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Medical scientists' career strategies


BRITISH MEDICAL JOURNAL

STREPTOMYCIN TREATMENT OF PULMONARY TUBERCULOSIS

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Motivation - the H-index!

- Individual quantitative performance assessments
  - Intrinsic and extrinsic influences
- Managing a world of performance indicators
  - Often asking the library for assistance
- Misuse of indicators among management: Quick & Dirty bibliometric evaluations

So we decided to examine the career strategies of

- “Successful” h-index researcher vs. “unsuccessful” h-index researcher
  - Where all are full professors

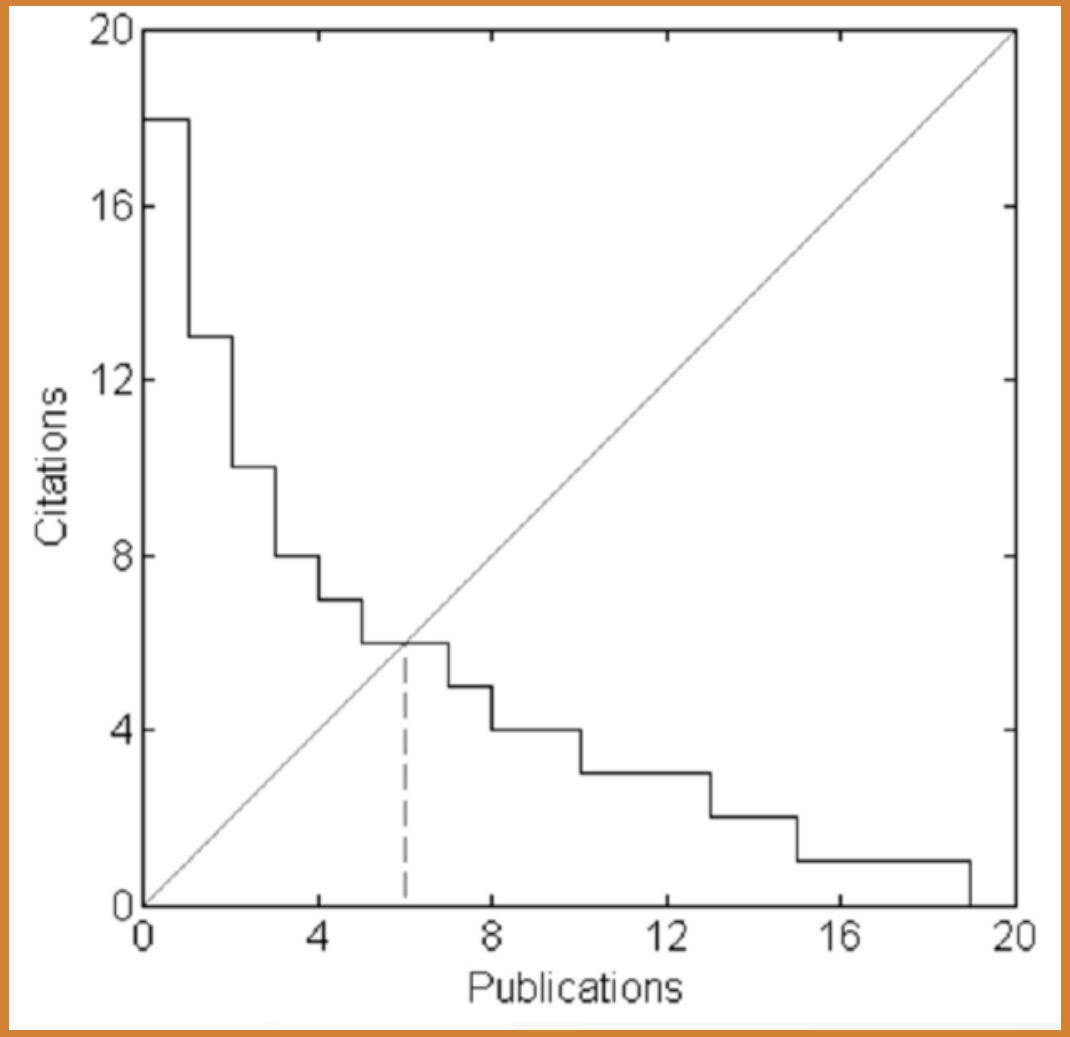
H-index

- **The start of individual metrics**

$$h = \max\{p | p \leq N_p^{cit}\}$$

When proposing the h-Index Hirsch stressed that *it could never give more than a rough approximation to an individual's multifaceted profile*.

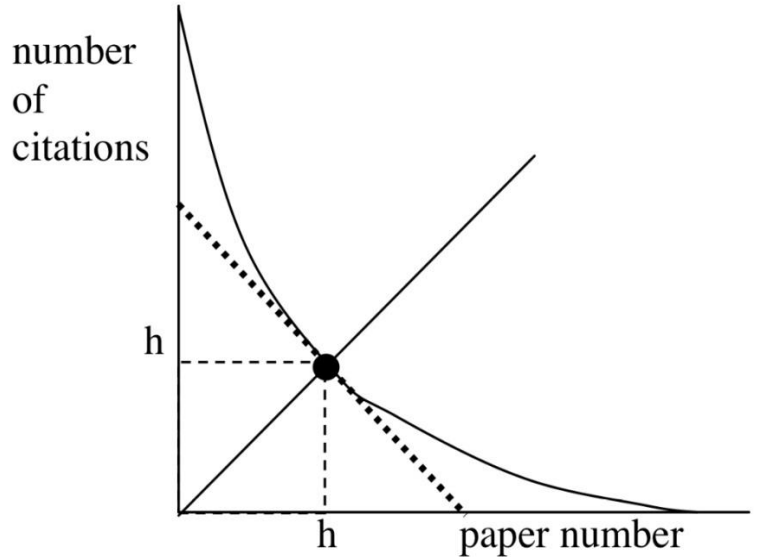
H-index: Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America, 102*(46), 16569-16572.



Efficiency = a

- The h-index is limited by the total number of citations N_{ctot} through Hirsch's first equation, where $a > 1$.
- The squared h cannot be greater than N_C/a.
- $a = 2$ corresponds to the most "efficient" distribution, i.e. a step function resulting from all cited papers being cited h times, while the rest of the papers are not cited at all. $a = 2$ is a straight line.
- Hirsch empirically finds a = 3 – 5 is "normal"

- The lower your a, the higher your h for a given citations record – or a given citation impact



$$N_{c,tot} = ah^2$$

Method

- **Interviews with medical researchers**
- **Quantitative data:** Citations and publications for 75 researchers from the Department of Clinical research (scatter plots)
- Most researchers have an **a** between 3–5, as noted by Hirsch 2005 (for physicists).

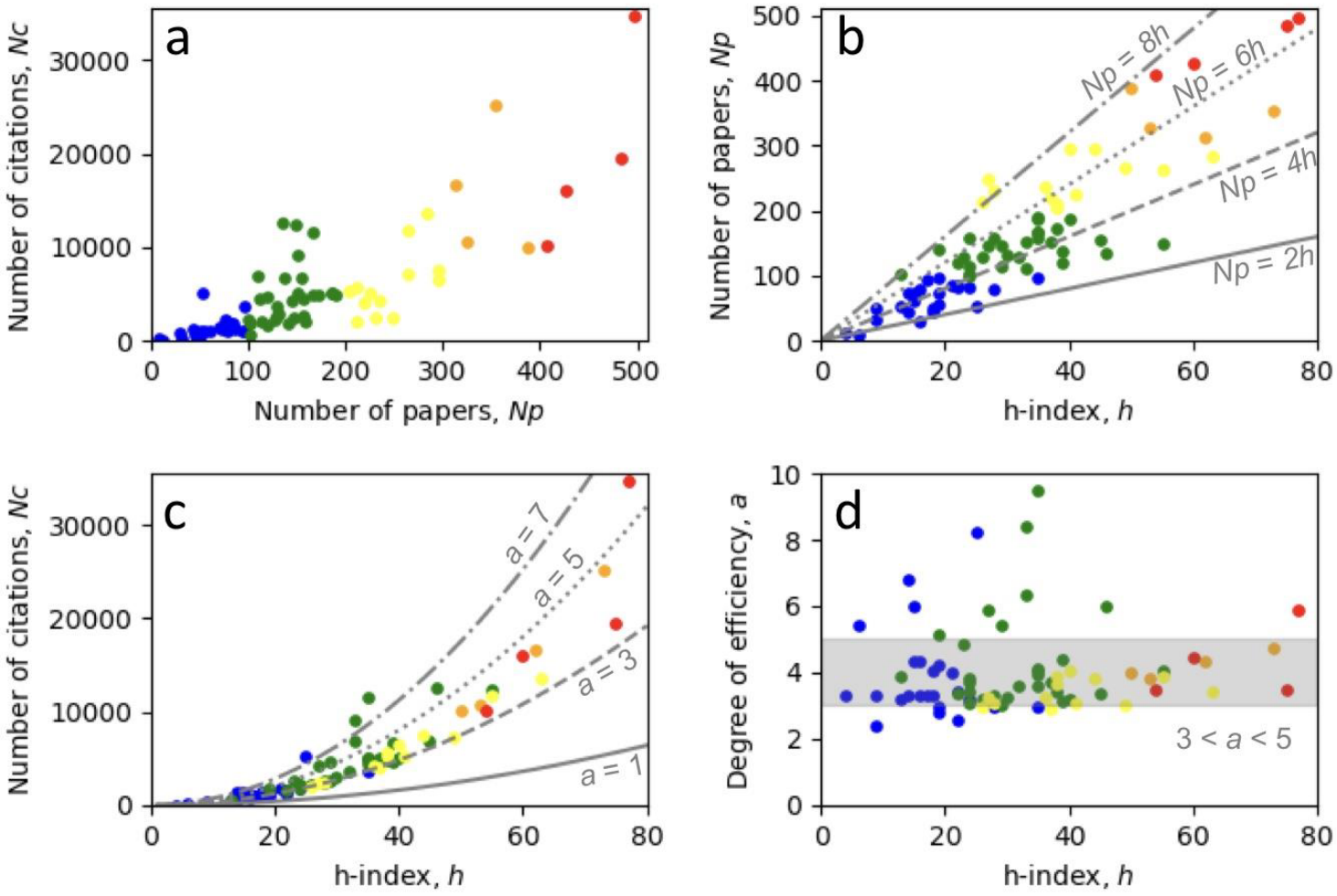


Figure 1. *Publication data of 75 researchers affiliated with the Department of Clinical Research at SDU. (a) Number of citations, Nc, versus the number of papers, Np, of each researcher. (b) Np plotted against the h-index, h, of each researcher. The line represents the Np equal to h. (c) Nc versus h. Each line represents the curve for the degree of efficiency, a. (d) The derived 'a' value of each researcher versus h. The highlighted grey square represents the expected spread of a from 3 to 5, as described in (Hirsch 2005).*

Data: Low and high *h*-index ”performers”

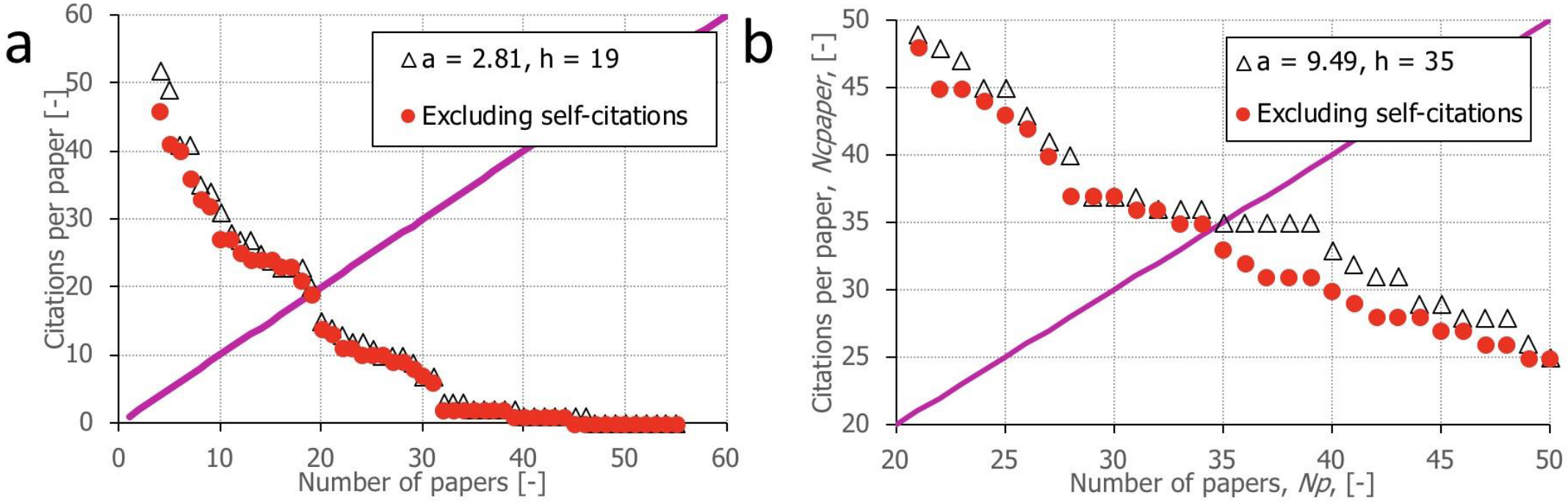


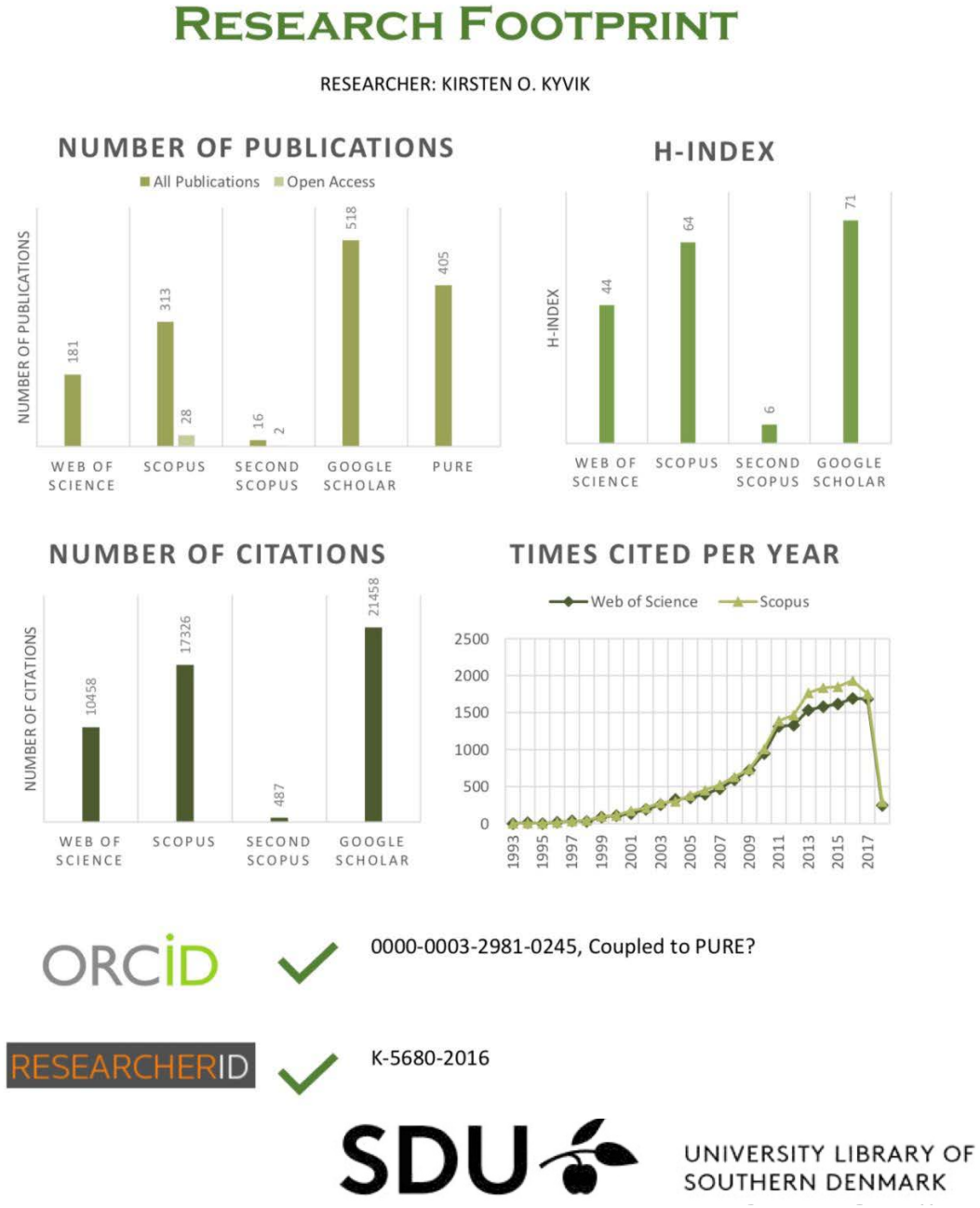
Figure 2. *h-index curves for two outlier researchers. (a) Low a, low h. (b) High a, med h.*

Interviews, ongoing

- Qualitative data, so far: 9 interviews (5 with low a, and 4 with high a researchers) from Clinical Research invited to a recorded interview on their publication strategy

- Method: Each semi-structured interview lasts approx. 10 minutes and are conducted at the office of the interviewees. Interviewees gave oral consent for being recorded.

- Interviewees were offered a ”footprint” of their research for being interviewed

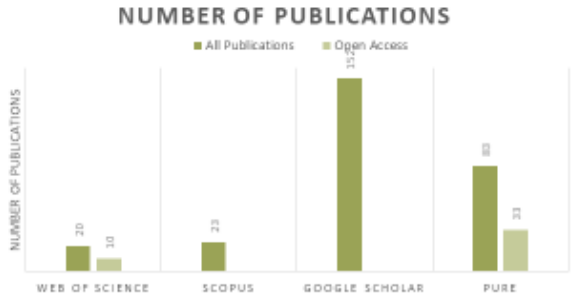


Researcher footprint

- The Research Footprint is generated individually for each researcher.
- A beta document
- Stop fighting the trend by going into opposition
- Educate the researchers about the metrics
- Help them to improve their visibility and the way they are measured
  - ORCID
- Goal to offer alternatives….

RESEARCH FOOTPRINT

Researcher: Søren Bertil Fabricius Dorch



ORCID ✓ 0000-0003-2594-6778

Scopus ✓ Author ID: 6602812157

RESEARCHERID ✓ A-7378-2012

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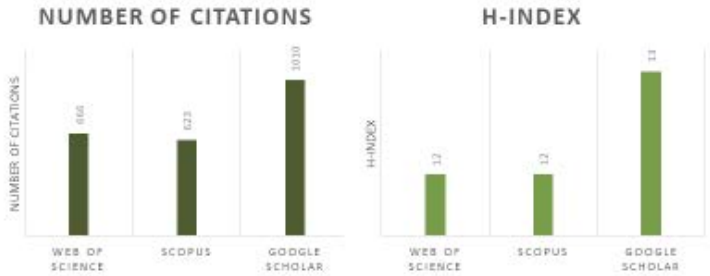
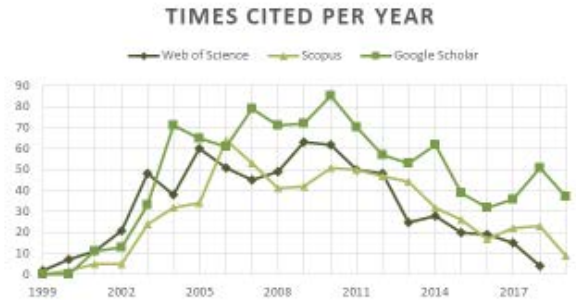
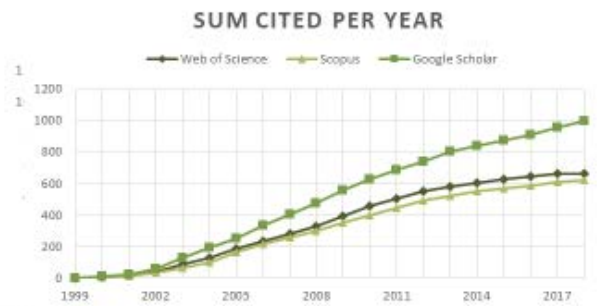
Date: 15-06-2018

Research Impact







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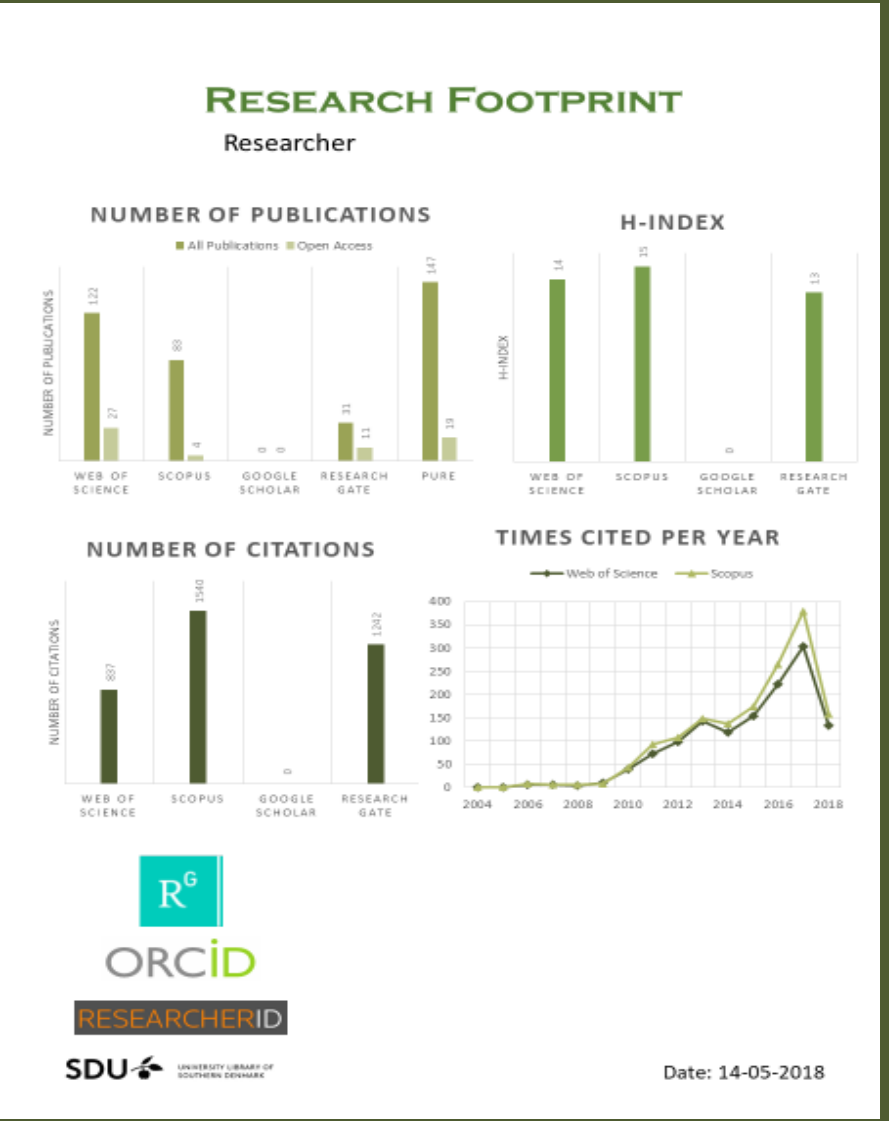
Findings: Medical researchers

- The impact of funding was very visible in the publication and citation curve
- Most did not know or was not concern about the national indicator…. (BFI)
- All was of part of collaborative research
- All have some knowledge about the h-index and JIF
- The lowest h-index was 14
- The more senior professors focused less on the metric - not invented when their career started….



Low a researchers

- **Specialty areas – not general/mainstream research**
- **Journals often have a lower JIF – focus on target audience**
- **Greater focus on practicians**
- **Often in the media**
- **Research has to be published!**
  - Not stay in the drawer

High a researchers

- **General/mainstream research**
  - Cross-discipline application
- **Focus on starting “high” on the journal list**
- **Greater focus on international collaborations**
  - Select collaborators based on their potential
- **Focus on “low volume, high quality”**

Conclusion and discussion

- “Efficient” metric researchers often work with general issues or methodology
- Problematic if narrow/specialty areas becomes less attractive and funded, because of lack of citations
- The “successful” researchers emphasize collaboration with
  - Statisticians
  - Editors
  - “Central” researchers