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Can Visual Thinking Strategies training develop medical student empathy?

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BACKGROUND

Empathy in the context of medical education is frequently defined as a cognitive attribute that involves an understanding of patients' experiences and perspectives, including a motivation and capacity to act on this understanding to safeguard patient-centred care. Interventions aiming at developing medical students' cognitive empathy have been developed. Here we hypothesise that participation in a Visual Thinking Strategies (VTS) course will improve psychometrically assessed cognitive empathy in medical students, and that this change in empathy will be mediated by students' personality traits.

MATERIALS AND METHODS

Using a non-controlled pre-post design, 2nd year medical students at an Irish medical school completed the NEO Five-Factor Inventory (NEO-FFI-3), based on five factor model of personality, and both the Jefferson Scale of Physician Empathy (JSPE) and the Empathy Quotient (EQ). All students were scheduled for three weekly

sessions of VTS. All received an initial hour-long introductory lecture; each student then had two small-group VTS sessions with a maximum of 12 students per group. Age, gender and VTS session attendance were recorded. Descriptive and correlational analysis was carried out to compare empathy levels with personality factors. The Wilcoxon signed rank test was used to compare empathy levels before and after completion of the VTS programme. Linear regression was used to examine relationship between personality traits and pre- vs post-VTS empathy levels.

RESULTS

89 students completed the pre-course baseline measurements, and 78.7% (70/89) completed post-course questionnaires. We found a statistically significant pre-post increase in the "Standing in the Patient's Shoes" JSPE sub-scale scores ($P < 0.001$) and the "Social skills" EQ sub-scale ($P < 0.001$). Baseline data showed weak-moderate correlations ($rs = 0.25$-0.62) between both JSPE and EQ scores and extraversion, openness to experience, conscientiousness, and agreeableness personality dimensions. There was no significant interaction between personality traits and pre-post VTS course empathy differences.

DISCUSSION

Employing a pre-post study design, we show that participation in a VTS module enhances self-reported empathy as measured by the "Standing in the patient's shoes" JSPE sub-scale and the "social skills" EQ sub-scale scores measured within a 1 week period following the end of training. At pre-course baseline, JSPE and EQ measures were weakly to moderately correlated with all personality dimensions (extraversion, agreeableness, openness to experience, conscientiousness), except for neuroticism. However, personality was unrelated to the observed pre-post VTS changes in empathy measurements.

These results are consistent with a recently published manuscript which examined the relationship between personality traits and changes in empathy among fourth year medical students following participation in Balint groups (Airagnes et al, 2017). These authors had previously shown that Balint group participation, a structured

and facilitated discussion where participants share and react to a case presentation with the emphasis on the emotional content of the doctor-patient relationships, showed improvement across some (but not all) empathy measures (Airagnes et al, 2014). In their later study, a randomised controlled trial, they also observed a modest but significant improvement in Jefferson empathy scale scores following participation in Balint groups, at 3-months post-intervention (Airagnes et al., 2017). Using the Big Five Inventory of personality traits, they also observed, at baseline, a relationship between JSPE scores, and Agreeableness, Openness, and Neuroticism, partially congruent with our own findings. However, they too failed to show any association between personality traits and post-intervention changes, which might reflect either the absence of a strong moderating influence, or possibly the influence of other moderator or repressor variables.

The reported improvement in scores on the JSPE "Standing in the patient's Shoes" sub-scale suggest a change in attitudes towards the value and challenges of viewing things from the patient's perspective (separate from the less patient-focused "perspective taking" subscale). This finding is in line with the suggestion that VTS participation may facilitate imaginative perspective-taking processes (Keogh et al, 2020; Choi et al, 2022). The EQ "Social skills" is a less specific measure of presence and context-independent use of social skills, and the current results supports the relationship between VTS and person-centered communication skills (Aspden et al, 2022). Future research should assess whether these changes persist over time, bearing in mind that the present study only examined short-term changes in empathy.

CONCLUSION

Participation in a VTS module was associated with short-term improvement in selected aspects of self-reported cognitive empathy, in a manner independent of baseline personality traits. This non-controlled pre-post study adds to the evidence supporting empathy promoting interventions for medical students based on visual arts-based teaching. It also demonstrates that personality traits of student

participants represent neither a barrier nor a facilitator with respect to the efficacy of this approach.

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