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Publication date:
2022

Document version:
Final published version

Citation for polished version (APA):
Ahnfeldt-Mollerup, P., Søndergaard, J., & Kristensen, T. (2022). *GPs with High and Low Empathy and Antibiotic Prescribing Behavior*. Poster session presented at Wennberg International Collaborative Meeting, Luzern, Switzerland.

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GPs with High and Low Empathy and Antibiotic Prescribing Behavior

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Background

Physician empathy is a critical part of the physician-patient relationship. It is an important component of GP services and the service culture of health care systems in general. The ability to empathize is heterogeneous and this can influence prescribing behavior. Levels of empathy may be part of the explanation of unwarranted variation in antibiotic prescribing in general practice.

Objective

This study aims to make and compare profiles of personal, professional, and antibiotic prescribing behavior of GPs with the highest and lowest empathy scores.

Methods and data

We applied an extreme group design to identify GPs in the top and bottom decile of empathy. All intra- and inter-profile descriptive statistics and differences were bootstrapped to estimate the variability and related confidence intervals (CIs). We used the Jefferson Scale of Empathy for Health Professionals (JSE-HP) to measure empathy among GPs. The scale is a self-reported psychometric tool that measures cognitive and behavioral empathy by asking practitioners to rate their agreement with 20 statements on a 7-point Likert scale. The JSE-HP scores range from 20 to 140, with higher scores indicating a more empathic behavioral orientation. The survey was sent to 1.196 Danish GP in 2017 including questions regarding characteristics of the GPs according to demographics, practice type, years of experience and jobsatisfaction. Data regarding the GPs' antibiotic drug prescriptions were collected from the Danish National Drug Register from 2017.

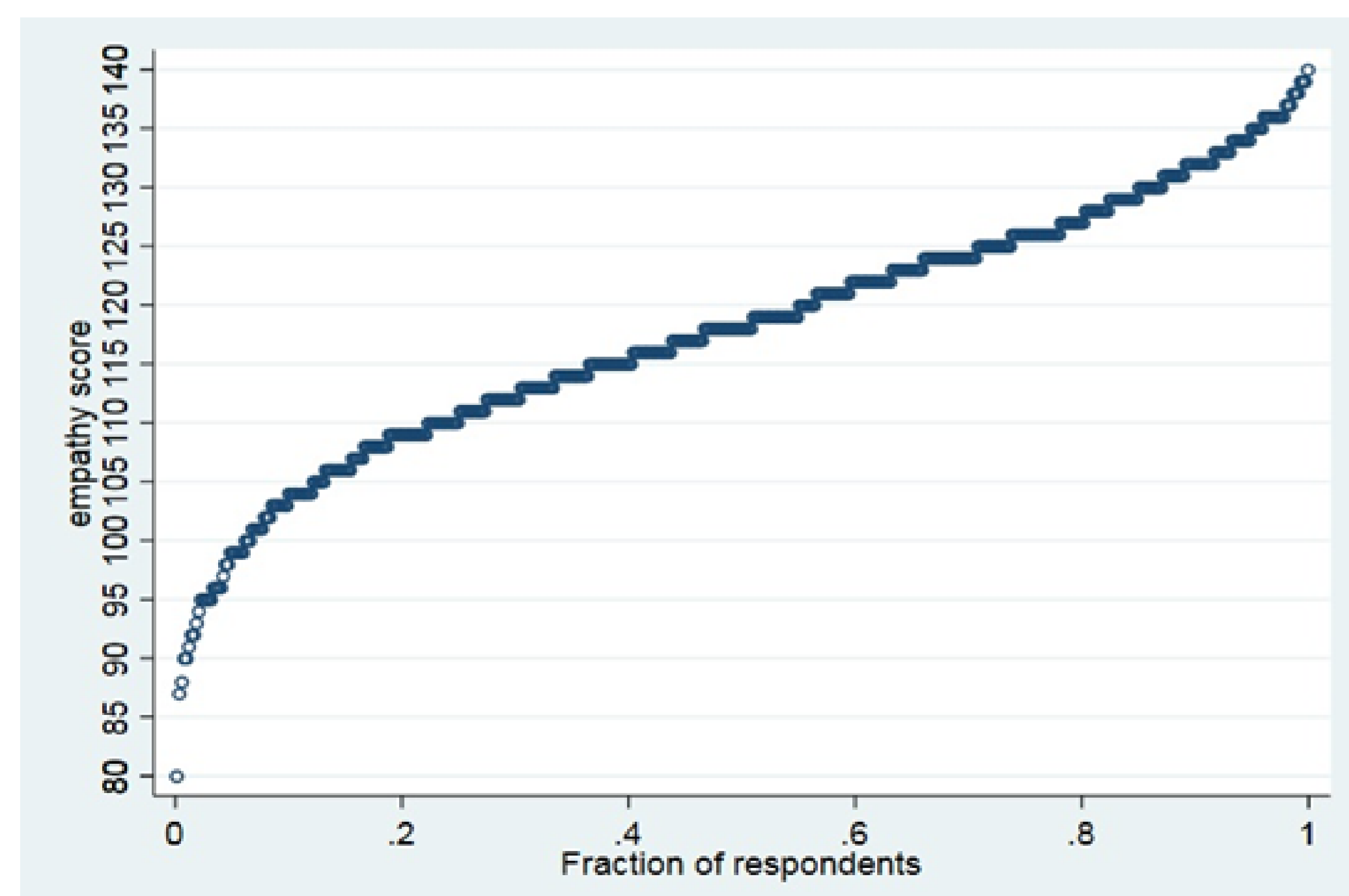
Results

Of the 1.196 GP who received the empathy survey 464 GPs responded (38,8%). The empathy score varied from 80-140 and was skewed to the left (table 1 and figure 1).

In the high empathy group there were more female than male GPs, and they valued more the physician-patient relationship, intellectual stimulation and interaction with colleagues (Table 2). According to GP's total antibiotic prescribing there were no statistical significant

	N	Average	CV	Range
All respondents	464	117.85	0.09	80-140
Top 10th decile	39	135.49	0.015	133-139
Bottom 10th decile	46	97.28	0.052	80-103

Figure 1: Empati score vs respondents



Characteristics	High-empathy GPs † (N=39)				Low-empathy GPs ‡ (N=46)				Group difference measures ^b				
	Mean ^a	[95% CI]	CV	[95% CI]	Mean ^a	[95% CI]	CV	[95% CI]	VI	[95% CI]	Mean Diff	[95% CI]	P-value
Total Empathy Score (20 items)	135.49	[134.41; 136.56]	0.015	[0.011; 0.018]	97.28	[95.04; 99.53]	0.052	[0.037; 0.0647]	1.39	[1.36; 1.43]	38.21	[35.67; 40.73]	<0.0001 ***
Demographics													
Physician Age	56.33	[54.16; 58.51]	0.128	[0.104; 0.153]	55.91	[53.45; 58.37]	0.138	[0.115; 0.161]	1.01	[0.95; 1.07]	0.42	[-2.91; 3.75]	0.7775
Male	38.50%	[23.09; 53.83]			67.40%	[52.6; 8.22]			0.57	[0.30; 0.84]	-0.29	[-0.50; -0.08]	0.0076 **
Female	61.50%	[46.17; 76.91]			32.60%	[17.80; 47.40]			1.89	[0.69; 3.08]	0.29	[0.08; 0.50]	0.0076 **
Practice Type													
Urban	46.20%	[28.28; 63.03]			54.30%	[37.00; 71.71]			0.85	[0.43; 1.27]	-0.08	[-0.33; 0.16]	0.4515
Rural	17.90%	[6.37; 29.53]			15.22%	[3.72; 26.72]			1.18	[-0.74; 3.10]	0.03	[-0.14; 0.19]	0.7351
Mixed Urban/Rural	35.90%	[20.75; 51.05]			30.40%	[15.06; 45.81]			1.18	[-0.34; 2.39]	0.05	[-0.16; 0.27]	0.5934
Partnership	69.20%	[53.62; 84.84]			63.04%	[47.21; 78.88]			1.1	[0.66; 1.54]	0.06	[-0.14; 0.26]	0.5488
Non-Partnership	30.77%	[15.16; 46.48]			37.00%	[21.12; 52.79]			0.83	[0.24; 1.43]	-0.06	[-0.29; 0.16]	0.5488
Experience													
Years since GP specialization A62	20.82	[18.48; 23.16]	0.365	[0.289; 0.440]	20.41	[17.81; 23.01]	0.407	[0.326; 0.487]	1.02	[0.85; 1.19]	0.41	[-3.17; 3.98]	0.8702
Years in present practice A5	17.62	[15.04; 20.19]	0.488	[0.388; 0.587]	18.87	[13.47; 24.27]	0.963	[0.414; 1.511]	0.93	[0.64; 1.23]	-1.25	[-7.52; 5.02]	0.6556
Job Satisfaction													
Satisfied	87.20%	[77.05; 97.30]			71.74%	[58.50; 84.98]			1.22	[0.95; 1.48]	0.15	[-0.01; 0.32]	0.0825
Neutral	10.26%	[1.30; 19.22]			15.22%	[3.51; 26.93]			0.68	[-0.45; 1.80]	-0.05	[0.20; 0.10]	0.4971
Unsatisfied	2.56%	[-4.06; 9.18]			13.04%	[3.51; 22.58]			0.2	[-1.08; 1.47]	-0.10	[-0.23; 0.015]	0.0799
Contribution of medical Practice factors to Job Satisfaction^c													
Physician-patient relationship	6.69	[6.51; 6.87]	0.092	[0.049; 0.134]	5.59	[5.33; 5.84]	0.139	[0.1065; 0.172]	1.2	[1.13; 1.26]	1.11	[0.78; 1.42]	<0.0001 ***
Intellectual stimulation	6.21	[5.93; 6.48]	0.134	[0.105; 0.164]	5.04	[4.76; 5.33]	0.191	[0.131; 0.252]	1.23	[1.15; 1.31]	1.16	[0.76; 1.56]	<0.0001 ***
Interaction with colleagues	6.03	[5.63; 6.42]	0.200	[0.137; 0.262]	4.70	[4.25; 5.14]	0.307	[0.227; 0.388]	1.28	[1.14; 1.43]	1.33	[0.74; 1.92]	<0.0001 ***
Economic profit	5.13	[4.74; 5.52]	0.242	[0.173; 0.310]	4.76	[4.42; 5.10]	0.235	[0.183; 0.287]	1.08	[0.97; 1.19]	0.37	[-0.16; 0.89]	0.1377
Prestige	3.74	[3.27; 4.22]	0.410	[0.333; 0.486]	3.78	[3.42; 4.14]	0.320	[0.228; 0.412]	0.99	[0.83; 1.15]	-0.04	[-0.65; 0.57]	0.5055

Antibiotic category:	High-empathy GPs † (N=39)				Low-empathy GPs ‡ (N=46)				Group difference measures				
	Mean	[95% CI]	CV	[95% CI]	Mean	[95% CI]	CV	[95% CI]	VI	[95% CI]	Mean	[95% CI]	Ranksum ^b
Penicillins:													
Extended spec. J01CA	108.77	[92.35; 125.19]	0.48	[0.34; 0.61]	136.87	[115.72; 158.02]	0.50	[0.39; 0.61]	0.79	[0.62; 0.97]	-28.10	[-54.61; -1.59]	0.0249*
Beta-lactamase sensitive (N) J01CE	111.92	[95.78; 128.07]	0.45	[0.33; 0.56]	158.24	[127.15; 189.33]	0.63	[0.50; 0.76]	0.71	[0.53; 0.88]	-46.32	[-81.42; -11.22]	0.0364*
Beta-lactamase resistant (N) J01CF	32.95	[26.67; 39.22]	0.57	[0.36; 0.78]	46.98	[38.75; 55.21]	0.56	[0.42; 0.71]	0.70	[0.51; 0.90]	-14.03	[-24.52; -3.54]	0.0019**
Combinations with beta lactamase inhibitors (B) J01CR													
All penicillins: J01C	274.21	[237.76; 310.65]	0.41	[0.30; 0.52]	366.46	[310.21; 422.71]	0.50	[0.39; 0.61]	0.75	[0.59; 0.91]	-92.25	[-159.53; -24.97]	0.0047**
Other antibiotics:													
Tetracyclines (B) J01A	15.77	[11.81; 19.73]	0.83	[0.60; 1.06]	14.30	[10.26; 18.35]	0.92	[0.62; 1.22]	1.10	[0.67; 1.53]	1.46	[-4.28; 7.21]	0.4933
Cephalosporins J01D	0.13	[-0.01; 0.27]	3.66	[1.37; 5.94]	0.13	[0.02; 0.24]	3.07	[1.11; 5.03]	0.98	[-1.71; 3.68]	-0.00	[-0.18; 0.17]	0.6553
Sulfonamides J01E	42.64	[33.24; 52.04]	0.71	[0.57; 0.86]	41.00	[31.67; 50.33]	0.75	[0.59; 0.91]	1.04	[0.68; 1.40]	1.64	[-11.96; 15.24]	0.7843
Macrolides (B) J01F	63.26	[46.24; 80.27]	0.87	[0.57; 1.16]	71.28	[51.55; 91.02]	0.90	[0.68; 1.13]	0.89	[0.53; 1.25]	-8.03	[-34.59; 18.54]	0.524
Quinalones (B) J01M	18.18	[12.08; 24.28]	1.10	[0.80; 1.40]	22.09	[15.17; 29.00]	0.97	[0.77; 1.18]	0.82	[0.43; 1.22]	-3.91	[-13.28; 5.46]	0.3021
Other antibiotics J01X	13.87	[9.31; 18.44]	1.07	[0.84; 1.31]	13.74	[8.66; 18.81]	1.15	[0.74; 1.56]	1.01	[0.51; 1.51]	0.13	[-6.71; 6.98]	0.846
All other antibiotics	153.85	[120.77; 186.93]	0.70	[0.50; 0.90]	162.54	[126.53; 198.55]	0.71	[0.57; 0.86]	0.95	[0.64; 1.25]	-8.69	[-58.83; 1.43]	0.88
Antimycotica, J02	36.95	[29.48; 44.42]	0.66	[0.52; 0.80]	38.04	[29.94; 46.15]	0.68	[0.49; 0.87]	0.97	[0.68; 1.26]	-1.09	[-11.90; 9.71]	0.7871
Total all antibiotics:	427.97	[366.07; 489.88]	0.46	[0.37; 0.56]	528.78	[443.46; 614.11]	0.52	[0.42; 0.63]	0.81	[0.63; 0.99]	-100.81	[-207.84; 6.201]	0.0643
Narrow spectrum (NS)	264.59	[223.92; 305.26]	0.49	[0.38; 0.60]	331.07	[273.35; 388.78]	0.57	[0.44; 0.69]	0.80	[0.61; 0.99]	-66.48	[-138.16; 5.21]	0.1078
Broad spectrum (BS)	163.38	[138.94; 187.82]	0.48	[0.37; 0.56]	197.72	[167.08; 228.36]	0.50	[0.41; 0.64]	0.83	[0.64; 1.01]	-34.33	[-73.89; 5.23]	0.0751

difference, but there was a trend showing that GP's with high empathy prescribed less antibiotics than low empathy GP's. However, there was a significant difference according to prescription of penicillins.

expectations rather than spend time explaining the rationale for not prescribing antibiotics. Overall, this potential link may be for the benefit of patients served by high empathy GPs. For instance, in terms of lower drug costs and fewer resistant bacteria.

Discussion

GPs with a degree of empathy may prescribe less penicillin as they take better time to explain and meet the patient's fears and expectations as well as put the patient's infection in an ecological perspective. However, it should be noticed that a range of other reasons for GPs to prescribe antibiotics could contribute to explain the difference, e.g., the morbidity burden among patients, limited consultation time, preserving GP-patient relationships, inability to effectively negotiate or explain about antibiotics. Most of the latter could be related to the level of empathy. For instance, a low-empathy GP may prescribe unnecessary antibiotics because it is easier for the GP to follow a patient's request and

Conclusion

This study reveals that high empathy GPs may have different personal and professional characteristics than low empathy GPs. Furthermore, person-centered high empathy GPs on average seem to prescribe less penicillins than low empathy GPs.

Reference: Charles JA, Ahnfeldt-Møllerup P, Søndergaard J, Kristensen T. 2018. Empathy Variation in General Practice: A survey among General Practitioners in Denmark. International Journal of Environmental Research and Public Health.



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