A day with... Equity Methods Group - Mapping health equity: Epistemonikos equity filter

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Plan for today

- Brief introduction to Epistemonikos Living OVerview of Evidence (L·OVE) classification platform
- Equity filter - taxonomy, strategies, algorithms and data reuse
- Challenges and opportunities
LOVE COVID-19: a proof of concept

A repository

A classification platform

Connected with tools and projects
The largest COVID-19 repository

- Systematic methods [https://app.iloveevidence.com/covid19/methods](https://app.iloveevidence.com/covid19/methods)
- Over 550,000 records
- All type of articles
COVID-19 LOVE
Living OVerview of Evidence

- Launched in June 2020
- iloveevidence.com
COVID-19 LOVE
Living OVerview of Evidence

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- iloveevidence.com

Other sources:
- Studies included in reviews
- Relevant COVID-19 websites
- Press release websites
- Twitter searches
- Articles sent by users

A repository of resources:

- PubMed/medline
- EMBASE
- PsycINFO
- LILACS
- Wanfang Database
- Chinese Biomedical Literature Database
- Chinese National Knowledge Infrastructure
- Chinese Scientific Journal Database
- IRIS
- IRIS PAHO
- Índice Bibliográfico Español en Ciencias de la Salud
- Microsoft Academic Lens

Additional sources:

- medRxiv
- bioRxiv
- SSRN Preprints
- ChinaXiv
- SciELO Preprints
- Research Square

ICTRP Search Portal
ClinicalTrials.gov
ISRCTN registry
Chinese Clinical Trial Registry
IRCT - Iranian Registry of Clinical Trials
EU Clinical Trials Register: Clinical trials for covid-19
NIPH Clinical Trials Search
Japan Primary Registries Network
UMIN-CTR - UMIN Clinical Trials Registry
JRCT - Japan Registry of Clinical Trials
JAPIC Clinical Trials Information
Clinical Research Information Service (CRIS)
ANZCTR - Australian New Zealand Clinical Trials
ReBec - Brazilian Clinical Trials Registry
CTR - Clinical Trials Registry - India
RPCEC - Cuban Public Registry of Clinical Trials
DRKS - German Clinical Trials Register
LBCTR - Lebanese Clinical Trials Registry
TCTR - Thai Clinical Trials Registry
NTR - The Netherlands National Trial Register
PACTR - Pan African Clinical Trial Registry
REPEC - Peruvian Clinical Trial Registry
SLCTR - Sri Lanka Clinical Trials Registry
Total number of articles in the COVID-19 L·OVE repository

https://app.iloveevidence.com/covid10/methods
Alternatives to a formal repository

- A repository similar to COVID-19 can be built in days.
- Uploading a file with references (e.g. RIS)
- Connecting another database with L·OVE classification platform also possible.
Classification platform

- Taxonomy
- Boolean strategies
- Algorithm/classifiers (Artificial intelligence and other technologies (classifiers)
- Screening tool
- (human) data reuse
L·OVE map

- **Owned taxonomy to map ‘all possible reviews questions’**: >5,000 terms, covering PICO elements, type of article, research designs and contextual factors

- The platform **automatically combines** the boolean strategies and classifiers for all the terms and sets the screening tool
A classification platform

COVID-19

Masking

Equity filter
Categories

- COVID-19
- Personal protective equipment
- Equity

Add new category

Would you like to reuse votes?

- Reuse votes made by humans
- Reuse automatic votes
Technologies used for classification

- Multiclass classifier for type of article (Deep neural network: XLNet)
- Machine learning or other technologies for each term of the taxonomy
- More than 1 classifier per term (humans solve discrepancies)
<table>
<thead>
<tr>
<th>Type of Article</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>93-100%</td>
</tr>
<tr>
<td>Type of article COVID-19?</td>
<td>94-97%</td>
</tr>
<tr>
<td>Equity and sub-terms</td>
<td>Probably varies for different components: in process</td>
</tr>
</tbody>
</table>
A classification platform

COVID-19

Masking

LMIC
What’s in a term
E.g. LMIC

Countries by income
LMIC
LIC
MIC
Lower-middle
Upper-middle

Countries by region
Africa
Northern Africa
Algeria
Egypt
Libya
Morocco
Sudan
Tunisia
SADR
South Sudan
Mauritania
Sub-Saharan Africa
Eastern Africa
Sudan
Djibouti
Connection with tools and projects

- Screening tool, data extraction forms, systematic review software, etc.
- API and other technologies to connect with specific projects.
Screening tool

From a user perspective:

● Similar to traditional SR screening tools (e.g. Covidence, Rayyan)
● Articles are automatically uploaded based on pre-established strategies
● Search updated with the click of a button
● Information in the platform (reuse of data) can decrease the workload.
● AI and other technologies activated with the click of a button
● Information generated can contribute to the platform (optional)
Connected with tools and projects

Is this reference part of COVID-19?

Yes
No

Is this reference part of COVID-19?

Yes
No
Equity filter
Equity branch of LOVE taxonomy

- Based on PROGRESS-Plus (flexible)
- Similar approach
  - (boolean + reuse of data + technology)
  - Technology performs poorly

Equity considerations
- Place of Residence
- Ethnicity
- Occupation
- Gender/Sex
- Religion
- Socio-economic status and Social capital
- Education
Example Filters

Infectious disease public health emergencies
Search in this LOVE

By PMO
Advanced search

Prevention or treatment
Prevention or treatment
Clear
Diagnostic
Etiology
Epidemiology
Prognosis

Public health
Search
Pharmacological interventions
Physical activity and physical therapy
Procedures
Behavioral interventions
Public health

Select contextual factor
Search

Select population
Search

COVID-19 vaccine hesitancy in the UK: a longitudinal household cross-sectional study.

Year
2022
Journal
BMC public health
Authors
Chaudhuri K et al
DOI
10.1186/s12889-021-12472-3

Adherence to COVID-19 preventive measures among male medical students, Egypt.

Year
2022
Journal
The Journal of the Egyptian Public Health Association
Authors
Ahmed HM
DOI
10.1186/s42506-022-00103-7
Example

**Socio-economic status**

- Equity
  - Place of Residence
- Ethnicity
  - African American People
  - Racism
- Occupation
  - Essential workers
  - Low-income workers
- Gender/Sex
- Religion
- Socio-economic status: Clear
- Social capital
- Education
“Computers are incredibly fast, accurate, and stupid. Human beings are incredibly slow, inaccurate, and brilliant. Together they are powerful beyond imagination.”
Albert Einstein
Thank you for your attention!

Please contact us for further information and how to start working with LOVE

https://iloveevidence.com/
contact@epistemonikos.org