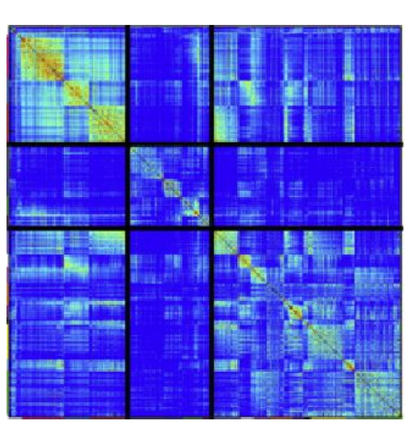
Long-term meditation and meditation related **traits** increase the **connectivity** between **functional networks**

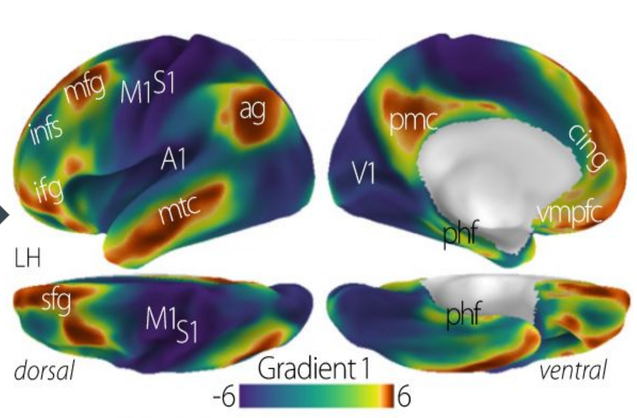
Methods

Functional connectivity

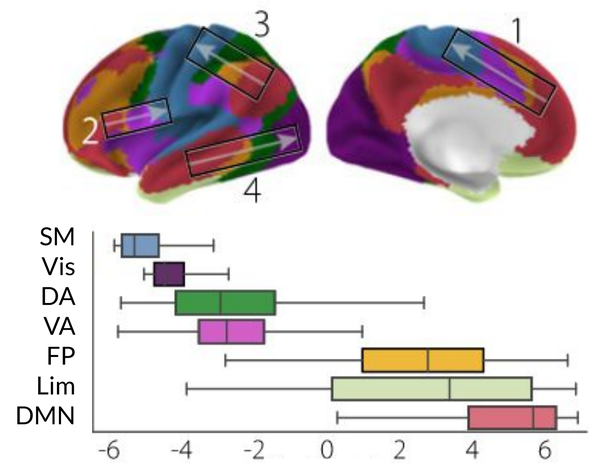


Margulies et al., 2016, PNAS

Principal Gradient of diffusion embedding

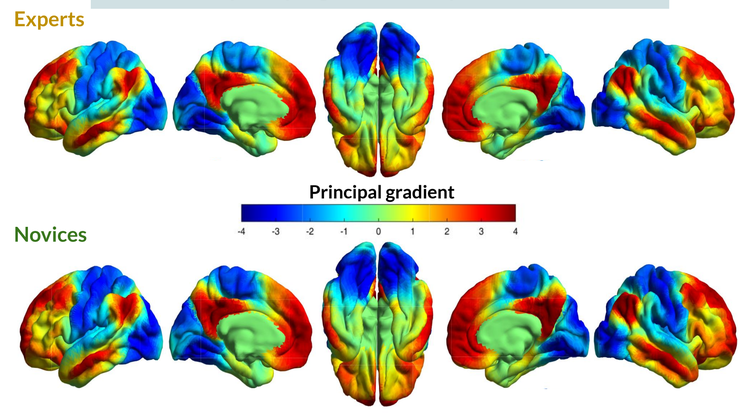


Community-based profile

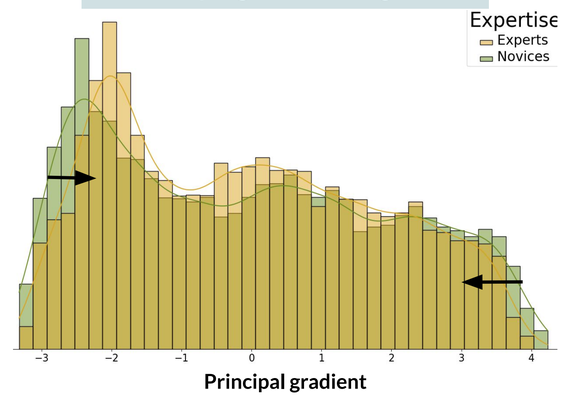


Traits-level analysis

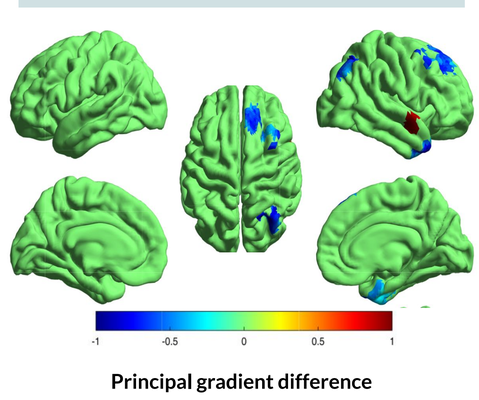
(OP+RS) principal gradient in experts and novices



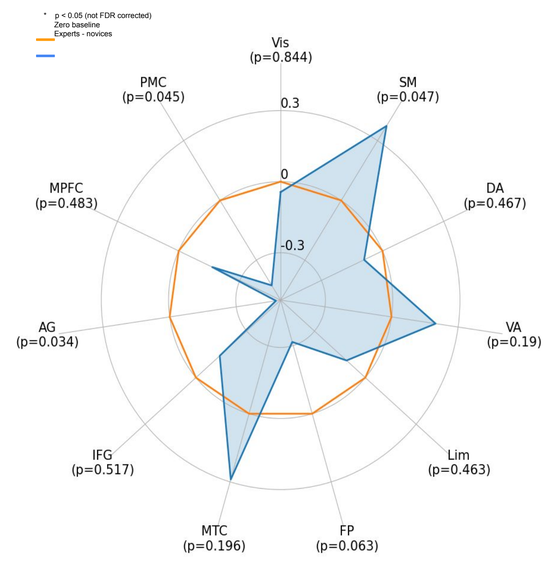
Principal gradient histogram



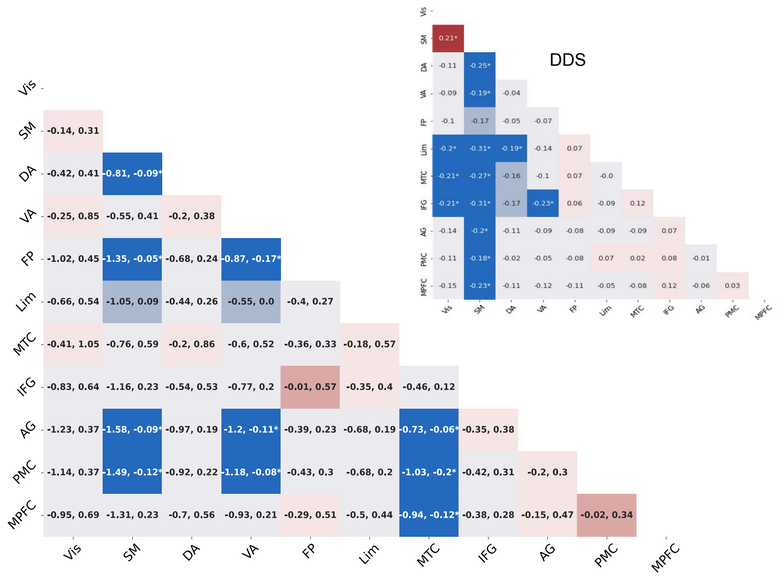
Surface-based analysis (Exp vs Nov)

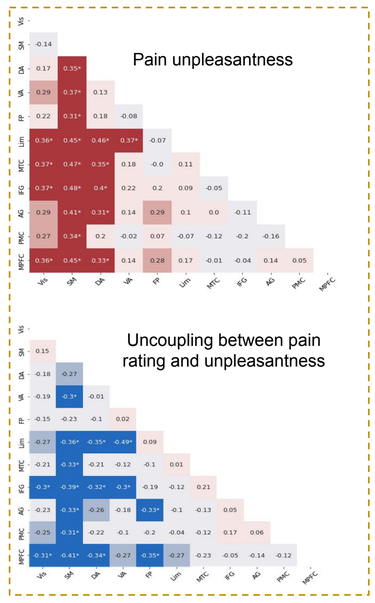


Community-based profile anlysis



Euclidean distance analysis and their correlation with traits scores

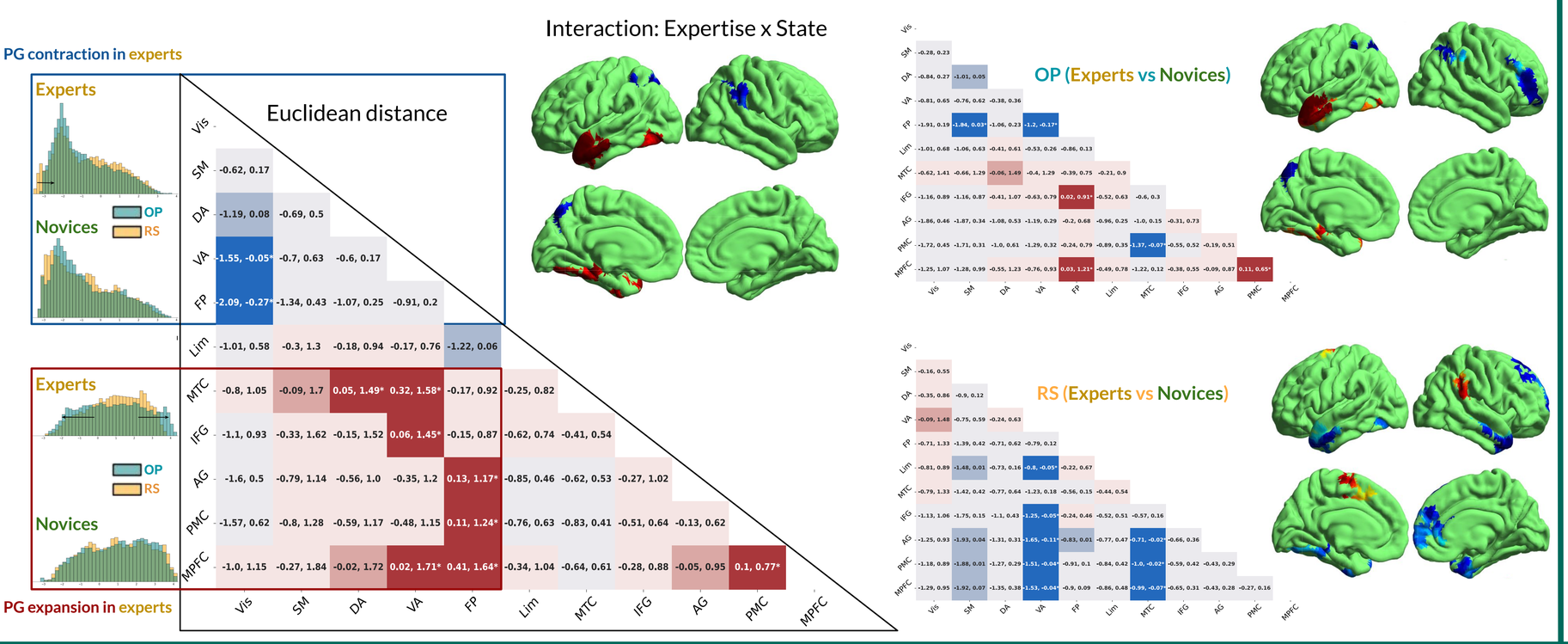




Networks' euclidean distance comparison (expertise)

Interaction-level analysis

Interaction: Expertise x State



Mindfulness meditation state and traits modulate the brain gradient connectome in expert and novice meditators

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Background

Mindfulness meditation practice is associated with specific functional relationships between central-executive-network (CEN), salience-network (SN), and default-mode-network (DMN), but also the sensory-perceptual cortices on which they exert top-down modulation

Objective

Methods

Results

Conclusion

Medication management strategies for doctors may not help to achieve meaningful outcomes in patients with **polypharmacy**.

What doctors can do against inappropriate prescribing and drug overuse in polypharmacy – a rapid review of clinical trials

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Background

Multimorbid patients with polypharmacy are at risk for inappropriate prescribing and harmful medication overuse.

Objective

To identify from randomized controlled trials strategies for the management of polypharmacy that practicing physicians can employ to achieve meaningful endpoints in multimorbid patients.

Methods

An a priori protocol of a sensitive search strategy for interventional trials indexed in MEDLINE and CENTRAL from 2014 to 2018, including related primary sources, was submitted to internal peer review. Studies qualified for eligibility according to prespecified inclusion criteria. The authors independently screened the results, extracted data and assessed the risk of bias using Cochrane methodology. Reporting followed the PRISMA guidelines. Certainty of evidence was appraised using the GRADE approach.

Results

Of a total of 4381 hits, 10 RCT met the inclusion criteria (**Figure 1**). A majority of prespecified PICO criteria were represented (**Table 1**). Overall risk of bias was judged as very serious (**Figure 2**). Incomplete reporting for a priori declared outcomes was detected in 6/10 studies (**Table 2**). Results from 3 RCT (1.324 patients) with high risk of bias on the effects on falls in older patients are unclear (OR 0.99, 95% CI 0.7-1.41). In 1 RCT with high risk of bias, patients (n = 732) experienced a lower rate of adverse drug events (ARR 9.7%, 95% CI 13.4-3.6). 5/7 outcomes did not allow for metanalysis. Certainty of the effect estimates was very low for all outcomes (**Table 3**).

Conclusions

Despite the growing challenges of care for patients with polypharmacy and multimorbidity, evidence from clinical trials that address critical outcomes is limited. It is unclear whether the identified interventions that can be by individual physicians to reduce drug overuse and inappropriate prescribing in multimorbid patients, such as protocols for medication review or educational interventions, resulted in clinical improvements.

Table 1: Inclusion Criteria

+ represented, - not represented in review

Population	+ Patients with polypharmacy + Patients with multiple chronic diseases + Elderly patients (>65 years) + Patients with inappropriate prescribing
Interventions feasible/applicable to individual physicians	+ Anamnesis/Medication reconciliation + Medication therapy management + Deprescribing + Lists/tools for potentially inappropriate medications - Electronic drug management tools - Drug databases - Peer Review + Medical education
Control	+ Standards of care
Outcomes	+ Hospitalizations + Falls + Adverse drug events + Health-related quality of life + Potentially inappropriate medications + Drug overuse + Drug underuse
Settings	+ Primary care + Hospitals + Admission - Outpatient clinics + Internal medicine wards Nursing homes

Figure 1: PRISMA flow chart

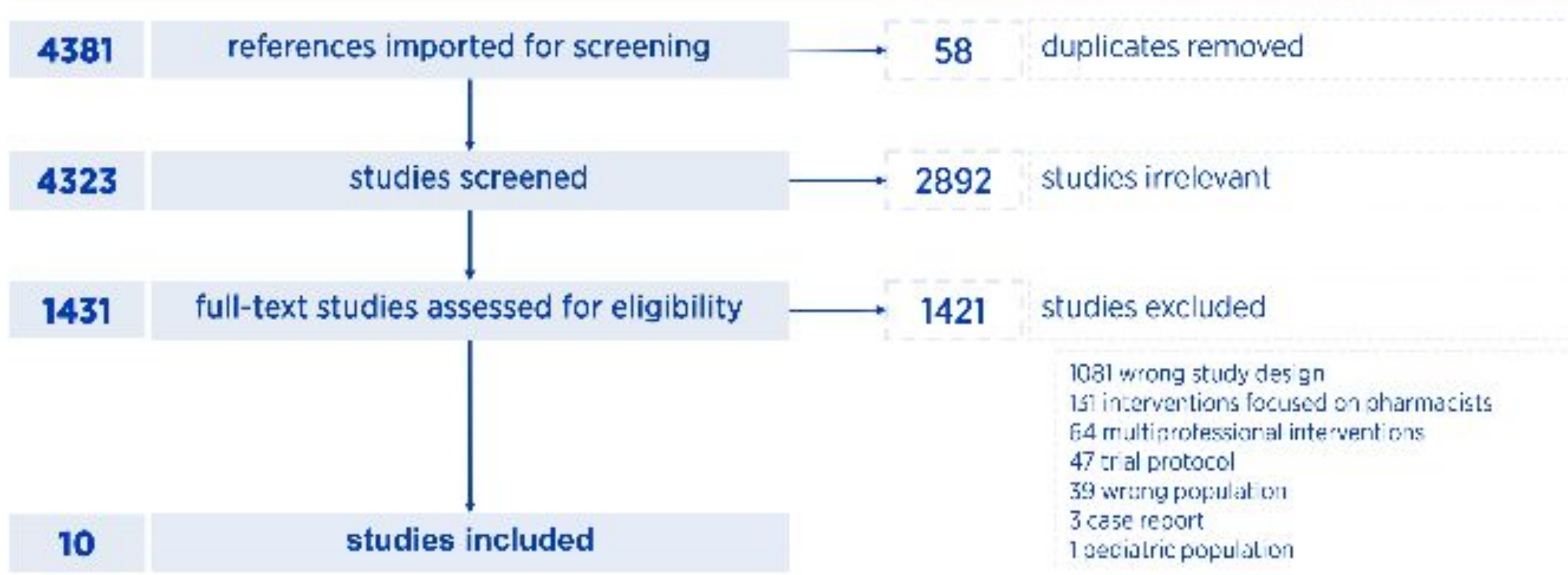

Figure 2: Risk of bias analysis

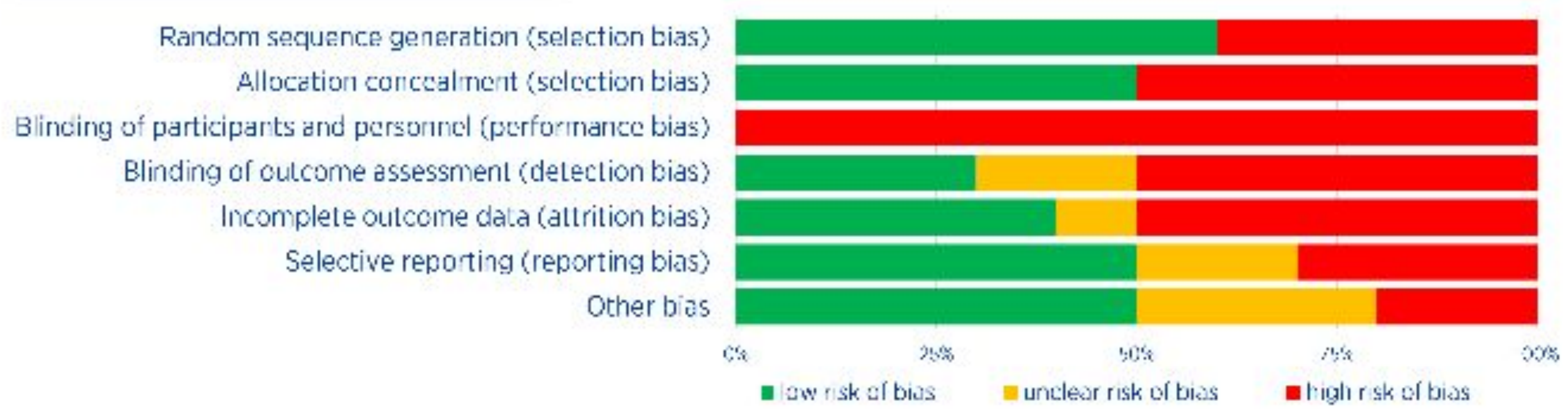

Table 2: Characteristics of included studies (including outcome reporting bias matrix)

Outcomes (♥ fully reported, o incompletely reported, - not measured, x not reported)

Study	Type	Intervention	Hospitalizations	Falls	ADE	hrQoL	PIM	Overuse	Underuse
Boye, 2017	RCT, N=612 elderly patients visiting the ED because of a fall (Netherlands)	Discontinuation or dose reduction of fall-risk-increasing drugs (FRID)	♥	♥	x	x	-	-	-
Cullinan, 2017	RCT, 146 hospital doctors (Ireland)	Short e-learning course, doctor training tool (SCRIPT) including a specific module for prescribing in older patients	-	-	-	-	o	-	-
Dalleur, 2014	RCT, N=146 frail elderly inpatients (Belgium)	Review of medications list according to explicit criteria (STOPP criteria)	-	-	-	-	o	o	-
Eveleigh, 2014	Cluster RCT, N=146 patients with long-term antidepressant use from 46 family practices (Netherlands)	Antidepressant cessation advice in case of inappropriate long-term use in primary care	-	-	-	o	-	-	-
Frankenthal, 2014	RCT, N=306 elderly residents at a chronic care geriatric facility prescribed with at least one medication (Israel)	Review of medications list according to explicit criteria (STOPP/START criteria)	♥	♥	-	o	♥	-	♥
Gallagher, 2011	RCT, N=382 elderly hospitalized patients (Ireland)	Review of medications list according to explicit criteria (STOPP/START criteria)	-	-	-	-	♥	♥	♥
Garcia-Gollarte, 2014	Cluster RCT, N=1018 nursing home residents (Spain)	10 hours educational program on drug use, followed by on demand support by phone	♥	♥	-	-	♥	♥	♥
O'Connor, 2016	Cluster RCT, N=732 acutely ill elderly patients admitted to the ED (Ireland)	Single time point presentation to physicians of potentially inappropriate medications according to START/STOPP criteria	x	-	♥	-	-	-	-
Schäfer, 2018	Cluster RCT, N=604 elderly multimorbid patients from 55 primary care practices (Germany)	3 individual narrative doctor-patient dialogues (30 minutes each) over 12-month period	♥	-	-	♥	-	-	-
Wehling, 2016	RCT, N=409 patients from two geriatric clinics (Germany)	Review of medications list according to explicit criteria (FORTA list)	-	♥	-	-	♥	♥	♥

ADE = adverse drug events; hrQoL = health-related quality of life; PIM Potentially inappropriate medications

Table 3: Summary of Findings

Outcome № of participants (studies)	Relative effect (95% CI)	Anticipated absolute effects (95% CI) Control	 Intervention	 Difference	Certainty (GRADE)
Hospitalizations № of participants: 1324 (4 RCTs) [1,2,3,4]	-	-	-	not pooled	⊕○○○ **VERY LOW**
Falls № of participants: 2049 (3 RCTs) [1,3,5]	OR 0.99 (0.70 to 1.41)	23.1%	22.9% (17.4 to 29.8)	0.2% fewer (5,7 fewer to 6,7 more)	⊕○○○ **VERY LOW**
Adverse drug events № of participants: 732 (1 RCT) [6]	OR 0.48 (0.31 to 0.79)	21.0%	11.3% (7.6 to 17.3)	9.7% fewer (13,4 fewer to 3,6 fewer)	⊕○○○ **VERY LOW**
Health-related quality of life № of participants: 1053 (3 RCTs) [2,4,7]	-	-	-	not pooled	⊕○○○ **VERY LOW**
Potentially inappropriate medications № of participants: 2407 (6 RCTs) [3,4,5,8,9,10]	-	-	-	not pooled	⊕○○○ **VERY LOW**
Drug overuse № of participants: 1955 (4 RCTs) [3,5,9,10]	-	-	-	not pooled	⊕○○○ **VERY LOW**
Drug underuse № of participants: 1908 (4 RCTs) [3,4,5,9]	-	-	-	not pooled	⊕○○○ **VERY LOW**

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