

Evolution of students' empathy during medical studies and association with students' characteristics



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Background

Empathy is an essential competence for clinical practice. Studies assessing the acquisition of empathy skills by medical students showed controversial results. Questions remain on how empathy is measured and on the relationship between empathy skills and individual characteristics.

Research questions:

- How do JSE and EQ scores change during preclinical years?
- How do personal characteristics correlate with those potential changes?

Aims

- Compare empathy scores between two different instruments
- Analyze the evolution of medical students' empathy scores over time
- Examine the correlations between empathy scores and individual characteristics

Methods

Design: Observational longitudinal study.

Population: 355 1st year students from a cohort constitutes the baseline of the study. A follow-up of 134 4th year students agreed to complete questionnaires while in 1st and 4th year of medical studies at the University of Geneva (on a 6th years curriculum).

Instruments:

- 1) Jefferson Scale of Student Empathy (JSE-S): cognitive empathy
- 2) Empathy Quotient (EQ): cognitive empathy, emotional reactivity, social skills
- 3) Personality (NEO): five personality traits.
- 4) Stress coping (CISS): coping strategies.

Statistical analyses: means, repeated measures ANOVA and Pearson's correlations, further stratified by sex.

Summary of results

- A moderate but significant correlation was found between JSE and EQ.
- The correlations between empathy scores and year of study showed statistical significance for both tests (JSE and EQ), but the correlation with sex was significant only for JSE.
- Compared with baseline, contrasted results were observed at follow-up for JSE and EQ. While JSE increased over time, the EQ scores significantly decreased between years 1 and 4.
- Significant correlations were found between scores of the two empathy instruments (JSE and EQ) and all personality dimensions measured by the NEO-FFI, except for Neuroticism.
- Empathy scores correlated less impressively with Stress coping strategies (CISS), being significant only for Task coping.

Discussion

- Although JSE and EQ show similar correlations with personality traits and stress coping strategies, they do not evolve the same way during the pre-clinical years. This raises questions about what exactly is measured by the JSE and EQ empathy tests. Therefore, further investigations on the sub-dimensions of these tests are needed.
- Longer follow-up cohort studies are needed to assess how JSE and EQ scores evolve during the clinical years.
- Concerning the relationship between empathy and personality traits, results of this study showing significant correlations between JSE and Agreeableness are in line with the literature. However, this study expands showing that it is also valid for EQ.
- Gender differences previously reported for JSE scores were not consistently confirmed when using another measure instrument such as the EQ.

Conclusion

In this cohort study, the comparison between two instruments measuring empathy during pre-clinical years (JSE and EQ) showed contrasted results, and may raise questions about the specificities measured by each of these tests. On the other hand, empathy correlates significantly with most personality traits, independently of the instrument used to measure it.

Take-Home message

The contrasted results observed when assessing empathy with two different instruments might be related to the complementarities found in their content, thus justifying a more comprehensive approach.

Results

Table 1. Overall results of main variables at baseline (year 1)

	All (n=355)	Men (n=123)	Women (n=232)
JSE-S, mean±SD	111.24 (± 10.01)	107.65 (±11.16)	114.03(±8.10)
EQ, mean±SD	45.30 (±8.29)	44.61 (±9.33)	45.75 (±7.58)
NEO-N, mean±SD	22.05 (±8.30)	18.25(±7.27)	24.15 (±8.21)
NEO-E, mean±SD	29.35 (±5.24)	28.72(±4.84)	29.70 (± 5.44)
NEO-O, mean±SD	29.95(±6.12)	30.94 (±5.79)	29.39(±6.23)
NEO-A, mean±SD	29.10 (±5.02)	27.96 (±5.75)	29.73(±4.46)
NEO-C, mean±SD	33.76(±6.85)	33.55 (±7.30)	33.88(±6.61)
CISS-T, mean±SD	61.93 (±8.76)	63.12(±8.66)	61.27 (±8.77)
CISS-E, mean±SD	43.60 (±11.04)	38.96(±9.01)	46.19(± 8.77)
CISS-Av, mean±SD	44.46 (±9.29)	41.72(±9.31)	45.99(±9.29)

JSE-S: Jefferson Scale of Students Empathy; EQ: Empathy Quotient;

NEO Five factor Inventory N: neuroticism; E: extraversion; O: openness; A: agreeableness; C: conscientiousness;

CISS: Coping Inventory for Stressful Situations; T: task; E: emotion; Av: avoidment

Table 2: Gender and year of study effect on JSE and EQ scores

ANOVA Repeated measures	JSE	EQ
Gender	0.004*	0.158
Year of study	0.001**	0.015*
Gender x Year of study	0.372	0.319

Figures 1a,b: Evolution of JSE and EQ scores between 1st and 4th year medical studies

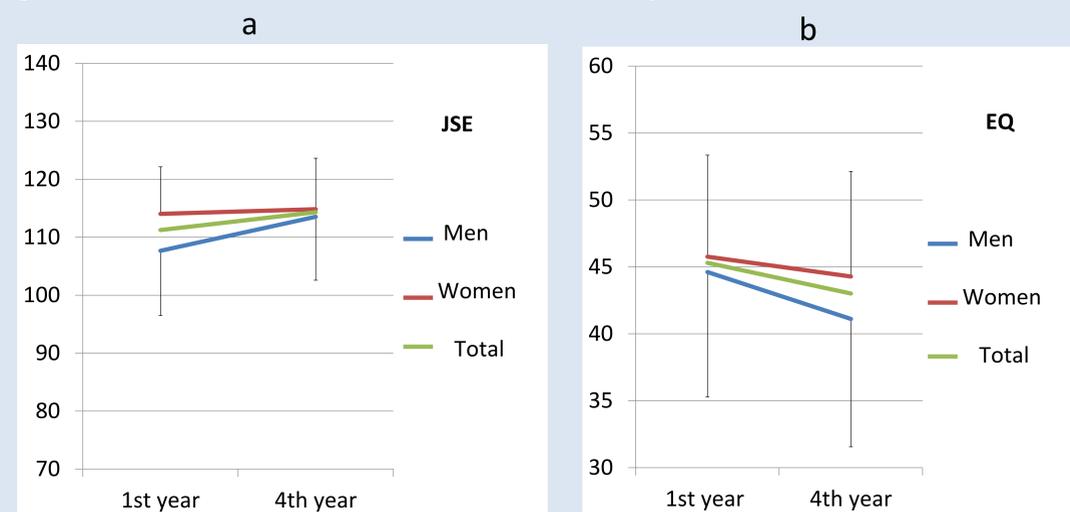


Table 3: Correlations between JSE and EQ at the 1st year of medical studies and personal characteristics

		Correlations								JSE	EQ
		N	E	O	A	C	T	Em	Avoid.		
JSE	Correlat.	-.067	.191**	.188**	.207**	.158**	.157**	.038	.058	1	.301**
	Sig.	.274	.002	.002	.001	.010	.009	.534	.341		.000
EQ	Correlat.	.015	.147*	.143*	.302**	.273**	.235**	-.024	.032	.301**	1
	Sig.	.826	.027	.031	.000	.000	.000	.720	.630	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

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