IMplementing IMProved Asthma self-management as RouTine) programme at the University of Edinburgh (<https://www.ed.ac.uk/usher/imp2art>).



Asthma UK Centre for Applied Research

