

Cognitive Empathy in Healthcare Through Use of Reading The Mind in the Eyes Test

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Introduction

The ability of a physical therapist to reciprocate the emotions of their client is linked to improved patient outcomes.¹ Current literature focuses on medical students and highlights an inverse relationship between cognitive empathy and a student's respective year in medical school.^{1,6} There is limited research on the level of cognitive empathy possessed by PTs as they progress through their careers.¹

Newman et al.¹ found improvements in the patient's perception of a clinician's accuracy in environments that promote a more communicative relationship. Additionally, patient's participation, compliance, satisfaction, enablement, pain control, heart rate, respiratory rate, and quality of life are improved while emotional distress and anxiety markedly decrease in these environments.¹⁻³ Lastly, a strong patient-practitioner relationship combats clinician burnout by enhancing self-awareness while providing a meaningful understanding of the client's individual needs.³

Baron-Cohen's "Reading the Mind in the Eyes test" (RMET) is a validated tool that measures a participant's capacity to determine the emotional status of others through partial facial recognition.⁴ Vellante et al.⁵ compared the RMET to other well-known empathy measures and those who scored lower on the EQ similarly scored lower on the RMET.

Objectives

The purpose of the present study is to explore the relationship between PTs and how their cognitive empathy scores change over time using the RMET.

The research study aimed to answer the following research question:

Does cognitive empathy, as scored by the Reading the Mind in the Eyes (RMET), change over time in current clinically practicing physical therapists?

Methods

A cross-sectional, descriptive design with quantitative methods research study which utilizing SurveyMonkey® platform.

Demographic information, including age, sex, graduation date from entry-level PT program, highest PT degree earned, PT practice setting, primary profession, number of years of active practice, and employment status were collected via closed-ended response questions which used pre-selected multiple-choice answers or visual sliding scales.

Participants were shown a series of emotionally charged or neutral photographs of the eye region of unique human faces with four specific mental-state descriptor words listed in the corners of each photograph with a corresponding number representing a word. Participants selected the word that best corresponded to the emotion seen in the photographs and recorded their responses by typing the representative number in a text box.

Results

No statistically significant correlation was found between years of practice as a PT and total score on the Reading the Mind in the Eyes test (RMET). The correlation between years of practice and total RMET score was $-.209$ ($p=.051$).

A preliminary review of the literature suggested that there may be a correlation between other demographic variables and RMET score.^{5,6} This alternative hypothesis was tested by examining the potential effects of age, sex, PT degree earned, year of graduation, PT practice setting, and employment status on RMET score. However, no statistically significant correlation was found between these variables and total RMET score.

Table 4. Correlations

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

		Age	Years of Practice	Graduation Year	qtotal
Age	Pearson's Correlation	1	.925**	-.737**	-.188
	Sig, (2-tailed)		.000	.000	.000
	N	88	88	88	88
Years of Practice	Pearson's Correlation	.925**	1	-.705**	-.209
	Sig, (2-tailed)	.000		.000	.051
	N	88	88	88	88
Graduation Year	Pearson's Correlation	-.737**	-.705**	1	.136
	Sig, (2-tailed)	.000	.000		.205
	N	88	88	88	88
qtotal	Pearson's Correlation	-.188	-.209	.136	1
	Sig, (2-tailed)	.080	.051	.205	
	N	88	88	88	88

•Sample RMET Question



Data Analysis

Analysis was performed using IBM SPSS Statistics (Version 26) predictive analytic software. Descriptive statistics were generated (Table 4)

Demographic data that were measured on a continuous scale (e.g., age, year of graduation) were analyzed using Pearson product-moment correlations to assess potential relationships.

Categorical data (e.g., sex, highest PT degree earned, PT practice setting, primary profession, years of active practice as a PT, employment status) were analyzed using either a t-test or ANOVA to examine if any differences of RMET scores exist between groups.

Discussion

While there were no statistically significant relationships identified indicate there is no relationship between a practitioner's cognitive empathy, as scored by the RMET, and the variables of interest.

Limitations:

- The sample size (n=88) represented less than 0.2% of the currently licensed physical therapists in the United States.
- To maintain the integrity of the validated tool, our survey included the complete 36 questions from the original RMET. The average time of completion was 13 minutes and 14 seconds. This extended time may have been responsible for subject drop-off, as well as inattention with later questions resulting in outliers which were removed during the cleaning process.
- The effects of convenience sampling must be considered. This sample may describe individuals who are not typical of the general population as their attendance to a continuing education conference denotes a commitment to updated evidence-based practices.

Future Research: As the COVID-19 pandemic continues, a practitioner's ability to understand a patient through the eye regions becomes more pertinent. An area of future research could include ways to increase cognitive empathy in those identified with lower scores.

Conclusions

While the results of the current study did not yield any statistically significant relationships between cognitive empathy, as measured through the Reading the Mind through the Eyes test, and years of physical therapy (PT) practice. In addition, no relationships were determined between age, gender, PT practice setting, highest degree earned, or employment status and cognitive empathy.

Further exploration is imperative to determine how to improve cognitive empathy scores as there is currently limited research. Research demonstrates a direct correlation between empathy and improving patient outcomes, as well as, preventing clinician burnout. Future studies should aim to identify factors, or combinations of factors, that contribute to lower cognitive empathy scores.

Introduction

- The ability of a physical therapist to reciprocate the emotions of their client is linked to improved patient outcomes.¹ Inversely, if a clinician lacks the necessary skills to utilize cognitive empathy, the therapeutic relationship between the patient and practitioner may be compromised which jeopardizes the potential for positive outcomes.
- Current literature focuses on medical students and highlights an inverse relationship between cognitive empathy and a student's respective year in medical school.^{1,6} However, there is limited research on the level of cognitive empathy possessed by PTs as they progress through their careers.¹
- Newman et al.¹ found improvements in the patient's perception of a clinician's accuracy in environments that promote a more communicative relationship.
 - Patient's participation, compliance, satisfaction, enablement, pain control, heart rate, respiratory rate, and quality of life are improved while emotional distress and anxiety markedly decrease in these environments.¹⁻³
 - Additionally a strong patient- practitioner relationship combats clinician burnout by enhancing self-awareness while simultaneously providing a meaningful understanding of the client's individual needs.³
- Baron-Cohen's "Reading the Mind in the Eyes test" (RMET) is a validated tool that measures a participant's capacity to determine the emotional status of others through partial facial recognition.⁴
 - Baron-Cohen et al., demonstrated an inverse relationship exists between scores on the Autism Spectrum Quotient and RMET, suggesting the RMET is a valid tool to measure social intelligence.⁴
- Vellante et al.⁵ compared the RMET to other well-known empathy measures and those who scored lower on the EQ similarly scored lower on the RMET.

Objectives

- The purpose of the present study is to explore the relationship between PTs and how their cognitive empathy scores change over time using the RMET. If it is established that PTs undergo similar empathetic declines that have previously been observed in medical students, further research is warranted to explore methods of maintaining and improving their cognitive empathy in order to achieve ideal patient outcomes and combat clinical burn out.
- The research study aimed to answer the following research question:

Does cognitive empathy, as scored by the Reading the Mind in the Eyes (RMET), change over time in current clinically practicing physical therapists?

Methods

- A cross-sectional, descriptive design with quantitative methods research study
- Utilizing SurveyMonkey® platform
 - Demographic information, including age, sex, graduation date from entry-level physical therapy (PT) program, highest PT degree earned, PT practice setting, primary profession, number of years of active practice as a PT, and employment status was collected via closed-ended response questions which used pre-selected multiple-choice answers or visual sliding scales.
 - Participants were shown a series of emotionally charged or neutral photographs of the eye region of unique human faces with four specific mental-state descriptor words listed in the corners of each photograph with a corresponding number (e.g., 1, 2, 3, 4) representing a word.
 - Participants were then tasked with selecting the word that best corresponded to the emotion seen in the photographs and recorded their responses by typing the representative number in a text box.
- Inclusion Criterion: Full or part-time licensed, active physical therapists practicing in the United States of America.
- Recruitment: Physical Therapists attendees who visited our booth at the 2019 FPTA Fall Conference in Orlando, Florida and attendees of the 2020 Combined Sections Meeting in Denver, Colorado.

Sample RMET Question

1. playful

2. comforting



3. irritated

4. bored

* 1

Data Analysis

- Analysis was performed using IBM SPSS Statistics (Version 26) predictive analytic software.
- Total RMET scores were first examined to ensure that no statistical assumptions were violated; the data exhibited both normality and homogeneity of variance.
- Demographic data that were measured on a continuous scale (e.g., age, year of graduation) were analyzed using Pearson product-moment correlations to assess potential relationships.
- Categorical data (e.g., sex, highest PT degree earned, PT practice setting, primary profession, years of active practice as a PT, employment status) were analyzed using either a t-test or ANOVA to examine if any differences of RMET scores exist between groups.

Results

- No statistically significant correlation was found between years of practice as a PT and total score on the Reading the Mind in the Eyes test (RMET).
 - The correlation between years of practice and total RMET score was $-.209$ ($p=.051$).
- A preliminary review of the literature suggested that there may be a correlation between other demographic variables and RMET score.^{5,6} This alternative hypothesis was tested by examining the potential effects of age, sex, PT degree earned, year of graduation, PT practice setting, and employment status on RMET score.
 - However, no statistically significant correlation was found between these variables and total RMET score (see Table).

Discussion

- While there were no statistically significant relationships identified indicate there is no relationship between a practitioner's cognitive empathy, as scored by the RMET, and the variables of interest.
- Limitations:
 - Our final sample size (n=88) was 29% of our target sample size (n=300), and only represented less than 0.2% of the currently licensed physical therapists in the United States.
 - To maintain the integrity of the validated tool, our survey included the complete 36 questions from the original RMET. Due to the number of questions the average time of completion was 13 minutes and 14 seconds. This extended time may have been responsible for subject drop-off as well as inattention with later questions resulting in outliers which were removed during the cleaning process. In the future, the length of time for completion could be decreased
 - The effects of convenience sampling must be considered. This sample may describe individuals who are not typical of the general population as their attendance to a continuing education conference denotes a commitment to updated evidence-based practices.
- Future Research: As the COVID-19 pandemic continues, a practitioner's ability to understand a patient through the eye regions becomes more pertinent. An area of future research could include ways to increase cognitive empathy in those identified with lower scores. There is currently limited research on methods to improve empathy in clinicians, however there is a direct correlation between empathy and improving patient outcomes and preventing clinician burnout.

Conclusion

- The results of this study did not yield any statistically significant findings between cognitive empathy, as measured through the Reading the Mind through the Eyes test, and years of physical therapy (PT) practice. In addition, no relationships were determined between age, gender, PT practice setting, highest degree earned, or employment status and cognitive empathy.
- A direction for future research is to explore methods to improve cognitive empathy scores in order for clinicians to facilitate optimal patient outcomes and combat clinical burnout. Future studies should aim to identify factors, or combinations of factors, that contribute to lower cognitive empathy scores.

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Questions?

Thank you for your time.