

Profile of Occupational Therapists related to the mirror therapy technique as a strategy in physical rehabilitation

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Abstract

This is a cross-sectional research project of a quantitative, exploratory and descriptive type Survey. For this study, an electronic form was created, of the google forms® type, containing questions about the use of the mirror therapy technique by occupational therapists in the field of Physical Health. Furthermore, it is highlighted in the results that even 100% believe it to be effective, 11.9% had a failed experience, and its use could be more frequent. This data may be strictly linked to the need for more training of these professionals about using the technique (66.7%). Despite the concept of the mirror therapy technique being widely known and used by occupational therapists working in the area of physical rehabilitation investigated through this research, a lack of training about the use of the technique is evident.

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I. Introduction

In current times, theoretical advances in neuroscience, especially regarding neuroplasticity, have contributed to the development of new treatment therapies for neurorehabilitation that have been studied and shown to be highly promising (DILEK et al., 2018). Among the new therapies, “Mirror Visual Feedback” (TE) or Mirror Therapy (TE) stands out, which can be used alone or within a rehabilitation program called Graded Motor Imagery (IMG) (MOCHI SAID; DOS SANTOS SOARES, 2016).

Mirror Therapy emerged in the 90s, with the neuroscientist, *Ramachandran*, as a therapeutic alternative for individuals who had undergone amputation where the pain associated with the vivid presence of the amputated limb still persisted (ALVES, 2018; MOCHI SAID; DOS SANTOS SOARES, 2016). It is a low-cost and easy-to-apply intervention (MEDEIROS et al., 2014; MOCHI SAID; DOS SANTOS SOARES, 2016; POLLI et al., 2017) which presents as one of its results the decrease in the sensation of pain associated with functional improvement of limbs in cases of amputation (ALVES, 2018).

It is a method that aims to recover function, promoting motor and sensory-perceptive skills, in addition to improving pain management, especially in cases refractory to traditional therapy, such as people who have had a limb amputated, complex regional pain syndrome (CRPS) type 1, motor impairment after stroke, distal radius fracture, chronic pain, pathological pain and other cerebrovascular diseases (BOWERING et al., 2013; DILEK et al., 2018; MÉNDEZ-REBOLLEDO et al., 2017; MOSELEY, 2006; POLLI et al., 2017). In addition, mirror therapy can be used as a form of pre-rehabilitation, especially in patients with kinesiophobia and fear of movement (ALVES, 2018).

According to *Matthys* et al. (2009), mirror reflection may facilitate the recruitment of the premotor cortex to aid recovery through a connection between premotor and visual input areas. In this way, visual *feedback* is considered an external imagination strategy that bases the simulation of the body image on the visual perception of the imagined movement, with partial activation of the same motor circuits related to this (MOCHI SAID; DOS SANTOS SOARES, 2016). Health professionals have increasingly used this technique, and here we highlight the occupational therapy professional.

Occupational therapy is a profession that is part of the health, education, culture and social areas, whose primary focus is the therapeutic use of occupations, including daily, professional and leisure activities, in

individuals or groups to improve or enable participation in occupational roles, routine and habits in their context such as home, work, school, community, among others. Occupational therapists use their knowledge about the relationship between people, occupations and context to outline an intervention plan whose objective is to enable the autonomy and independence of the individual in their daily activities (American Association of Occupational Therapy - AOTA, 2015).

According to Gollegã, Luzo and Carlo (2010), this professional makes use of different types of activities such as exercises, body techniques and kinesiotherapy, specific equipment, adaptations in objects and environments and orthoses and prostheses used for mobilization, stabilization and replacement of members, translating the objectivity of the proposal and its treatment procedures. Always approaching the human being in its complexity, both physical and socio-cultural, mental and spiritual aspects. Therefore, people who develop an injury, disorder, disability, illness, activity limitation or participation restriction interfering with their occupational identities are eligible for occupational therapeutic care, whether in promotion, prevention or treatment.

Main goal

This study has the general objective of characterizing the profile of Occupational Therapists who work in the field of physical health regarding using the mirror therapy technique as a rehabilitation strategy.

Specific objective

This study has a specific objective:

- To verify if mirror therapy is a known approach used by occupational therapists who work in the field of Physical Health in the southeastern region of Brazil
- To analyze whether mirror therapy is an intervention proposal chosen for treating musculoskeletal disorders among Occupational Therapists who work in the area of physical health in southeastern Brazil.

Methods

This is a cross-sectional research project of a quantitative, exploratory and descriptive type *Survey*.

For this study, an electronic form was created, of the google forms® type, containing questions about the use of the mirror therapy technique by occupational therapists in the field of Physical Health.

Participants

Only occupational therapists working in Physical Health participated in this study. They were summoned by virtual invitation via social networks (*email*, *WhatsApp* ® and *Instagram* ®) and made themselves available to answer an *online questionnaire*.

Inclusion criteria

As an inclusion criterion, occupational therapists were invited to participate:

- Work in the area of Physical Health;
- Operate in the southeast region of Brazil
- Be able to answer the questionnaire on a virtual platform.

Exclusion criteria

As exclusion criteria, it was not possible to participate in the research:

- People who were not trained in Occupational therapy;
- Occupational therapists who do not work in the Physical Health area and outside the Southeast region;
- Those who refused to sign the Free and Informed Consent Form.

Ethical aspects

Respecting the norms for research with human beings (Resolution 466/12), the research project was submitted to the Ethics Committee for Research on Human Beings of the Faculty of Medicine of Ribeirão Preto, FMRP-USP.

All personal data collected, such as name, age, email, and telephone, are protected following the rules of article 5 of the General Data Protection Law – LGPD – No. 13,709, of August 14, 2018. This is because they were stored in files protected, stored by the researcher.

The Occupational Therapists who agreed to participate in the study were provided with the Free and Informed Consent Form, signed before answering the questionnaire online via *Google Forms*®.

Local

Occupational therapists who agreed to participate in the research answered the authorial questionnaire through the *Google Forms*® virtual platform.

We opted for virtual data collection due to the current pandemic situation.

Materials/Instruments to be applied

For this research, an authorial questionnaire via *Google Forms*® pre-established by the researchers was used as an instrument.

The questionnaire presents closed questions organized in two sections:

- Personal identification of each participant: name; age; training; level of education; training time; workplace and email.

- Questions related to mirror therapy and your experiences: Do you use/Have you used mirror therapy? Have you ever worked with patients with pain? How many patients have you used mirror therapy on? How long have you been working with mirror therapy? For what purpose do you use/did you use mirror therapy? For which population do you use/did you use this method? How was your first contact with mirror therapy? Do you believe it is an effective intervention? Did you take any preparatory courses for applying mirror therapy?

If the professional replies that he does not know or has never used mirror therapy, he will be redirected to another link with the following questions:

- Why don't you use mirror therapy?

Data analysis

Data collection for this study was performed via questionnaire responses.

Data were analyzed quantitatively by simple descriptive analysis.

In this context, the descriptive analysis described the main trends in the existing data. This method was based on closed questions to generate a hypothesis.

II. Results

As for the sociodemographic characterization, 57 occupational therapists working in Physical Health participated in the research by answering the questionnaires. Of the participants who answered the personal identification questionnaire, 43.9% are over 40, 70.2% are postgraduates, and 56.1% have more than ten years of training. Regarding the labour market, 38.6% work in private clinics.

As for mirror therapy as an intervention, of the 57 respondent occupational therapists, 42.1% of the participants use it as an intervention, and 31.6% already use it. While 26.3% of occupational therapists have never used mirror therapy, illustrated in table 3.

Tables 1 and 2 below represent the data in detail of that relationship.

Table 1. Answers about the use of TE

Variable	n	%
Use mirror therapy	24	42.1
Ever used mirror therapy	18	31.6
Never used mirror therapy	15	26.3

Table 2. Response percentage on the reason for not using ET

Variable	n	%
I do not know	3	20
I do not know what it is for	0	0
I do not know how to use	11	73.3
I do not think it works	1	6.7

Of the 42 occupational therapists who used or used TE, 69% have worked with the technique for over three years, and 85.7% have had contact with patients in pain. However, it is infrequent; 52.4% used it in less than ten patients.

Most occupational therapists use it for pain after stroke (45.2%) in paretic patients (69%).

About the first contact's experience, 88.1% were satisfied, and 11.9% thought the experience failed. As for the technique's effectiveness, 100% of therapists believe it to be an effective intervention.

When asked about taking a course to apply this intervention, 66.7% of therapists who use or have used mirror therapy did not take any preparatory course to apply this intervention.

III. Discussion

The results of the present study indicate that the investigated occupational therapists support the belief that mirror therapy is a practical approach. However, it is not an intervention proposal used, especially for pain treatment. Furthermore, it is highlighted in the results that even 100% believe it to be effective, 11.9% had a failed experience, and its use could be more frequent. This data may be strictly linked to the need for more training of these professionals about using the technique (66.7%).

Through the analysis of the responses, it can be understood that the 15 occupational therapists never used mirror therapy because they also did not know how to apply this intervention, followed by not knowing the technique. The data shows that the majority (66.7%) did not take any preparatory course for its application.

The use of mirror therapy in occupational therapy is an intervention modality that facilitates functional rehabilitation processes, promotes independence in carrying out activities of daily living and facilitates processes of social participation and adaptation to the environment. Furthermore, this technique allows for achieving objectives related to improving occupational performance in activities that are significant for the client and related to different areas of occupation (ALZATE, 2015).

Most of the participants in our research claim that mirror therapy is an effective intervention used in patients after stroke and phantom pain. Corroborating our findings, other database searches also show publications on TE in treating patients after stroke. Literature support can justify choosing the target audience of therapists in this study. According to the authors Costa e Silva, ET is effective in the recovery of motor function, especially in individuals after a stroke (SILVA, 20 21).

By activating brain areas related to movement, mirror therapy can significantly contribute to treating patients with stroke sequelae since most of them will have motor deficits (COSTA, 2016). Studies also indicate that mirror therapy promotes a statistically significant improvement in the motor function of the wrist, hand and arm (ARYA, 2015) and a clinically significant improvement in the functional independence of the upper limb with post-stroke paresis (MELO, 2015). In addition to improving motor activity and functional independence of post-stroke patients, studies also show improvement in sensitivity and pain (LIMA et al., 2015).

In other findings, the literature introduces phantom pain as the second health condition where therapists most use the ET technique. (X IE , 2021). Again, corroborating with our findings, the occupational therapists investigated in our research mainly reported second only to treating post-stroke patients using the mirror technique for these patients with phantom limb pain.

In several works of literature, the citation is the gold concept of treatment, conventional therapies for rehabilitating patients with musculoskeletal and neurological dysfunction. These concepts, such as Bobath and various techniques of kinesiotherapy, stand out. However, other adjuvant therapies, such as electrostimulation, virtual reality and mirror therapy, are often highlighted that can also be used in the motor rehabilitation process (BOTELHO et al., 2016). However, the use of mirror therapy is still described in most of the literature as an adjuvant treatment due to the insufficient statistical evidence of training of therapists related to the use of the technique.

However, this study has a limitation that it needed to investigate in depth the interviewees' technical competence level. Therefore, there may have been confirmation bias regarding the affirmative answers about the efficiency of using the technique.

IV. Conclusion

Despite the concept of the mirror therapy technique being widely known and used by occupational therapists working in the area of physical rehabilitation investigated through this research, a lack of training about the use of the technique is evident.

This research emphasizes the need to carry out new studies contemplating greater depth, methodological diversity and larger samples to expand the discussion and understanding regarding this theme.

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