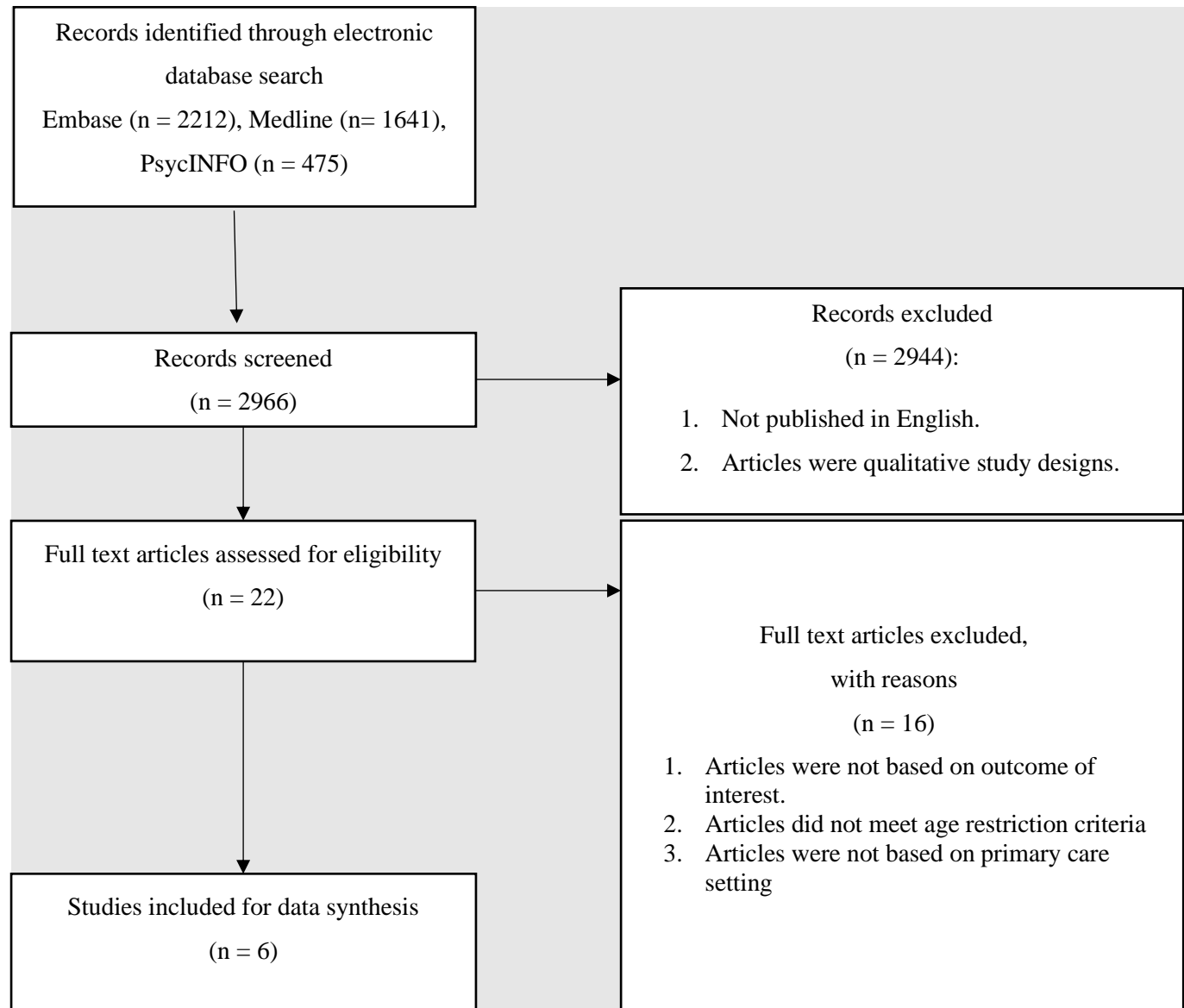


## Appendices and supplementary data:

### Tables and figures

**Figure S1:** PRISMA flow diagram of search strategy. Showing different phases of the selection process.



## **Appendix 1. Search terms:**

Studies included were last searched on the January 2020.

The articles identified through the search included text words, in the following combination:

[(frequent adj1 primary care adj3 attend\*) OR (frequent adj1 general practice adj3 attend\*) OR (heavy use\* adj2 primary care) OR (heavy use\* adj2 general practice) OR (repeat use\* adj2 primary care) OR frequent visit\* OR frequent use\* OR (frequent adj1 attend\*) OR excess\* attend\* OR health\* utili\* OR (frequen\* adj1 consult\*) OR (high adj3 utili\*) OR (high adj2 use\* adj2 primary adj2 care)] AND [exp primary health care/ OR primary care OR primary health\*].

Using the above search results, a narrower search was then performed another using terms that restrict the population based on age: child\* AND adolescen\* AND paed\* OR ped\*



**Table S2: Quality Assessment Tool results:**

+ (yes); - (no); CD (cannot determine); NR (not reported); NA (not applicable)

<i>Criteria</i>	<b>M.E. Garralda et al 1998 (14)</b>	<b>M. Vila et al, 2012 (15)</b>	<b>P. D. Fosarelli et al 1987 (19)</b>	<b>S. Stojanović-Špehar et al 2007 (17)</b>	<b>Shraim et al 2014 (16)</b>	<b>Martin et al 2018 (18)</b>
1. Was the research question or objective in this paper clearly stated?	+	+	+	+	+	+
2. Was the study population clearly specified and defined?	+	+	+	+	+	+
3. Was the participation rate of eligible persons at least 50%?	CD	CD	+	CD	+	CD
4. Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?	+	+	+	+	+	+
5. Was a sample size justification, power description, or variance and effect estimates provided?	NR	NR	-	NR	NR	NR
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?	NA	NA	+	+	+	NA
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome?	NR	NR	+	+	+	NR
8. did the study examine different levels of the exposure as related to the outcome?	-	-	NA	+	+	-
9. Were the exposure measures clearly defined, valid, reliable, and implemented consistently across all study participants?	+	+	+	+	+	+
10. Was the exposure(s) assessed more than once over time?	-	-	-	NA	CD	-
11. Were the outcome measures clearly defined, valid, reliable, and implemented consistently across all study participants?	+	+	+	+	+	+
12. Were the outcome assessors blinded to the exposure status of participants?	-	-	NA	NR	NR	-
13. Was loss to follow-up after baseline 20% or less?	NR	NR	+	NR	NR	NR
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?	+	+	+	+	+	+

**Table S3. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist**

Section/topic	#	Checklist item	Reported on page #
<b>TITLE</b>			<b>1</b>
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
<b>ABSTRACT</b>			<b>2</b>
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
<b>INTRODUCTION</b>			<b>4</b>
Rationale	3	Describe the rationale for the review in the context of what is already known.	4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4
<b>METHODS</b>			<b>4, 5, 6</b>
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	NA
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	4, 5
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	5
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	5
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	5

Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	5, 6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	6
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I <sup>2</sup> ) for each meta-analysis.	6
Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	NA
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	NA
<b>RESULTS</b>			<b>6, 7, 8</b>
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	6
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	6
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	6
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	6, 7, 8
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	6, 7, 8
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	NA
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA
<b>DISCUSSION</b>			<b>9, 10, 11</b>
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	9

Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	9, 10
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	11
<b>FUNDING</b>			<b>11</b>
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	11