

The association between vasomotor symptoms and metabolic health in peri- and postmenopausal women: a systematic review

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Objectives

1. To systematically review studies that describe the association between vasomotor symptoms and metabolic syndrome, insulin resistance and type 2 diabetes in peri- and postmenopausal women.

Conclusions

1. There is no sufficient evidence on the role of vasomotor symptoms in metabolic health.
2. The results of the high quality cohort studies, however, suggest that there is an association between vasomotor symptoms and metabolic health outcomes.
3. To confirm the possible association and to strengthen the evidence, more high quality longitudinal research on this topic is needed.

Background

- » Related to menopause, middle-aged and elderly women suffer diseases which influence life expectancy and quality of life. Among these common menopausal health issues are type 2 diabetes mellitus, metabolic syndrome and vasomotor symptoms.
- » Some studies suggest that menopausal women reporting hot flashes have unfavourable metabolic health, but studies are scarce and have never been systematically reviewed and summarized.

Methods

- » A systematic search of studies was performed in EMBASE, MEDLINE, Web-of-science, Scopus, PubMed publisher, Cochrane Library, Google scholar.
- » Methodological quality was assessed by two independent reviewers using a modified Newcastle Ottawa Assessment Scale.
- » Data were extracted by two independent reviewers using standardized data extraction forms.

Inclusion criteria

- » Randomized trials, cohort, case-control, and cross-sectional studies
- » Investigating the association between vasomotor symptoms (including hot flashes and night sweats) and metabolic syndrome, type 2 diabetes or insulin resistance.
- » Peri- and postmenopausal women of at least 40 years .
- » Natural menopause.

Table 1. Authors, year of publication, N, outcome measures and methodological quality score

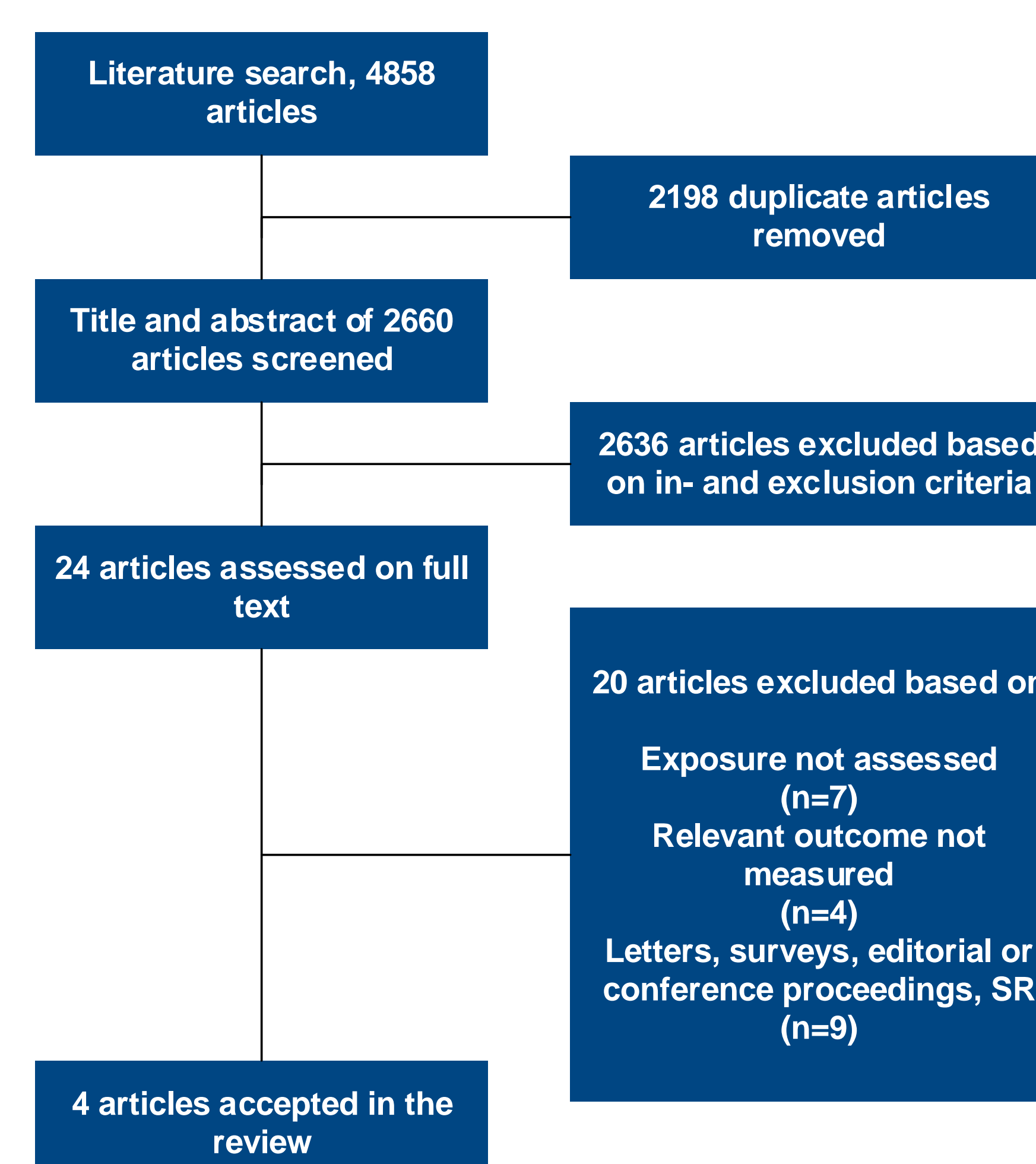
Authors, date of publication	Type of study	N	Outcome measure	MQ
Thurston et al, 2012	prospective cohort	3075	insulin resistance	8 (high)
Herber-Gast et al, 2014	prospective cohort	4895	type 2 diabetes mellitus	7 (high)
Lee et al, 2011	cross-sectional	183	metabolic syndrome	5
Tuomikoski et al, 2012	cross-sectional	131	insulin resistance	6

MQ: methodological quality

Results

After screening 2660 titles and abstracts, four studies – of which two prospective cohort studies were of high methodological quality - were included in the review.

Figure 1. Flow diagram for inclusion of studies



Both prospective cohort studies, with large study populations and adjustment for multiple confounding variables, showed positive associations between vasomotor symptoms and increased HOMA index: insulin resistance (%diff >5 days HF 5,91 (3.17-8.72) and type 2 diabetes mellitus (early severe profile adjusted OR, 1.55; 95% CI, 1.11–2.17).

Discussion

Not all studies were of high quality and they were heterogeneous with regard to study population, design, measuring vasomotor symptoms, outcome measures and analyses.

Clinical implications

- » If vasomotor symptoms are associated with (later) unfavourable metabolic health conditions, this has implications for patient care.
- » Vasomotor symptoms could be seen as a warning sign for underlying physical processes, specific to menopause.

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