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INTRODUCTION

- Research landscapes and quality may change in many ways. Much research waste has been increasingly reported. Poorly conducted clinical and biomedical researches are detrimental to the health of the people and healthcare performance with misleading clinical evidence.
- Efforts to improve research performance will need good data on the profiles and performance of past research.

OBJECTIVE

- This systematic review aims to describe the characteristics of clinical and biomedical research in Malaysia.

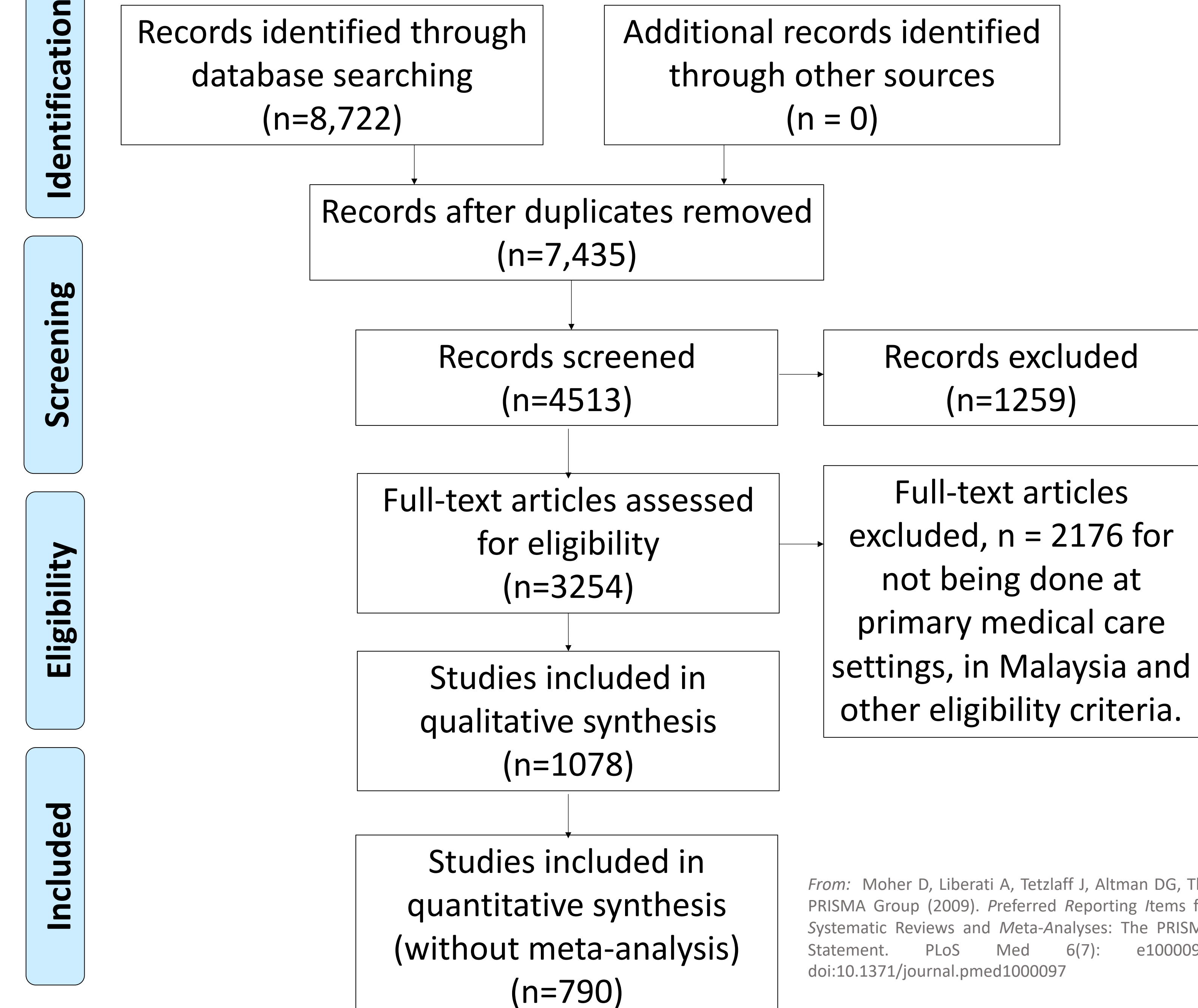
DESIGNS

- Search was conducted on PubMed, EMBASE, CINAHL, PsycINFO and MyMedR (<http://mymedr.afpm.org.my/>) for published research in primary care settings from 1962 to 2019 by Malaysian authors in a Malaysian institution.
- Studies found were independently screened by a team of reviewers, and information was extracted with piloted data form. In this Phase 1, the characteristics of the research, profiles of the researchers and journals in which they are published are reported descriptively.
- Included studies will be assessed of their quality using a newly developed tool as risk of bias in [Phase 2](#). Longitudinal trends of the research characteristics, health conditions studied (International Classification of Primary Care, ICPC-2-R) and settings, among others were explored.

RESULTS

- Out of 4,513 articles, 1078 were included in qualitative synthesis and 790 with complete data were analyzed (**PRISMA Flow Diagram**).
- Clinical (81.9%), primary research (81.1%), quantitative in nature (74.2%) with mostly prevalence studies (67.7%) by cross-sectional sampling (70.4%) were the predominance.

PRISMA Flow Diagram



- The increase in the number of studies, and of these characteristics picked up after year 2000.
- Researchers from family medicine (39.3%) and public health (15.2%) specialties were the main contributors to these articles (**Figure A**).
- Most of the corresponding authors had a Master in Medicine degrees (46.5%) compared to a Doctor of Philosophy (PhD) (24.4%) and a Doctor of Medicine (MD) (5.2%). Researchers with PhD and MD degrees were more likely to conduct interventional studies compared to those with masters (8.0 vs 6.4%, $X^2= 54.26, P= 0.03$).
- Publications were mainly original research (82.8%) in international (48.6%) or local (35%) journals, quite evenly distributed in multidisciplinary (51.6%) and discipline-specific (46.6%) journals.
- The number of authors per article was mostly ≤ 5 (73.6%), and the number of the collaborating institutions were mostly ≤ 3 (82.5%).
- Coauthorship and collaboration with overseas researchers were small but showed significant increasing trend in the last decade (**Figure B**).

Figure A: Number of articles based on specialty of corresponding author

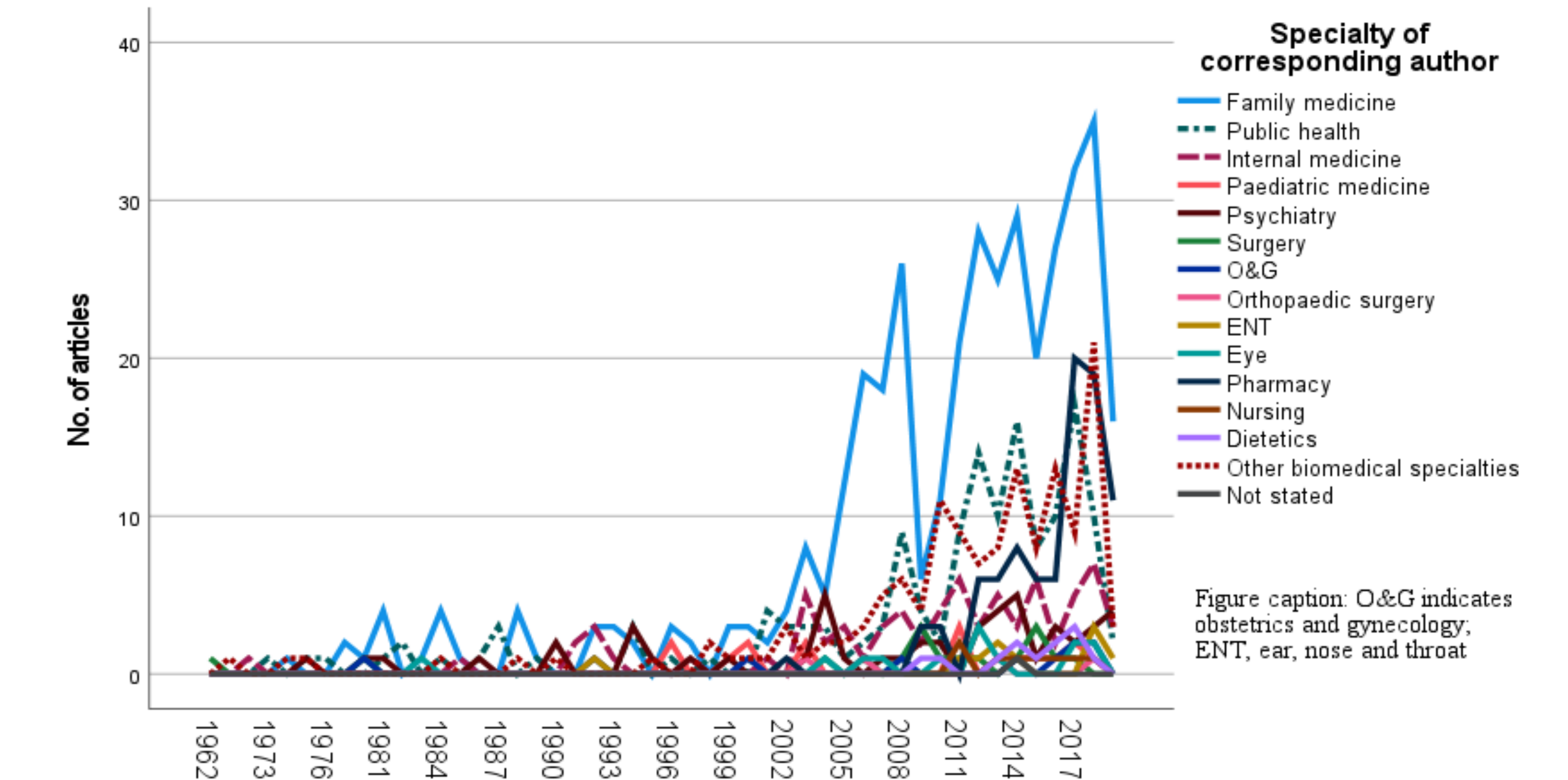
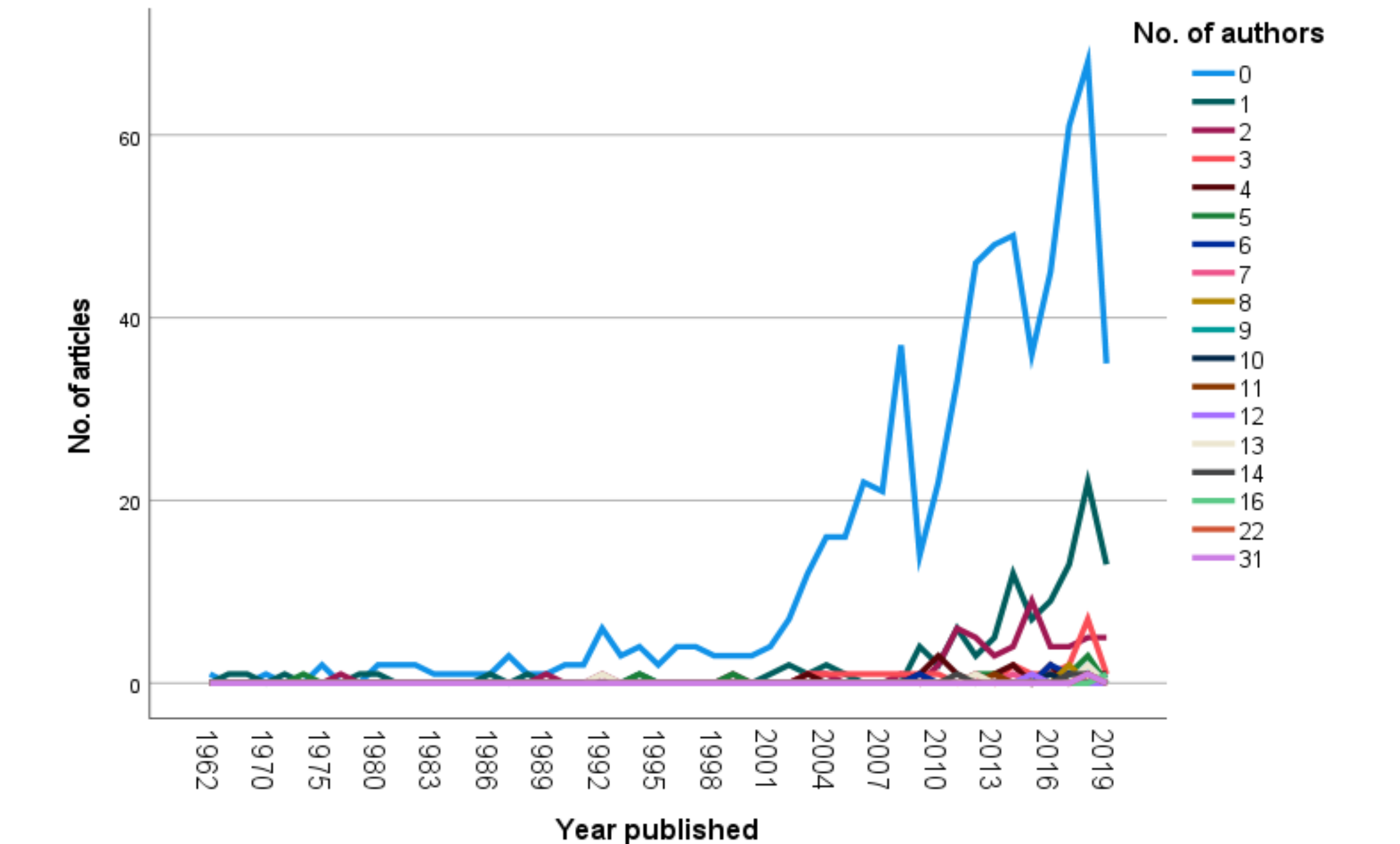


Figure B: Trends of coauthorship



- The top 5 conditions studied were General and unspecified (37.9%), Endocrine, metabolic and nutritional (15.2%), Circulatory (7.8%), Psychological (5.9%) and Respiratory (4.9%).

CONCLUSIONS

- The longitudinal and prospective trends of the research characteristics provided suggestions of improvement initiatives needed for primary care research enterprise in Malaysia.
- This includes trainings on proper use of different study designs, better supportive ecosystem for interventional clinical trials, skills for international research collaboration and strategizing research topics that meet the issues of primary medical care.
- Similar works in other disciplines could be initiated and better conducted with this first experience. Phase 2 is to begin to validate a research quality screening tool based on domains of relevance, credibility of the methods and usefulness of the results.

REFERENCES

- [Data Extraction Form](#) - Medical & Health Sciences Research landscapes
- CRD42020152907 (PROSPERO), https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=152907
- Open Science Framework's registry for Research on the Responsible Conduct of Research, <https://osf.io/w85ce>

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Protocol registration: [CRD42020152907 \(PROSPERO\)](#)