Effects of micro- and subtle-expression reading skill training in medical students: A randomized trial

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ABSTRACT

Objective: to investigate the effectiveness of the Micro Expression Training Tool (METT) and the Subtle Expression Training Tool (SETT) to help improve the non-verbal communication skills of medical students.
Methods: In a randomized controlled trial, all participants were randomly allocated to either a training (n = 41) or control group (n = 41) and were pre-tested before education with METT and SETT at baseline. Then, training students took second tests after a 1-h class about interpreting micro and subtle expressions and control students took the second tests without the class.
Results: METT pre-test scores were positively related with female gender, agreeableness, whereas SETT pre-test scores were negatively related with age and positively related with female gender. Mean METT score increases of 29.3% and mean SETT score increases of 36.2% were observed after training, whereas the control group achieved only a mean METT score increase of 11.0% at second testing. Increases in both test scores in the training group were significantly higher than in the control group.
Conclusion: METT and SETT are effective, simple tools for improving the micro- and subtle-expression reading skills of medical students.
Practice implications: METT and SETT can be effective for improving the non-verbal communication skills of medical students.

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1. Introduction

Empathy is the ability to identify and understand the feelings and emotions of others, and in physicians, empathy-building improves patient outcomes and reduces complaints about medical services [1,2]. Furthermore, enhanced physician-patient rapport through empathy has been reported to reduce physician stress and burnout [3]. Therefore, communication skill training and education aimed at improving empathy are indispensable for preparing medical students to be good doctors [4,5].

There are two basic categories of communication: verbal and non-verbal, and non-verbal skills may have greater effects on patient trust and satisfaction with medical services [6]. A patient-doctor communication skills model that includes understanding of patient's perspective has been developed [7], but the time allowed within medical curricula for teaching and reinforcing non-verbal communication skills is insufficient. Non-verbal communication, which includes micro expression, are strong and brief facial expressions that last only between 1/15 and 1/24 of a second, and betray true emotions [8]. A previous study reported that brief empathy training modules, such as, the Ekman test, improve the facial decoding abilities of resident physicians, although only 14 pictures was used for micro expression training and exposure times per face were not controlled. Furthermore, the greater the ability of residents and fellows to read subtle facial expressions, the higher patients rank empathy [9,10]

The micro expression training tool (METT) and the subtle expression training tool (SETT) were devised as facial expression training programs. METT is a training module that improves ability to spot short facial expressions, whereas SETT focuses on recognizing small movements of face apparent when a person is trying to deliberately or unconsciously control a strong emotion

[11]. A previous study conducted on medical students reported that only students in the top 25% of their class showed improvements in ability to recognize micro expressions as determined METT [6]. Another study showed university students with higher emotional lie detection accuracies had higher SETT scores except METT scores [12], indicating that both METT and SETT are needed for micro expression training.

Academic achievement and clinical performance capacity are known to be correlated with personality [13,14]. However, to the best of our knowledge, little or no research has been performed to understand the relation between ability to recognize micro expressions and personality or the differential effects of METT and SETT on different personalities. Also until now, no double blinded experimental studies have examined the effect of METT and SETT training in medical students.

We hypothesized a micro and subtle expression training program would significantly improve METT and SETT scores, and that these scores might be linked to gender and personality traits in medical students. Thus, we evaluated the efficacy of METT and SETT training on the micro and subtle expression reading abilities of medical students.

2. Methods

2.1. Study subjects and design

A randomized controlled trial was conducted on two groups of medical students of Pusan National University School of Medicine in the second semester 2013. The first group (cases, training) had passed METT and SETT skills training course, and the second group (control) had no training. A total of 82 first and second year medical students of Pusan National University School of Medicine (participation rate, 33.6%) were randomly allocated to either a training (n = 41) or control group (n = 41) (Fig. 1). The students were unaware of the results of randomization and were blinded to the results of pre- or post-tests. METT and SETT skills training course was conducted by a researcher who was not aware of the randomization of the students. Medical students were informed they would be randomized into a study comparing non-verbal communication skills training versus no training. The success of the randomization process was confirmed by data showing no difference of baseline characteristics and pre-tests scores between the two groups. The study was registered in clinicaltrials.gov NCT02601118

At baseline, all participants were pre-tested before education with METT and SETT displayed on a liquid crystal display (LCD) projector in their classroom, and METT and SETT scores were then calculated. During the tests, subjects all were not allowed to refer to any resources. The 41 members of the training group then underwent exercises using pictures of facial affects (POFAs) and received a handout of 7 facial expressions over a period of 1-h. In addition, they were shown a short video clip (3 min), which including SETT example questions. Participants in the control group did not receive training. One week later, participants were again to complete METT and SETT tests, for which test pictures were projected onto a large screen using a LCD projector. The post-test questions were totally different from those used in the pre-test session, and none of pictures used during training were presented during the METT and SETT post-test session. All participants were also asked to complete the Newcastle Personality Assessor (NPA) small questionnaire after post-test sessions.

The study was approved by the Institutional Review Board at Pusan National University Yangsan Hospital (IRB No. I-2015-1016). The participants were informed about our aims in the study and their written consent was obtained prior to the administration of the study.

2.2. Assessment tools

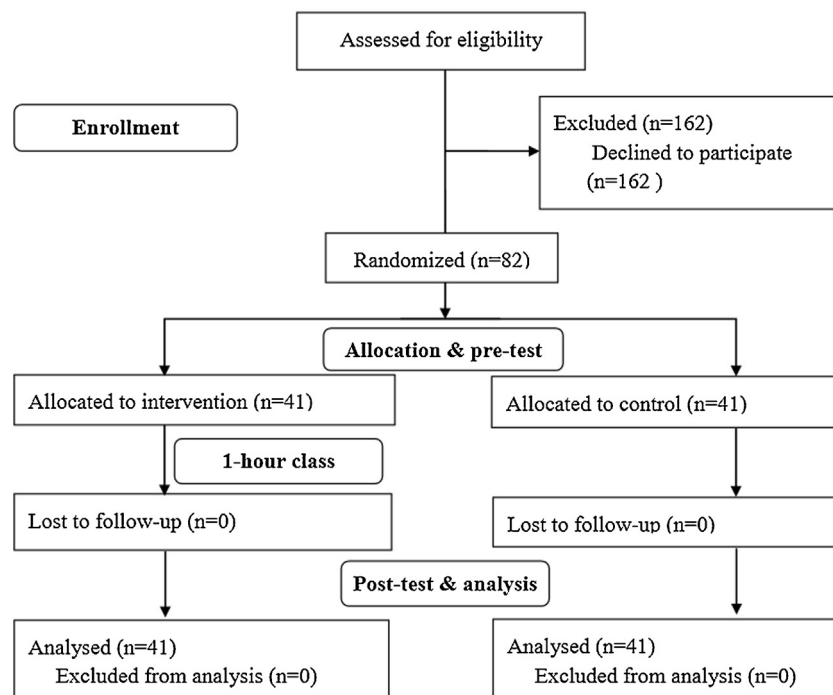METT 3.0/SETT 3.0Combo and POFA were purchased from Paul Ekman's website (www.paulekman.com).

Fig. 1. CONSORT flow diagram.