Mirror Therapy: Can be this technique used on facial disfigurement?

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Abstract
Aim: In this literature review we aim to understand the importance of the mirror in the daily life of the individual and understand if the mirror can be used as a strategy, assessment and/or intervention in individuals presenting with facial disfigurement caused by trauma or disease. Method: Resorting to the Psychology and Behavioral Sciences Collection and PsyARTICLES databases, articles that focus on the mirror as therapy were selected. Results: The review suggested that the mirror has been used as a therapeutic strategy, in various contexts (phantom limb pain, substance abuse, hemiplegia, facial paralysis, rehabilitation, dexterity, stroke, body dissatisfaction) with promising results. Recently, a mirror technique has been researched and developed in women who underwent mastectomy, exploring the experience of viewing self in the mirror after surgery (disfigurement). Conclusion: Using the mirror in clinical context is an idiosyncratic and delicate process. The mirror therapy in disfigurement has, recently, focused in the assessment and intervention in women who underwent mastectomy, thus justifying the need to explore this therapy in individuals with facial disfigurement.

Keywords:
Disfigurement, mirror therapy, intervention, assessment.
Introduction

Despite the belief in modern society that the mirror is a display instrument that is often associated with arrogance and vanity (Freysteinson, 2015), the mirror is necessary in daily life to allow people to care for themselves (i.e.: hair combing, shaving, putting on make-up). The mirror is an object that shows the reflection of the body or body parts (Freysteinson, 2009a). The experience of looking in the mirror is a unique and individual experience (Freysteinson et al., 2012).

The exact origin of the mirror is unknown. Enoch (2006) suggested early mirrors were probably rock containers filled with water, and that the first mirrors were found in a grave in Anatolia (Asia Minor), dating approximately to 6200-6000 b.C. These mirrors were manufactured out of volcanic glass and soil, and had a diameter of approximately 9cm. It is suspected that the later mirrors were of Egyptian origin, approximately 4000-3000 b.C. and had a convex shape, that reflected a vertical image. These societies used the mirror as a religious symbol, used it as a time-keeping device, believed it had magical properties and that is symbolized the inner self (Enoch, 2006).

The mirror not only allows the individual to care for his appearance (Freysteinson, 2012), but can also be used as a therapeutic tool in rehabilitation through mental practice (Gaspar, Pascucci, & Souza, 2011), focusing on the visual input. The origin of using a mirror in therapy was started on the late part of the twentieth century (Aggarwal, 2013). Although the neurophysiological mechanisms involved to explain the mirror therapy are not clear (Machado et al., 2011), Bertolucci (1991) stated that, through the mirror, the individual assumes the role of a protagonist and observer in order to see the self through a distance that allows him or her to gain self-insight.

According to Freysteinson and colleagues (2012), an individual decides to see themselves in the mirror based on his personal reasons (curiosity), health care (cleaning of surgical drains) or personal hygiene. The mirror enables one to see the reflection of most parts of the body (face, neck, arms, legs, etc.). When individuals see themselves in the mirror, they compare their appearance with the internal model or anticipated model, where any discrepancy between the internal model of appearance and the perceived model can have a negative or positive effect (Freysteinson, 2009a).

Throughout our life, we examine our appearance thousands of times in the mirror or in the reflective surfaces (i.e.: windows) that reflect an image (Rumsey & Harcourt, 2005, 2012). Body satisfaction is defined as self-assessment of shape, size and body aesthetics (Duba, Kindsvatter, & Priddy, 2010). Physical changes in the body, particularly in the face, have a significant impact in the way the individual sees themselves, and this phenomenon is acknowledged by health professionals, occurring when the individual sees themselves in the mirror for the first time after a surgery (Rumsey & Harcourt, 2005).
The face is important in the psychosocial development of the individual (Freitas-Magalhães, 2013). A person with a recent facial disfigurement may feel his identity is threatened because the image he sees in the mirror is not the same image he has been looking at every day. This may affect the individual’s internal image in the weeks or months after the disfigurement (Partridge, 2003).

Partridge (2003) argues that faced with acquired facial disfigurement, the image that the individual will see in the mirror will be his new exterior, and there is a need for the individual to make a large investment in the adjustment to the visible differences on the face. For example, Cash & Smolak (2011), indicated that assessing the body with a mirror helps the individual develop their concept of body image. In cognitive behavioral therapy, through gradual exposure, includes measures of how the individual looks in a mirror (Brill et al., 2006). To understanding the true concept of facial disfigurement, requires a profound assessment of the individual (Mendes & Figueiras, 2013).

This brief literary review raises questions regarding the implicit aspects of the use of the mirror in the daily life, as well as in the hospital setting, by an individual who has a surgery that causes disfigurement. The goal is to understand if the mirror can and should be used as a tool for assessment and intervention. In addition, we hope to understand if mirror therapy should be further studied in individuals presenting with facial disfigurement.

**Method**

The present literary review was conducted through an article research at Psychology and Behavioral Sciences Collection and PsyARTICLES between the years 2006 to 2015. The inclusion criteria included full text articles with the following descriptors: “mirror interventions”; “assessing mirrors”; “mental practice”; “mirror therapy”; “mirror’s reflection”; “mirror image”; “mirror rehabilitation and disfigurement”.

**Results**

The literature search unearthed few investigations that focus on mirror therapy research. This technique is almost unknown as applied to disfigurement or altered body image. The literary review was supported by three books, one oral presentation at a conference, and 25 articles.
Mirror Viewing Model

Figure 1. A Model for Understanding the Experience of Viewing Self in the Mirror.

The mirror reflects an image that the individual interprets as his self-concept or the transformation of themselves (disfigurement), experiencing four distinct moments (table 1): decision, seeing, meaning, and consent (Freysteinson & Cesario, 2008; Freysteinson 2014). These elements may be further broken down as noted in Table 1.
Table 1. Experience of Viewing Self in a Mirror.

| Decision | I decide | - Desire to see themselves  
| | | - Fear of seeing themselves  
| Seeing | I see | - Fear of what might be seen  
| | | - Seeing the “self”  
| Meaning | I know | - Living in resignation (I am alive)  
| | | - Living in anxiety (why me?)  
| Consent | I consente | - Suffering  
| | | - Acquiescence  
| | | - Acceptance  

The decision to view self in the mirror is based on one’s motives. Motives may be wanting a mirror for activities of daily living (shaving, etc.), medical purposes (i.e. changing a dressing), or curiosity. Curiosity can be a paradoxical experience, where there is both a desire to see, as well as fear of what can be seen (Freysteinson & Cesario, 2008; Freysteinson et al., 2012).

When the individual decides to view self in the mirror, he anticipates or sees in his mind’s eye what he will see in the mirror. Viewing self in the mirror, the individual determines his own meaning of what is seen in the mirror. For the individual who has had no visual changes, this assessment may be brief, and the meaning may be fleeting. For the individual with recent visible changes, the meaning gained through assessment may be very emotional. At worst, one may be repulsed with one’s own body: How can this be me in this body? The individual’s consent may be on a horizon from denial and despair in suffering, to acquiesce or acceptance (Freysteinson & Cesario, 2008), resulting in suffering (Freysteinson et al., 2012). Envisioning the future is on a horizon of denial/despair to hopefulness that one’s body image may improve or that one may be able to become more comfortable viewing self in the mirror.

Proximal and internal influences act on the mirror experience. Proximal influences may include the availability of mirrors and/or family and/or friends mirror habits. Internal influences include one’s genetics, history, and way of being in the world.

**Mirrors in Hospitals**

Seeing oneself in the mirror is something that frequently occurs in private (Freysteinson, 2009b). In hospitals, mirrors may be found in public places such as elevators, lobbies, and
physical/occupational therapy departments. Freysteinson & Cesario (2008) reported that about 90% of hospitals do not have a mirror that allows a full view of the body and about 70% of hospitals do not have a private area where the patients can view their body in front of the mirror. Most oncologic surgery aims to eradicate cancer, but unfortunately most of these interventions can cause disfigurement/change in body image (head and neck cancer, limb amputation, mastectomy, ostomy) having a significant impact on one’s appearance. The majority of these changes are evaluated by the individual in front of the mirror, where he can see all parts of his body (face, head, chest/breasts, back, profile) affected by surgery (Freysteinson, 2012).

**Mirror Interventions**

Given the number of mirrors available in everyday life (elevators, windows, bathrooms, and others) it is almost impossible for an individual who has undergone facial surgery to not see themselves. Some healthcare professionals believe that the use of the mirror is the patient’s choice, and they trust that the patient, intuitively, knows the right timing (Freysteinson, 2012). However, we understand that it is important that health professionals intervene in the first days after surgery, providing a mirror (Freysteinson, 2015), and also providing knowledge of the stages of the universality of the mirror experience and the involved in mirror viewing, providing emotional support and understanding the concerns of the individual’s body image (Freysteinson, 2014). A mirror intervention may originate thoughts and feelings about themselves, thus decreasing depression, dissatisfaction with body parts and improving self-esteem (Freysteinson, 2009a). It is also important to assess vision and potential need for mirror magnification (Freysteinson, 2014). Freysteinson (2012) indicated it is essential to understand the culture, values and beliefs regarding body image before starting the exposure of the individual to the mirror because the mirror can be associated with taboos, cultural practices and beliefs.

The health care professional should offer a mirror, and privacy if this is what the patient prefers. Ideally, when the individual sees themselves in the mirror for the first time after surgery, he should not be alone, in this moment he should be accompanied by a health professional (Partridge, 2003). Facial reconstruction and psychological and social rehabilitation are mutually reinforcing (Partridge, 2003). When an individual spends hours watching themselves in the mirror or completely avoiding it, it is important to be evaluated by a psychologist or a psychiatrist, because it can be a sign of a body dysmorphic disorder or an eating disorder (Freysteinson, 2015).
Table 2. Intervention Approach.

- Ask if the individual wants to look at the mirror. Never force or surprise them with a mirror.
- Begin with a small mirror and progress to larger mirrors
- Offer to be present or to stand present at the room during mirror-viewing
- Suggest that a loved one may be present during mirror-viewing
- Educate as to what incision and drains will look like
- Prepare the individual so he can see themselves in the mirror (describe the laceration, suture line, or tubing that he may see)
- Do not use positive or negative judgmental terms (perception is idiosyncratic)
- Mention that it is normal to feel different emotions
- Assess the ideal size of the mirror that the individual should use. Use a small hand-held mirror to view a bodily change before viewing self in a full-length mirror

We realize the importance of preparing an individual to see self in the mirror, knowing that one may feel emotions such as shock, fear or anxiety. Health professionals can assist in the mirror experience. They can help the patient to anticipate a picture of what he is about to see (Freysteinson, 2009c). It is a critical event when individuals with face burns, for example, look in the mirror for the first time. They often need to look in the mirror several times to see, recognize and understand the changes in their bodies (Freysteinson, 2009a). The biggest factor that can motivate the individual to look in the mirror is curiosity as to what disfigurement is a result of the surgery (Freysteinson, 2012; Freysteinson et al., 2012).

Other Mirror Therapies

The mirror can be a therapeutic tool for people diagnosed with phantom pain, cardiovascular accident (Freysteinson et al., 2012; Rothgangel et al., 2011), rehabilitation, dexterity, visual feedback, stroke (Conceição, Souza, & Cardoso, 2012; Thieme et al., 2013), chronic pain and post stroke hemiparesis (Aggarwal, 2013). This is a very different kind of therapy from the mirror therapy described in this article. In each of these conditions, a mirror is placed against the good limb. When the patient looks into the mirror it appears he is looking at the affected limb. A therapist prescribes exercises for the patient to do while looking at the limb reflection. It is hypothesized that this mirror therapy works on the brain neurons.

The action of observation and mirror therapy can modulate the connections that are established between the parietal cortex and the pre-motor and primary motor regions.
According to Aggarwal (2013), the work developed by Muhammad Akbar Arzānī has disclosed the use of mirror therapy for paralysis in general. In this context, it is still important to mention that mirror therapy has triggered research in the treatment of post-traumatic hemiparesis and phantom pain.

Table 3. Summary of Key Findings and Conclusions of the Revised Articles in Mirror Therapy.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Location</th>
<th>N</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chan, Witt, Charrow, Magge, Howard, Pasquina, Heilman, &amp; Tsao</td>
<td>2007</td>
<td>United States</td>
<td>22</td>
<td>• Phantom limb pain can be induced through conflict between visual feedback, visual representations of the amputated limb, reducing the intensity and frequency of pain episodes.</td>
</tr>
<tr>
<td>Fukumura, Sugawara, Tanabe, Ushiba, &amp; Tomita</td>
<td>2007</td>
<td>Japan</td>
<td>6</td>
<td>• This study evaluated the contribution of each of the three factors in mirror therapy. The results suggest that watching movements of the unaffected hand in the mirror assists with the motor imagery of the affected hand.</td>
</tr>
<tr>
<td>Ramachandran, &amp; Altschuler</td>
<td>2009</td>
<td>United States</td>
<td>Review</td>
<td>• The Mirror Therapy can reduce phantom pain (phantom arm and hand), in which individuals would overlay the reflection of the unaffected limb over the reflection of the amputated one, thus feeling the reflected movements and the ability to control them. These authors presented various types of mirror interventions</td>
</tr>
<tr>
<td>Trevisan &amp; Trintinaglia</td>
<td>2010</td>
<td>Brasil</td>
<td>Case Study</td>
<td>• They used the mirror technique for 4 weeks in individuals with chronic hemiparesis regarding restricted induced movement, with positive results to different sensitivity degrees, providing greater amplitude in the affected limb.</td>
</tr>
<tr>
<td>Freysteinson</td>
<td>2010a</td>
<td>United States</td>
<td>10</td>
<td>• When women visualize their mastectomy, they are faced with an internal struggle with their body or their own mirror reflection. This triggers feelings and thoughts, they feel odd, disfigured and ugly, battling the decision to look or not at their reflection in the mirror.</td>
</tr>
</tbody>
</table>
| Freysteinson                                                           | 2010b| United States  | Case Study | • The American Cancer Society suggests exercises with the mirror, in which individuals visualize themselves fully dressed, while removing their clothes gradually, in order to carefully look at the
<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Country</th>
<th>Study Type</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machado, Velasque, Paes, Cunha, Basile, Budde, Cag, Piedade, &amp; Ribeiro</td>
<td>2011</td>
<td>Brasil</td>
<td>9</td>
<td>scars in their bodies, as a way to increase their sexuality. *Mirror Therapy has shown positive results in functional recovery of patients with post-stroke hemiparesis.</td>
</tr>
<tr>
<td>Gaspar, Pascucci, &amp; Souza</td>
<td>2011</td>
<td>Brasil</td>
<td>4</td>
<td>*Mirror Therapy has been shown to be effective in the recovery of dexterity, strength and fine motor coordination in post-stroke patients, stating that the beneficial effect increases gradually over the treatment sessions.</td>
</tr>
<tr>
<td>Fernandes &amp; Santos</td>
<td>2012</td>
<td>Portugal</td>
<td>Review</td>
<td>*The mirror allows visual feedback, allowing the rehabilitation of patients with phantom pain and provides evolution to functional recovery.</td>
</tr>
<tr>
<td>Conceição, Souza &amp; Cardoso</td>
<td>2012</td>
<td>Brasil</td>
<td>Review</td>
<td>*Mirror Therapy is beneficial to motor recovery, sensorimotor function and decrease of pain.</td>
</tr>
<tr>
<td>Freysteinson</td>
<td>(Freysteinson, 2012)</td>
<td>United States</td>
<td>Review</td>
<td>*Looking in the mirror is an individual process. Healthcare Professionals mention that some women have difficulties looking at their mastectomy scar in the mirror after surgery. Some women prefer to see it immediately after surgery, while others await a week or more.</td>
</tr>
<tr>
<td>Freysteinson, Deutsch, Lewis, Sisk, Wuest, &amp; Cesario</td>
<td>(Freysteinson et al., 2013)</td>
<td>United States</td>
<td>12</td>
<td>*Described the experience of the women with mastectomy in three key: My body, My thoughts and other people in My world.</td>
</tr>
<tr>
<td>Thieme, Bayn, Wurg, Zange, Pohl &amp; Behrens</td>
<td>2013</td>
<td>Germany</td>
<td>60</td>
<td>*Detected a positive effect of individual mirror therapy on visuospatial neglect.</td>
</tr>
<tr>
<td>Pereira, Silva, Reis, Kosour, &amp; Silva</td>
<td>2013</td>
<td>Brasil</td>
<td>Case Study</td>
<td>*Mirror therapy has positive effects when used in the rehabilitation of motor function of the paretic upper limb, improving coordination, grip strength and movement.</td>
</tr>
<tr>
<td>Freysteinson, Lewis, Sisk, Wuest, Deutsch, &amp; Cesario</td>
<td>2013</td>
<td>United States</td>
<td>Review</td>
<td>*The importance of the use of the mirror as part of the academic curriculum of healthcare professionals so that those in clinical practice feel more comfortable using the mirror with women that underwent mastectomies.</td>
</tr>
</tbody>
</table>
Discussion

There are no known studies related to assessment and intervention in facial disfigurement. However, we understand that in surgeries, burns or trauma to the face, we need to understand the best time to provide a mirror (Freysteinson, 2009c). This literature review alerts us to three important aspects that interact after the individual sees the mirror: curiosity regarding the outcome of the surgery, the meaning of the mirror experience, and future interactions with the world (Freysteinson et al., 2012).

Mirror therapy appears to be important in the assessment and intervention in disfigurement. Knowing that the face is the body’s most visible part and has high importance for the psychosocial development of the individual (Freitas-Magalhães, 2013), facial disfigurement has a profound and significant impact on the quality of life of the individual. It is important to mention that there is both a right and wrong time for the individual to see his face in the mirror (Partridge, 2003).

After surgery, it may be difficult for the individual to look in the mirror because of the mental image that the individual creates through possibly viewing photos online or images in books that address his problem (Freysteinson et al., 2013) which may influence experiences and actions of the individual to recognize themselves when approaching the mirror (Freysteinson et al., 2012). Partridge (2003, p.9) stated “facing up to the mirror for the first time is a vital step in changing faces – and getting used to looking in a mirror day by day is one of the biggest hurdles in the process of recovery”.

Mirror therapy can help understand the dissatisfaction with one’s body image (Duba et al., 2010), however, further investigation is required in order to consider mirror therapy a new technique for evaluation and intervention (Rothgangel, Braun, Beurskens, Seitz, & Wade, 2011). Freysteinson (2015) stated that the mirror in hospital/medical practice (healthcare professionals) may help with altered body image, because it can be used in a diverse and creative way. Mirror therapy should be used together with other intervention techniques such as peer group experiences and psychological coping strategies (Freysteinson, 2010a).

Limitations of this review are due to the fact that there are several types of mirror therapies which can create confusion. There are very few investigations on the mirror therapy that has been discussed in this article. Future research that addresses the mirror therapy influence on assessment and intervention in individuals who have an acquired facial disfigurement, would be an important milestone for the psychology of appearance.
References


Mendes et al. Revista E-Psi (2017), 7(1), 25-38


Terapia do Espelho: pode esta técnica ser utilizada no desfiguramento facial?

Resumo

Objetivo: Pretende-se com este estudo, compreender a importância do espelho no quotidiano do indivíduo e compreender se o espelho pode ser utilizado como estratégia e avaliação e intervenção em indivíduos que apresentem um desfiguramento facial por trauma ou doença. Método: Recorrendo às bases de dados Psychology and Behavioral Sciences Collection and PsyARTICLES, foram selecionados artigos que focam o espelho como terapia. Resultados: A revisão dos estudos permite compreender que o espelho tem sido utilizado como uma estratégia terapêutica em vários contextos (dor membro fantasma, abuso de substâncias, hemiplegia, paralisia facial, reabilitação, destreza, acidente vascular cerebral, insatisfação com o corpo) com resultados promissores. Recentemente, a técnica do espelho tem sido investigada e desenvolvida em mulheres mastectomizadas, explorando a experiência de se ver ao espelho após a cirurgia (desfiguramento). Conclusão: A utilização do espelho em contexto clínico é um processo idiossincrático e delicado. A terapia do espelho no desfiguramento, tem-se focado recentemente na avaliação e intervenção em mulheres com mastectomia, justificando-se a necessidade de esta terapia ser explorada em indivíduos com desfiguramento facial.

Palavras-chave

Desfiguramento, terapia do espelho, intervenção, avaliação.

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