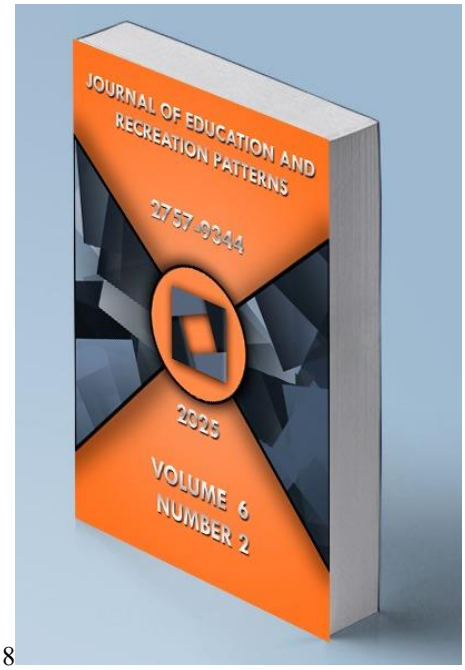


Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Can You Photograph Happiness? A Photovoice Study about the Effect of Hippotherapy on the Psychological Well-Being of Children with Cerebral Palsy from Parents' Perspective

Gözde YETİM[1], Metin ARGAN[2], Halime DİNÇ[3], Cafer YILDIRIM[4], Şerife Özge ÖVEZ[5]

To cite this article:

Yetim, G., Argan, M., Dinç, H., Yıldırım, C. & Övez, Ş.Ö. (2025). Can you photograph happiness? A photovoice study about the effect of hippotherapy on the psychological well-being of children with cerebral palsy from parents' perspective. *Journal of Education and Recreation Patterns (JERP), 6 (2)*, 303-324. DOI: https://doi.org/10.53016/jerp.v6i2.315

[1] Muş Alparslan University, Faculty of Sport Sciences, Muş/Türkiye g.yetim@alparslan.edu.tr, http://orcid.org/0000-0002-4345-4251

[2] Eskişehir Technical University, Faculty of Sport Sciences, Eskişehir/Türkiye, margan@eskisehir.edu.tr, http://orcid.org/0000-0002-9570-0469

[3] Afyon Kocatepe University, Faculty of Sport Sciences, Afyon/Türkiye, halimedinc@yandex.com, http://orcid.org/0000-0002-2391-5508

[4] Ankara University, Faculty of Dentistry, Department of Basic Medical Sciences, Ankara/Türkiye, cfryildirim@ankara.edu.tr, http://orcid.org/0000-0002-1565-9217

[5] Eskişehir Technical University, Faculty of Sport Sciences, Department of Sport Management (graduated student), Eskişehir/Türkiye, ozgeovez@gmail.com , http://orcid.org/0009-0008-2693-8626

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 2, Year 2025 ISSN: 2757-9344

Can You Photograph Happiness? A Photovoice Study about the Effect of Hippotherapy on the Psychological Well-Being of Children with Cerebral Palsy from Parents' Perspective

Gözde Yetim[1], Metin Argan[2], Halime Dinç[3], Cafer Yıldırım[4], Şerife Özge Övez[5]

ARTICLE INFORMATION
Original Research Paper

Received 17.09. 2025
Accepted 13.12. 2025

https://jerpatterns.com

December 2025

Volume: 6, No: 2

Pages: 303-324

ABSTRACT
This study investigates the impact of hippotherapy on the psychological well-being of children diagnosed with cerebral palsy using the photovoice method. The sample consisted of 11 parents (7 women, 4 men) of children aged 3–9 years receiving hippotherapy. Individual and group interviews were conducted between April and June, and the photographs taken by parents were analyzed using the SHOWED approach and thematic analysis. The analysis revealed five physical effects (functional motor skills, physical development, independent sitting, gait, and balance) and six well-being–related themes, including perceived self-efficacy; self-confidence and sense of achievement; motivation; communication and socialization; perceptual expansion—defined as the child's growing awareness of environmental stimuli and increased exploratory behaviors; and emotional attachment. The findings indicate that psychological well-being improves in parallel with physical development achieved through hippotherapy. This study provides important implications for practitioners, families, and service providers. Theoretically, the study expands understanding of well-being by demonstrating how parents interpret psychological change through observable physical progress. A practical policy recommendation emerging from the results is the integration of parent-generated visual documentation (photovoice outputs) into rehabilitation protocols to enhance communication between families and clinicians and to support individualized therapy planning.

Keywords: Cerebral palsy, Hippotherapy, Photovoice, Therapeutic recreation, Well-being.

INTRODUCTION

The therapeutic value of riding horses dates back centuries, with the first reports from ancient Greece. Since the days of ancient Greece, the benefits of horse riding have been increasingly recognized and documented. Subsequently, hippotherapy has been widely implemented as a rehabilitation method in numerous countries (Granados & Agís, 2011). It has been employed by therapists in Europe since the 1960s as a means to enhance strength, balance, posture, and overall function. However, it was not until the 1970s that therapists in the United States began integrating hippotherapy with traditional treatment approaches (Benjamin, 2000). The development of therapeutic horseback riding for individuals with disabilities was sparked by the 1952 Olympic Grand Prix Dressage victory of Liz Hartel, who claimed that riding helped cure polio (DePauw, 1986). Later in the 1960s, therapeutic riding centers began to develop throughout Europe, Canada, and the United States. Therapists in Germany, Switzerland, and Austria popularized the term hippotherapy when they started to use horses as a treatment tool (Casady & Nichols-Larsen, 2004). Hippotherapy is a therapy method that uses the movement impulses of a walking horse to facilitate movement responses in the user astride the horse. During the therapy, the patient does nothing to actively affect the movement of the horse; on the contrary, the patient is moved by the horse and responds to the horse's movement (Debuse, Chandler, & Gibb, 2005). The rationale for hippotherapy is that the horse gait provides a clear, spontaneous, rhythmical, and repetitive pattern of movement to the rider similar to the mechanics of human gait (McGee & Reese, 2009; Bertoti, 1988).

In clinical terms, the walking horse provides a three-dimensional movement to the rider's pelvis across the sagittal, frontal, and transverse planes, closely mirroring the kinematic patterns of human gait (Bertoti, 1988; McGee & Reese, 2009). This repetitive, rhythmical movement requires continuous postural adjustments by the rider, thereby increasing pelvic mobility and activating deep trunk and postural musculature (Janura et al., 2009). The enriched proprioceptive and vestibular input generated during these adjustments enhances sensory integration and supports neuromotor organization (Debuse, Chandler, & Gibb, 2005). Repeated exposure to this structured sensory–motor experience is believed to stimulate neuroplastic changes within the central nervous system, contributing to improvements in balance, postural control, and functional motor skills observed in children with cerebral palsy (Lechner et al., 2007). Thus, hippotherapy is not merely a meaningful experiential activity but a physiologically grounded intervention that directly engages motor and sensory pathways relevant to daily functioning.

In addition to hippotherapy, horse riding has been shown to improve gross motor coordination (MacKinnon et al., 1995), midline posture control (Bertoti, 1988) head control, and coordination when used for therapeutic and recreational purposes (Wingate, 1982; Biery & Kaufmann, 1989). For example, in hippotherapy, children experience and begin to anticipate movement with each step of the walking horse through the repetitive, rhythmical movement of the horse. They learn to shift the center of gravity and produce compensatory movements that keep them on the moving horse. This experience is believed to lead to the modification and reorganization of the central nervous system (Casady & Nichols-Larsen, 2004). The primary goal of hippotherapy as an individualized treatment is to improve the balance, posture, function, and mobility of the individual (All & Loving, 1999; Zadnikar & Kastrin, 2011).

Special needs groups in which hippotherapy is widely used include patients with autism, arthritis, head trauma, stroke, spinal cord injury, behavioral disorders, and cerebral palsy. Hippotherapy is a form of treatment utilized to address common physiological issues in individuals with special needs. Its primary objective is to enhance strength, muscle tone, flexibility, relaxation, balance, and functional performance in daily activities, which is achieved through the interaction with deep agonistic muscles during the therapy sessions (Cho, 2017;

Kim & Lee, 2015).

Rhythmic movements of the horse activate the individual's nervous system and positively affect self-confidence, attention, spatial perception, and speech development (Casady & Nichols-Larsen, 2004). Falke (2009) states that hippotherapy training is a "co-therapist" that contributes positively to the personality development, self-confidence, and group communication skills of individuals with special needs (Biery & Kauffman, 1989; Copeland-Fitzpatrick & Tebay, 1998). This training is also known to improve neurological functions and sensory processes through the development of sensory connectivity, communication, and neuro-connection (Lechner et al., 2007; Janura et al., 2009). Hippotherapy offers both physiological and psychological benefits, including increased self-confidence, self-esteem, motivation, attention span, spatial awareness, concentration, and verbal skills (McGibbon et al., 1998).

Children with cerebral palsy have spasticity, musculoskeletal problems, mobility disturbances, and decreased pelvic movements, which lead to awkward movement and sitting posture (Lee et al., 2014). One of the key problems in children with cerebral palsy is deficient postural control. Hence, maintaining the postural control necessary for the performance of activities of daily living often forms a major challenge (Van Der Heide et al., 2004). The goal of therapy for children with cerebral palsy is generally to improve the range of motion, develop more advanced motor skills, and improve both reactive and postural control and balance (Berninger & Gans, 1986). The movement of the horse generally provides children with cerebral palsy with various inputs that can be used to facilitate better contraction, joint stability, weight transfer, and postural balance responses (Miller, 2007).

Psychological well-being in this study can be understood within the framework of Self-Determination Theory (SDT), which proposes that optimal functioning depends on the satisfaction of three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). The improvements observed in motor skills, balance, and independent movement through hippotherapy can be interpreted as supporting the child's sense of competence, while emotional engagement with the horse, therapists, and the environment contributes to relatedness. These mechanisms help explain why hippotherapy may enhance motivation, self-efficacy, and social interaction, providing a theoretical basis for understanding the well-being outcomes identified by parents.

This study focused on the thoughts and feelings of parents of children with cerebral palsy toward the well-being of children receiving hippotherapy. Although the physical and psychological effects of hippotherapy on individuals with cerebral palsy have been widely researched, studies on hippotherapy outcomes perceived by parents are limited. Tercan et al., 2025 parents of children with autism who did not engage in leisure activities have been found to report significantly lower quality of life, along with higher levels of stress and sadness. Irwin et al. (2019) emphasized in their meta-analysis that the psychological well-being of parents was indirectly improved by interventions directed at children with cerebral palsy. In addition to these interventions, the improvements in behaviors of children with cerebral palsy demonstrated the important secondary outcomes of well-being (Brown et al., 2015; Irwin et al., 2019; Whittingham et al., 2016). On the other hand, although some research documented statistically significant improvements in function and positive effects of hippotherapy for children with cerebral palsy, the hippotherapy research showed difficulties in capturing physical, social, and emotional changes. Hippotherapy, as an increasingly recognized and popular method, is supported by a robust body of evidence and research.

However, the existing literature has predominantly focused on parents' caregiver burden, stress levels, and the psychological challenges associated with long-term caregiving. This deficit- and pathology-oriented perspective provides valuable insight into parental strain, yet it

offers limited understanding of how parents witness and interpret positive developmental changes in their children. By contrast, the present study adopts a strengths-based and positive psychology–oriented approach by exploring the improvements, emotional growth, and well-being outcomes that parents observe through their children's participation in hippotherapy. Highlighting this shift from a stress-focused framework to a development-centered perspective underscores the originality and contribution of the current research (Irwin et al., 2019; Whittingham et al., 2016).

In this context, it is considered a significant gap in the literature that previous studies lack focus on the perspective of parents regarding the well-being of their children in relation to hippotherapy. The photovoice method is particularly well suited to addressing this gap because it allows parents to express their observations through both visual and narrative forms, capturing nuances that may not emerge in traditional interviews. By enabling participants to document meaningful moments in their daily lives, photovoice provides deeper insight into how parents interpret changes in their children's physical and psychological well-being. In light of this, the present study, addressing this gap in literature, is considered a valuable contribution with the potential to enhance the depth of existing scholarly work. The findings also offer practical implications for developing strategies that specifically target parents, who play a pivotal role in successfully implementing hippotherapy for children's development. Another highly significant outcome of the current study is the utilization of photovoice as a means to understand more profound contexts and gain insights.

METHOD

Photovoice (Wang & Burris, 1997) is an innovative and diverse research methodology that uses photography to understand and document people's experiences (Walton et al., 2012). The use of visual imagery has the capacity to effectively convey complex experiences, ideas, and emotions, thereby enhancing communication (Carlsson, 2001; Simmonds et al., 2015). It is also worth highlighting that visual imagery has been recognized as an inclusive and empowering research approach, amplifying the perspectives of marginalized communities (Macdonald et al., 2022). Hence, the originality of the Photovoice method becomes particularly pertinent in this study, as it enables the exploration of parental perspectives on children with special needs, thereby establishing the suitability of the method used.

In this study, the physical effects of hippotherapy sessions on individuals diagnosed with cerebral palsy were not only documented and analyzed but also captured in conjunction with their stories, thereby exploring their role in promoting well-being and overcoming obstacles. This research discusses parents' experiences and thoughts on "well-being" of their children. One notable advantage of using the photovoice method in this study is its capacity to offer a valuable opportunity to comprehend significant and unique experiences within meaningful contexts.

Table 1

Demographic Characteristics of Participants

Participants	Gender	Age	Child's Age	Education Level	Profession
P1	Male	30	4	Secondary School	Worker
P2	Female	34	4	Secondary School	Housewife

P3	Female	41	7	Secondary School	Housewife
P4	Male	51	9	Primary School	Worker
P5	Female	50	9	Primary School	Housewife
P6	Male	45	7	High School	Technician
P7	Male	40	3	Master's degree	Private sector employee
P8	Female	37	3,5	Master's degree	Private sector employee
P9	Female	40	4	Bachelor's degree	Housewife
P10	Female	33	6	High School	Housewife
P11	Female	44	4	Primary School	Housewife

The research was conducted with the parents of children with cerebral palsy. The researchers followed reliable ways to reach the families of these children and include them in the study. The required permissions were obtained from the relevant institution. One of the researchers informed the families and arranged meetings to explain the ethical process of the interview to be conducted and establish rapport with the families before the research. These meetings helped to build a safe environment for better expression and a more friendly atmosphere while interviewing parents. Participants who fulfilled the stipulated requirements of actively engaging in the study for a minimum duration of 12 weeks were deemed eligible for inclusion. The 12-week minimum duration was chosen because neuromuscular adaptation, motor learning, and observable functional improvements in children with cerebral palsy typically require at least 8–12 weeks of continuous therapeutic intervention (Damiano & DeJong, 2009; Sterba, 2007; Moreau et al., 2016). Thus, this threshold ensured that parents had adequate exposure to observe meaningful physical and psychological changes in their children. To identify participants, purposive sampling, a widely used sampling method in qualitative research, was used. The determination of the sample size was based on the saturation point, which is used as a basis in many qualitative studies (Anderson et al., 2014). In this study, saturation was reached after the ninth participant, when no new codes or meaningful insights emerged. The final two interviews confirmed the existing categories without generating additional themes. Eleven people (7 women and 4 men), who were the parents of children with cerebral palsy being rehabilitated in the Hippotherapy Center in Türkiye, volunteered to participate in the study. The demographic diversity of the participants, with education levels ranging from primary school to a master's degree, contributed to the richness and credibility of the data by allowing a wide spectrum of parental perspectives across different socio-economic backgrounds.

Procedure

The data of this study consisted of the photographs taken by 11 parents of children with cerebral palsy and the stories accompanying these photographs. The parents used their personal mobile phones to take photographs. The data was collected through phone calls, social media messages, videos, and audio recordings between April and June. The interviews were conducted by the fifth author of this article, and each lasted about 30 minutes. They were audio-recorded and transcribed. The participants were informed by the researcher about the study and the ethical issues regarding photographs. Although no formal Photovoice training session was conducted, participants received verbal guidance prior to data collection regarding the ethical use of photographs. This briefing included instructions on privacy, the visibility of children's faces, avoiding identifiable or inappropriate poses, and ensuring respectful representation in all images. These clarifications ensured that parents documented their children's experiences responsibly while adhering to ethical standards.

The researchers exhibited great sensitivity to building and maintaining trust during the research process. Nine participants were interviewed through home visits, organized based on the availability and invitation of the parents. For the remaining two participants, the researcher arranged meetings at outdoor locations of their preference. In addition to these in-person meetings, some parts of the data collection process also involved Zoom interviews. The study thus utilized a hybrid data collection approach combining face-to-face and online interviews. Although both formats yielded rich narrative data, participants interviewed during home visits tended to share more detailed emotional reflections, likely due to the comfort and familiarity of their home environment. In contrast, Zoom interviews remained effective for eliciting descriptive information but occasionally offered less spontaneous emotional depth due to the mediated nature of the setting. Open-ended interview questions were used, supplemented by the occasional use of follow-ups to elucidate inquiries or facilitate comprehensive responses. The interview session included questions such as "has hippotherapy proven to be beneficial?" and "have you noticed improvements in your child's overall well-being?". Before conducting the research, ethics committee approval was obtained from the Social Science and Humanities Scientific Research and Publication Ethics Committee of the university to which the second author of this article is affiliated. Each participant provided informed consent by signing a voluntary consent form, affirming their agreement to participate. Participation in the study was strictly voluntary, and participants were explicitly informed of their right to withdraw from the study at any time, without providing a rationale for their decision. Ethical considerations about the photography projects, including taking, storing, and delivering photographs, were thoroughly addressed, and implemented throughout the entirety of the research process. The participants were provided with contact information from the researchers. The 6-stage approach to the photovoice method, as proposed by Povee et al. (2014), was used. The transfer of photographs and emotions was confirmed through the focus group and individual interviews. During the participatory visual analysis, parents were invited to interpret the meanings they attributed to each photograph. They confirmed or refined the researcher's initial codes and occasionally contributed additional nuances that helped shape the thematic structure. No objections emerged regarding the coding, but parents' clarifications strengthened the interpretive depth and trustworthiness of the analysis. Focus group interviews were conducted in Zoom with seven participants which lasted 42 minutes. During the session, the photographs and accompanying stories were shared via screen sharing. Each photograph was assigned mnemonic names for contexts. The utilization of the photovoice method, known to promote reflection and foster dialogue (Spencer et al., 2021), facilitated a streamlined process during the meeting. Group discussions about photographs were largely guided by the SHOWED method (Wang & Burris, 1997), a set of questions designed to elicit information about photographs. The SHOWED method includes questions such as "what do you see here?", "what is really happening here?", "how does this relate to our lives?", "why does this problem and concern exist?", "what can we do about it?". The questions in the SHOWED method were displayed in focus group interviews and referenced to begin discussions. These discussions also elicited themes across participants. The group interviews were conducted one week after the researchers received the photos and stories. During the interviews, the participants were presented with the selected images.

Data Analysis

To analyze the photographic data, the participants and a researcher together took part in a Participatory Visual Analysis (Wang & Burris, 1997). This analysis consisted of three main components. 1. Selecting photographs that most accurately capture the community's needs and assets 2. Contextualizing and telling stories about the meaning behind the photographs 3. Identifying and codifying emerging issues, themes, and theories (Roberts et al., 2022). All group discussions and individual interviews were transcribed, and a manual content analysis was used. Group discussions were used to illustrate individual interview categories and larger

themes. At this stage, content analysis was used to identify patterns and themes across responses. Categories were formulated based on recurring themes identified during the analysis of transcripts, and a coding manual was subsequently created. Following coding, responses were analyzed for common themes. To validate the emerging themes, a member check process was undertaken involving the voluntary participation of four individuals. The themes that emerged at the end of the interview and the transfer of photographs were compiled and presented to the focus group for verification.

Next, the codes were grouped to represent potential themes. Various measures were taken to increase the rigor and trustworthiness of the research. To ensure the accuracy of these themes, all written documents and stories related to the photographs were examined by the entire research team. All data (interview texts and pictures) and the comments resulting from the analysis were reviewed by at least two members of the research team to ensure rigor. The analysis uncovered the themes through triangulation that integrated diverse datasets and involved a team of researchers. Furthermore, data collection continued until saturation occurred. Reliability was ensured through an iterative process of data collection and analysis (Frambach et al., 2013).

FINDINGS

Of the 11 participants, 7 were female, 4 were male. The mean age was 40.4 (SD= 6.7), while the mean age of children with cerebral palsy was 5.5 (SD= 2.2). Eight of the parents had a high school or lower level of education. Table 1 presents the demographic characteristics of the participants. During the interviews, the participants expressed the positive impact of hippotherapy on their children's well-being, primarily attributing it to notable improvements in their physical development. Five physical effect themes were determined through thematic analysis based on the photographs and stories shared by the parents. These themes included 1) physical motor; 2) physical development; 3) independent sitting; 4) gait, and 5) balance. Based on the five physical effects observed, the study identified six themes: 1) Perceived self-efficacy; 2) Self-confidence and sense of achievement; 3) Motivation; 4) Communication and socialization; 5) Perceptual expansion; and 6) Emotional attachment. The participants particularly acknowledged the psychological improvement and the complementary treatment based on the physical improvements attained through hippotherapy. They reported visual evidence and stories that depicted the positive impacts of hippotherapy on self-confidence and overall well-being, supporting its influence on physical development.

Physical Effects

With the physical effects of hippotherapy, the focus was on functional motor skills, physical development, independent sitting, gait, and balance. These physical effects should not be considered independently of psychological well-being. In other words, the physical development of children receiving hippotherapy may also have a positive effect on their well-being. Below, each physical effect is explained, and the photographs and stories shared by the parents are presented.

Functional motor skills

Motor skills development was one of the critical areas of focus about the physical effects of hippotherapy. The parents of children with cerebral palsy who participated in the study highlighted this physical effect in their photographs and stories. Figure 1a refers to the development of functional motor skills. The parent sharing the image disclosed that the staircase posed a significant obstacle for the child but acknowledged an improvement in the child's functional motor skills following this therapy. The story of this image is as follows.

> This is the staircase to enter and exit our house. Before hippotherapy, these stairs were a major challenge for my child. It was a long climb on the staircase. After hippotherapy, it became easier to go up and down the stairs. Now my child can climb the stairs without any support. There is a huge difference in the development before and after hippotherapy. (Participant 3; woman (41 years); Figure 1a).

Beyond its physical effects, the staircase also carried symbolic meaning for the family. What was once perceived as an intimidating barrier—"a mountain to be climbed"—gradually became a representation of the child's growing autonomy and the family's sense of liberation. This shift in meaning illustrates how participants reinterpret ordinary environments through their evolving abilities and lived experiences.

Physical development

Some of the participants affirmed the positive contribution of hippotherapy to their children's physical development. Participant 10 reported that her child had developmental delay of the foot, accompanied by contractions, and noted that the therapy mitigated the delay and improved the foot posture. Figure 1b presents the photography and its story below.

> My child had developmental delay and contractions in their left foot before the hippotherapy. After the therapy, these issues have declined. We had even thought about Botox as an option before the therapy. Our doctor said we didn't need to do it. Now, there is no contraction or side-stepping. (Participant 10; woman (33 years); Figure 1b).

Figure 1

Pictures of Functional Motor Skills and Physical Development

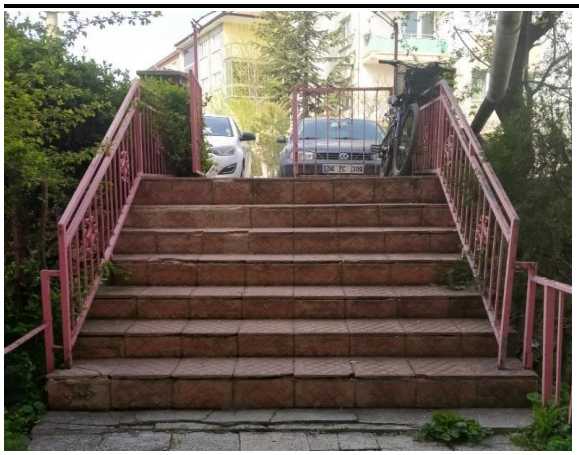


Figure 1a. Functional motor skills

Figure 1b. Physical development

Independent sitting

The participants also emphasized the effect of hippotherapy on their children's physical development in relation to achieving independent sitting. As depicted in Figure 1b, the child's independent performance of physical movement was seen as a development. Below is the participant's depiction of the image.

Figure 2

Pictures of Independent Sitting and Gait

Figure 2a. Independent sitting

Figure 2b. Gait

> While our child had trouble sitting independently before hippotherapy, now she can sit and do things without our assistance. Now I leave her alone, and she's sitting, eating her breakfast, peeling her eggs. (Participant 11; woman (44 years); Figure 2a).

Gait

Gait was another prominent aspect that participants highlighted when discussing the physical effects of hippotherapy. They reported an increased willingness and improvement in gait following the therapy. Figure 2b depicts a child making an attempt to walk with the assistance of a baby-walker. The development that this image represents is expressed as follows.

> My child couldn't hold on to things and walk before. He would shake when he tried to hold on to his walker or first-step buggy while walking. He would panic and be agitated. After hippotherapy, he started taking assisted steps. Now he wants to push and hold on to things and walk by himself. (Participant 10; woman (33 years); Figure 2b).

Balance

The last theme that the participants highlighted about the physical effects of hippotherapy was balance. The parents emphasized the positive contribution of therapy to the balance of children with cerebral palsy by using the photograph of a scooter, which was a tool used to realize a child's dream. The state of balance is represented in Figure 3, and below is the story shared by the participant regarding this photo.

> Scooters have been my child's dream for years, but we've always forbidden it. We have always held it off because my child had no balance, and they could fall and get hurt. We initially said no, but after hippotherapy, we thought of giving them a scooter when we thought about how we could make them happy because their balance and upright posture are now better. (Participant 6; man; (45 years); Figure 3).

This example illustrates more than improved balance; it reflects a shift in the family's risk perception and parenting approach. What was once considered unsafe and strictly prohibited became a symbol of joy, confidence, and renewed trust in the child's abilities. In this sense, rehabilitation extended beyond therapeutic gains and entered the realm of recreation, demonstrating how hippotherapy reshaped both the child's physical capacity and the parents' interpretations of what is possible.

Figure 3

Scooter Picture Representing the Child's Development of Balance

Well-being Effects

Perceived self-efficacy

Some participants pointed that hippotherapy contributed to the perceived self-efficacy. In this regard, one of the parents stated that her child overcame their shyness and helped them gain self-efficacy. As evident from the excerpt below, some parents articulated the influence of therapeutic interventions on their children's capacity to effectively manage fundamental tasks.

> My child was very timid. They would hide when we went to a place. They used to do things with me. Now they can go anywhere on their own. Before the hippotherapy, they had difficulty using their hands. When I tried to get them to hold an object, they would drop it immediately. One day, I noticed at breakfast that they were holding bread in their right hand and tea in their left hand. Now they can also put on and take off their glasses. (Participant 5; woman (50 years); Figure 4a).

Self-confidence and self-esteem

The second theme was self-confidence and self-esteem. This theme related to a sense of achievement experienced by children with cerebral palsy in successfully completing some tasks. Specifically, parents reported that their children could now independently perform basic activities such as climbing stairs, maintaining balance, and standing upright, which were previously facilitated by parental assistance. More than half of the participants perceived a strong association between physical competence and psychological well-being, which they identified as a manifestation of self-confidence. This aspect was considered a distinct and noteworthy outcome of therapy that extended beyond mere physical development. Receiving therapy had a positive impact on their children's sense of achievement. Below is presented one of the participants' opinions on the positive impact of therapy on self-confidence and self-esteem.

> We have two memories of this photo, good and bad. It tells us about the before and after of hippotherapy. The first time my child tried to go down these stairs, they ended up falling down the stairs. We used to do stair-climbing exercises in hippotherapy. At first, they couldn't climb the stairs at all, but now they can do it easily. Their balance and upright posture have improved. Now they say to us, "you don't need to hold me

anymore. I can climb the stairs on my own". They can go up and down the stairs without support. (Participant 3; woman (41 years); Figure 4b).

Figure 4

Pictures of the Development of Motivation and Socialization

Figure 4a. Perceived self-efficacy

Figure 4b. Self-confidence and self-esteem

Motivation

The therapy was reported to have resulted in increased intrinsic and extrinsic motivation among children with cerebral palsy for the accomplishment of mundane tasks. Motivation serves as a catalyst for individuals to act. It has been suggested that motivation, as a critical factor in fostering self-confidence and self-efficacy, can emerge internally through the interaction between the child and the horse and through external factors, including trainers, families, and peers involved in the training. Several parents reported that hippotherapy stimulated a sense of achievement in their children. For the motivational aspects of therapy, more than half of the participants expressed satisfaction with their children's determination to succeed, particularly when they overcame their fears. The excerpt that supported this theme is as follows.

> When we picked up our child, they would scream, get scared and cry. Now they are happy when we put them on their feet. They now try to do it on their own. They sit down and try to have their breakfast. When it snows, they try to get snow off the ground. When we put on their shoes, they would step inwardly. Now they're trying not to do so. (Participant 2; woman (34 years); Figure 5a).

Communication and socialization

Nearly all participants reported that hippotherapy had a positive impact on their children's ability to communicate with family, friends, peers, and therapists. The findings highlighted that the improvement of the children's communication skills also played a significant role in fostering their socialization. The developments resulting from therapy were noted to effectively eliminate asocial behavior that particularly emerged due to limitations in the child's physical movement. According to the parents, the child's physical development resulted in increased self-confidence, which in turn positively influenced the child's communication skills and overall socialization. The picture and excerpt below explain the socialization theme.

> My child could not run freely in this garden during the first school days. When they tried to run, they lost balance and fell over. My child is a little timid. After hippotherapy, they started running because they could comfortably stand on balance. The fact that they began to run and walk more easily enabled them to get closer to their friends, and thus

they became more social. This garden is now a place of freedom where they can run comfortably and play with their friends. (Participant 3; woman (41 years); Figure 5b).

Figure 5

Pictures of the Development of Motivation and Socialization

Figure 5a. Motivation

Figure 5b. Socialization

Perceptual expansion

Our findings suggested that parents of children with cerebral palsy appreciated hippotherapy for its role in promoting perceptual expansion. The development of the child's interests and greater awareness of environmental stimuli were characterized as perceptual expansion. Parents also perceived hippotherapy as facilitating their child's exploration of their extremities and objects. Furthermore, therapy was perceived as a positive reinforcement of previously unexplored complementary behaviors. As indicated in the excerpt below, perceptual expansions were observed, including interest in exploring the toys, exploring movements, and complementing the act of listening with looking and watching.

> My child had no interest in toys before the hippotherapy. If we gave them a plastic bag, they would like the rustling of it and play with it. During the hippotherapy, the touch and movements of patting the horse led them to explore their hands. They used to say that their hands were tickling and tingling. Putting their hands to the side, they achieved balance. They could not sit without support before the therapy. Now they are trying to maintain their balance and engage in activities with their toys. They reach and try to pick up the toys and return to their earlier position. Before the therapy, we couldn't get them to sit down and getting them to return to their position was no option. My child, who couldn't even sit down before, is now interested in exploring where they sit. Previously, they would have preferred to just listen, not do anything by looking. Now they pay attention and have begun to do things by looking and watching. Hippotherapy has accelerated our treatment process. (Participant 9; woman; (40 years); Figure 6a).

Figure 6

Pictures of Perceptual Expansion and Emotional Attachment

Figure 6a. Perceptual expansion

Figure 6b. Emotional attachment

Emotional attachment

The last theme was emotional attachment. A number of parents disclosed that hippotherapy contributed to the connection between children's development of emotions and animal love. Some participants reported a correlation between the child's increased level of relationship with the horse and emotional attachment. For example, one participant shared a photo and positive experiences highlighting her child's enhanced sense of touch and interaction, which, as a result of hippotherapy, fostered a love for other animals while facilitating an emotional attachment.

> My child was interested in animals before the hippotherapy, but during the therapy, they felt much more attached to animals because they had the chance to interact directly with animals. Cats, dogs, horses. They bonded with them through close contact. My child is incredibly happy. They love having people around them that talk to them. They can't quite speak yet, but when they see the horses, they get madly happy. And because they had a chance to touch the animals during the therapy, they got more interested, and I think it is good for them. (Participant 8; woman (37 years); Figure 6b).

DISCUSSION AND CONCLUSION

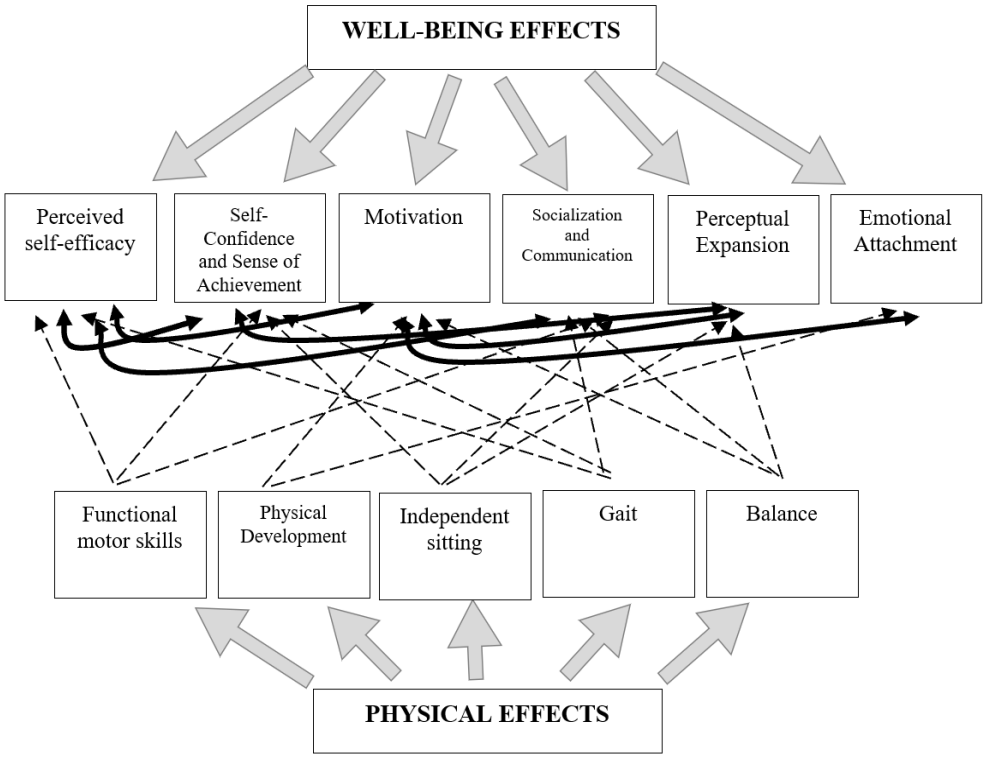
This study aimed to examine the effect of hippotherapy on the well-being of children with cerebral palsy through the photovoice method from the parents' perspective. The findings of this study can contribute to the research on the hippotherapy experiences of parents who have a child with cerebral palsy. To the best of our knowledge, this study represents the first qualitative research utilizing the photovoice method to examine the influence of hippotherapy on well-being from the perspective of parents raising children with cerebral palsy. Hence, our study effectively addressed a gap in the current literature and can be a significant contribution to the existing body of knowledge. Numerous studies have been conducted on the physical development and psychological impacts of hippotherapy. This study demonstrated a parental point of view, who are the target audience, and can be regarded as a methodological contribution as it uses the photovoice method as a qualitative approach. The findings of this study supported the existing research that employed different methodologies to investigate the effects of

hippotherapy. We demonstrated that parents appreciated hippotherapy for the well-being of children with cerebral palsy.

Our study resulted in the identification of five factors expressed by the parents regarding the effect of hippotherapy on physical development, which included: physical motor skills, physical development, independent sitting, gait, and balance. Our findings echoed the results of numerous studies on hippotherapy (e.g., Biery & Kauffman, 1989; Casady et al., 2004; Debuse et al., 2005; Granados & Agís, 2011; Lee et al., 2014; McGibbon et al., 1998). For example, Biery and Kauffman (1989) stated improved balance after a six-month hippotherapy. Lee et al. (2014) also reported a similar finding of improved balance as a result of hippotherapy. According to Zadnikar and Kastrin's (2011) meta-analysis, hippotherapy held promise for enhancing balance and postural control in individuals with cerebral palsy. Casady and Nichols-Larsen (2004) observed a positive effect of hippotherapy on the functional movements of a sample group of eleven children with cerebral palsy, with a mean age of 3.9 (SD = 1.4). Winchester et al. (2002) indicated that hippotherapy might lead to improvement in gross motor function in developmentally delayed children and that these improvements remained once hippotherapy ceased. The findings regarding the impact of hippotherapy on well-being in relation to its physical effects revealed six key themes: perceived self-efficacy, self-confidence, and sense of achievement; motivation; communication and socialization; perceptual expansion; and emotional attachment. These emerging themes cannot be evaluated in isolation from the factors that contributed to the children's physical development during therapy. As Debuse et al. (2005) advocated, the effects of hippotherapy should be evaluated in a holistic manner. Nearly all the parents interviewed stated that their children with cerebral palsy psychologically developed as a reflection of their physical development. Supporting this interpretation, previous research has shown that satisfaction derived from leisure activities strengthens the positive relationship between social interaction and psychological well-being (Yalçın et al., 2025).

Figure 7

Findings on the Relationships between Physical and Well-Being Effects



While this study primarily examined the impact of hippotherapy on well-being, it was essential to acknowledge the relationship between hippotherapy and the physical effects. Based on the German and British physiotherapists' views, Debuse et al. (2005) highlighted the psychological benefits of hippotherapy alongside the physical developmental benefits. In addition to the physical benefits of this treatment, research has shown psychological, social, and educational benefits (Granados & Agís, 2011). Therefore, the five effects of hippotherapy on children in relation to well-being should be considered from the parents' perspective. The assumption that the child with cerebral palsy demonstrated psychological and physical development simultaneously appeared to validate the impact of hippotherapy on the relationship between physical development and well-being. This finding was consistent with previous studies (e.g., Debuse et al., 2005; MacKinnon et al., 1995; Woźniak & Weber-Nowakowska, 2019). While many emerging themes about the well-being or psychological impact of hippotherapy supported the existing research (Lechner et al., 2007), factors such as perceptual expansion and emotional attachment could be regarded as valuable contributions to the relevant literature.

Figure 7 presents the physical effects and the perceived well-being effects resulting from hippotherapy as reported by the parents with photographic evidence. The figure illustrates the relationships between the outcomes of physical development and well-being. When evaluating the perceived self-efficacy based on the functional motor skills and well-being effects, it was found that children between the ages of 6-9 improved their ability to carry out daily activities as their functional motor skills developed. As a result of the children's realization of their capabilities to independently perform these daily activities, they became less reliant on their families and developed a sense of self-assurance in their abilities. As a consequence of improved functional motor skills, the children experienced a sense of competence and achievement in daily activities, increasing motivation to engage in further activities. As they realized their ability to perform these activities, they developed self-confidence and a sense of achievement. Functional motor development was of more importance for children in primary school. The child initially chose to isolate themselves due to concerns about disrupting games and potentially causing harm to their peers, as their motor development was comparatively lower than that of their peers. As a result of skill development, individuals built their self-confidence, increased their desire to engage more with peers, and enhanced their socialization and communication skills. In terms of physical development, the child became aware of the changes in their body. The implementation of therapies led to a reduction in bodily contractions, consequently promoting the child's physical development. The child was more motivated to continue the therapy by noticing the rapid development in their body. This motivation enhanced their active participation in therapies and promoted their overall developmental progress. Hence, the child exhibited not only a motivated engagement in therapies but also an understanding that their physical development was attributable to these interventions. Furthermore, they demonstrated emotional attachment towards those in their social sphere. This emotional attachment can be toward those around them as well as therapists. The child's ability to sit independently without external support contributed significantly to their self-confidence and sense of accomplishment. Prior to the sessions, the child's focus during sitting was primarily on maintaining balance. However, because of the therapy, the child gradually experienced an increased level of comfort while sitting. The ability to sit independently allowed the child to gain a better understanding of their surroundings. This heightened state of awareness and exploration of the environment fostered perceptual expansion. Prior to independent sitting, the child struggled to maintain balance and may experience instances of falling while attempting to sit. The child's difficulty in sitting effortlessly resulted in social isolation, as they tended to avoid interaction with peers and seek more solitude. The attainment of independent sitting through the therapy sessions positively influenced the child's self-confidence and sense of achievement. Furthermore, the increased desire to spend time with peers facilitated the

development of socialization and communication skills. Walking ability as a significant component of daily activities enhanced the child's overall level of physical activity. As a result, children of primary school age became capable of independently commuting to school. The ability to act independently and autonomously, without assistance from the family, enhanced self-efficacy, self-confidence, and a sense of achievement. Consequently, the child's enhanced ability to engage comfortably in peer activities contributed to the improvement of their socialization and communication skills.

Balance was an essential factor for children with cerebral palsy as it impacts various aspects of their lives. The development of balance facilitated gait and independent sitting and created a sense of achievement, thus enhancing motivation and fostering active participation in therapies. With the advancement of balance, the child who previously experienced social isolation due to challenges in maintaining balance during peer interactions developed socialization and communication skills. Achieving a sense of balance liberated the child from the constant need to focus on balance, which fostered a greater ability to explore and engage with the surroundings. This sense of curiosity and the drive for exploration also contributed to perceptual expansion.

The relationship between the effects of well-being indicated that children experienced enhanced self-efficacy, self-confidence, and a sense of achievement through engaging in activities and achieving developmental milestones. The acquisition of perceived self-efficacy and the ability to confidently engage in daily activities as a result of therapy sessions increased the child's commitment to the therapies and served as a motivating factor. Children developed a sense of self-efficacy and became more inclined to spend time with their peers. Developing self-efficacy facilitated socialization and communication. As self-confidence and a sense of achievement developed, the children became more motivated to explore their environment. Consequently, this process led to a perceptual expansion, broadening the children’s perception and understanding of their surroundings. Perceptual expansion and a sense of curiosity motivated the children, which led to an emotional commitment to the therapy.

Moreover, the theme of perceptual expansion observed in this study reflects not only behavioral change but also underlying neurological and cognitive development. Parents described their children transitioning from primarily “listening” or passively observing to actively “watching, reaching, and engaging” with their environment. This developmental shift aligns with Piaget’s sensorimotor stage, in which children move from simple reflexive actions toward intentional interaction, exploration, and problem-solving. In this sense, P9’s observations—such as exploring objects with hands and reaching for toys—represent early forms of goal-directed behavior and increased environmental awareness. This theme stands out as one of the study’s most original contributions, demonstrating how hippotherapy may support not only motor and emotional gains but also early cognitive processes related to exploration and agency.

Furthermore, our findings demonstrated that parents endorsed the well-being perspective by emphasizing the impact of hippotherapy on the children's physical development. While participants of previous studies have reported both physical and psychological effects, our study revealed that parents prioritized physical development in line with their expectations and subsequently assessed the well-being effects as a reflection thereof. This result aligned with the anticipated outcome considering the expectations of the families. Families prioritized their children's freedom of movement.

The significance of our findings lies in their contribution to the development of self-confidence, a sense of achievement, motivation, communication, and socialization. These additional outcomes, beyond the primary expectations from the therapy, are crucial for children's psychological development. These expected physical developments resulted in

relatively less expected results of well-being effects, which made families happy (Irwin et al., 2019). The results of our research using photovoice as a qualitative method can be used to complete a physical or quantitative analysis of hippotherapy.

Theoretical Implications

This study with its subject, methodology, and holistic perspective is a theoretical contribution to comprehending the experiences of individuals with cerebral palsy. It offers valuable insights into the families' perspectives and experiences bridging a gap in the current literature on hippotherapy and cerebral palsy. Moreover, the sub-dimensions that emerged within our study support the existing theoretical knowledge, while the two previously unexplored aspects (perceptual expansion and emotional attachment) that our research introduced can contribute to existing literature. The target audience of this study, including parents, health care professionals, clinicians, and service providers working with children with cerebral palsy, can engage with the scientifically presented results, which incorporate real-life examples regarding complementary and alternative medicine and hippotherapy. Within the context of comparable experiences and outcomes, these stakeholders can gain insights and discover answers to their well-being expectations. The demonstrated effects in the literature can indirectly serve as a source of motivation and well-being for parents who are confronted with similar situations and share a common narrative. Furthermore, the findings of our study can guide future researchers in developing a new understanding, perspective, and approach toward the research processes, thereby making an additional contribution to the field.

Practical Implications

This study offers several practical implications for families and clinicians working with children with cerebral palsy. The findings highlight that parents play a central role in supporting the therapeutic progress of their children. Clinicians may therefore integrate these insights into their referral and guidance processes by informing families about the physical and psychological benefits associated with consistent participation in hippotherapy. The results may also guide parents in addressing emotional needs both at the time of diagnosis and throughout the treatment journey. Beyond medical interventions, the study underscores the importance of considering complementary therapies as meaningful avenues for supporting well-being. The findings may assist policymakers and service providers in designing programs that alleviate the emotional and financial burden of therapy while also validating the experiences of families. Understanding the multidimensional outcomes valued by parents can help clinicians tailor services more closely to family needs. In addition, Photovoice emerged as a promising supportive tool within the therapeutic process. The act of photographing their children’s progress appeared to strengthen parents’ sense of involvement, reinforce their belief in the effectiveness of hippotherapy, and enhance motivation to continue the treatment process. Encouraging parents to incorporate photography into routine follow-up may provide emotional and motivational benefits while giving therapists richer, parent-generated insights into the child’s everyday progress.

Limitations and Future Studies

As with every study, our study has its own limitations. Firstly, the participants of this study consisted of a limited number of parents. The sample of the study was a group of people in Eskişehir that received service within the scope of the European Union project (Hippotherapy Project: Centre in Türkiye). Conducting quantitative studies with larger sample sizes can lead to more comprehensive and generalizable findings. Various factors, including culture, education, and religion, have the potential to influence the evaluation of hippotherapy services received by families of children with cerebral palsy. Future studies can employ photovoice or other qualitative research approaches involving parents from diverse cultural, educational, and

religious backgrounds, which can contribute further to the field. Another limitation of the study was that the physical and well-being development of the children was solely based on the photos and stories shared by the parents. That is, the study lacked expert validation or assessment of the psychological or mental development of the children involved. The findings in the current research were based on parents' reports about the perceived social, psychological, and health state of their children. Future studies can benefit from comparing families' and specialists' reports. Adopting such an approach would contribute to exploring both the perceived outcomes and expert-validated results of therapy. Another limitation of this study concerns the potential presence of positive bias in parental reports. As frequently observed in qualitative research involving caregivers, social desirability or a sense of gratitude toward therapeutic services may have led parents to emphasize positive changes more strongly than negative or neutral experiences. Additionally, because the Photovoice method requires participants to choose which moments to photograph, the resulting data is shaped by personal interpretations and subjective preferences. It is therefore important to consider this when interpreting the findings. Furthermore, we acknowledged that this study primarily focused on the well-being status of children with cerebral palsy from the parental perspective, and future studies can complement our findings by examining well-being from the perspectives of both experts and individuals with cerebral palsy. The results of this study illustrated the observed developments, which could provide a path to a better understanding of the therapy process. Lastly, while this study primarily focused on the well-being effects of hippotherapy, it did not address the challenges faced by families in coping with difficulties. Future studies can investigate families' coping strategies employed in dealing with psychological difficulties.

Acknowledgements

The authors thank the families of children with cerebral palsy who volunteered for this study.

REFERENCES

All, A. C., Loving, G. L. (1999). Animals, horseback riding, and implications for rehabilitation therapy. *Journal of Rehabilitation*, *65*(3). ISSN: 0022-4154 WOS:000082364500008

Anderson, A. E., Hure, A. J., Kay-Lambkin, F. J., & Loxton, D. J. (2014). Women's perceptions of information about alcohol use during pregnancy: A qualitative study. *BMC Public Health, 14*(1), 1048. https://doi.org/10.1186/1471-2458-14-1048

Benjamin, J. (2000). Introduction to hippotherapy. *American Hippotherapy Association*. Aktaran Casady, R. L., Nichols-Larsen, D. S. (2004). The effect of hippotherapy on ten children with cerebral palsy. *Pediatric Physical Therapy*, *16*(3), 165-172.

Berninger, V. W., Gans, B. (1986). Language profiles in nonspeaking individuals of normal intelligence with severe cerebral palsy. *Augmentative and Alternative Communication*, *2*(2), 45-50. https://doi.org/10.1080/07434618612331273880

Bertoti, D. B. (1988). Effect of therapeutic horseback riding on posture in children with cerebral palsy. *Physical Therapy*, *68*(10), 1505-1512. https://doi.org/10.1093/ptj/68.10.1505

Biery, M. J., & Kauffman, N. (1989). The effects of therapeutic horseback riding on balance. *Adapted Physical Activity Quarterly*, *6*(3), 221-229.https://doi.org/10.1123/apaq.6.3.221

Brown, F. L., Whittingham, K., Boyd, R. N., McKinlay, L., & Sofronoff, K. (2015). Does Stepping Stones Triple P plus Acceptance and Commitment Therapy improve parent, couple, and family adjustment following paediatric acquired brain injury? A randomised controlled trial. *Behaviour Research and Therapy*, *73*, 58-66. https://doi.org/10.1016/j.brat.2015.07.001

Carlsson, B. (2001). Depicting experiences. *Scandinavian Journal of Educational Research*, *45*(2), 125-143. https://doi.org/10.1080/00313830120052723

Casady, R. L., & Nichols-Larsen, D. S. (2004). The effect of hippotherapy on ten children with cerebral palsy. *Pediatric Physical Therapy*, *16*(3), 165-172.

Cho, S. H. (2017). Effects of horseback riding exercise on the relative alpha power spectrum in the elderly. *Archives of Gerontology and Geriatrics*, *70*, 141-147. https://doi.org/10.1016/j.archger.2017.01.011

Copeland-Fitzpatrick, J., & Tebay, J. M. (1998). Hippotherapy and therapeutic riding: An international review. *Companion Animals in Human Health*, 41-58.

Debuse, D., Chandler, C., & Gibb, C. (2005). An exploration of German and British physiotherapists' views on the effects of hippotherapy and their measurement. *Physiotherapy Theory and Practice*, *21*(4), 219-242. https://doi.org/10.1080/09593980500321143

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268.

DePauw, K. P. (1986). Horseback riding for individuals with disabilities: Programs, philosophy, and research. *Adapted Physical Activity Quarterly*, *3*(3), 217-226. https://doi.org/10.1123/apaq.3.3.217

Falke, G. (2009). Equine therapy clinical, psychological and social approach. *Magazine of the Argentine Medical Association*, *122*(2).

Frambach, J. M., van der Vleuten, C. P., & Durning, S. J. (2013). AM last page: Quality criteria in qualitative and quantitative research. *Academic Medicine*, *88*(4), 552. https://doi.org/10.1097/ACM.0b013e31828abf7f

Granados, A. C., & Agís, I. F. (2011). Why children with special needs feel better with hippotherapy sessions: a conceptual review. *The Journal of Alternative and Complementary Medicine*, *17*(3), 191-197. https://doi.org/10.1089/acm.2009.0229

Irwin, L., Jesmont, C., & Basu, A. (2019). A systematic review and meta-analysis of the effectiveness of interventions to improve psychological wellbeing in the parents of children with cerebral palsy. *Research in Developmental Disabilities*, *95*, 103511. https://doi.org/10.1016/j.ridd.2019.103511

Janura, M., Peham, C., Dvorakova, T., & Elfmark, M. (2009). An assessment of the pressure distribution exerted by a rider on the back of a horse during hippotherapy. *Human Movement Science*, *28*(3), 387-393. https://doi.org/10.1016/j.humov.2009.04.001

Kim, S. G., & Lee, J. H. (2015). The effects of horse riding simulation exercise on muscle activation and limits of stability in the elderly. *Archives of Gerontology and Geriatrics*, *60*(1), 62-65. https://doi.org/10.1016/j.archger.2014.10.018

Lechner, H. E., Kakebeeke, T. H., Hegemann, D., & Baumberger, M. (2007). The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, *88*(10), 1241-1248. https://doi.org/10.1016/j.apmr.2007.07.015

Lee, C. W., Kim, S. G., & Na, S. S. (2014). The effects of hippotherapy and a horse riding simulator on the balance of children with cerebral palsy. *Journal of Physical Therapy Science*, *26*(3), 423-425. https://doi.org/10.1589/jpts.26.423

Macdonald, D., Peacock, K., Dew, A., Fisher, K. R., & Boydell, K. M. (2022). Photovoice as a platform for empowerment of women with disability. *SSM-Qualitative Research in Health*, *2*, 100052. https://doi.org/10.1016/j.ssmqr.2022.100052

MacKinnon, J. R., Noh, S., Lariviere, J., MacPhail, A., Allan, D. E., & Laliberte, D. (1995). A study of therapeutic effects of horseback riding for children with cerebral palsy. *Physical & Occupational Therapy in Pediatrics*, *15*(1), 17-34. https://doi.org/10.1080/J006v15n01_02

McGee, M. C., & Reese, N. B. (2009). Immediate effects of a hippotherapy session on gait parameters in children with spastic cerebral palsy. *Pediatric Physical Therapy*, *21*(2), 212-218. https://doi.org/10.1097/PEP.0b013e3181a39532

McGibbon, N. H., Andrade, C. K., Widener, G., & Cintas, H. L. (1998). Effect of an equine-movement therapy program on gait, energy expenditure, and motor function in children with spastic cerebral palsy: A pilot study. *Developmental Medicine & Child Neurology*, *40*(11), 754-762. https://doi.org/10.1111/j.1469-8749.1998.tb12344.x

Miller, F. (Ed.). (2007). *Physical therapy of cerebral palsy*. Springer Science & Business Media.

Moreau, N. G., Bodkin, A. W., Bjornson, K., Hobbs, A., Soileau, M., Lahasky, K., … & Barbeau, H. (2016). *Effectiveness of rehabilitation interventions to improve gait speed in children with cerebral palsy: Systematic review and meta-analysis.* Physical Therapy, 96(12), 1938–1954. https://doi.org/10.2522/ptj.20150401

Piaget, J. (1952). *The origins of intelligence in children.* International Universities Press.

Povee, K., Bishop, B. J., & Roberts, L. D. (2014). The use of photovoice with people with intellectual disabilities: Reflections, challenges and opportunities. *Disability & Society*, *29*(6), 893-907. https://doi.org/10.1080/09687599.2013.874331

Roberts, L. T., Stein, C. H., & Tompsett, C. J. (2022). Youth views of community needs: A photovoice collaboration. *Children and Youth Services Review*, *139*, 106563. https://doi.org/10.1016/j.childyouth.2022.106563

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Shaffer, R. (1985). *Beyond the dispensary*. English Press. CABI Record Number: 19852023923

Simmonds, S., Roux, C., & Avest, I. T. (2015). Blurring the boundaries between photovoice and narrative inquiry: A narrative-photovoice methodology for gender-based research. *International Journal of Qualitative Methods*, *14*(3), 33-49. https://doi.org/10.1177/160940691501400303

Spencer, R. A., Numer, M., Rehman, L., & Kirk, S. F. (2021). Picture perfect? Gazing into girls' health, physical activity, and nutrition through photovoice. *International Journal of Qualitative Studies on Health and Well-Being, 16*(1), 1874771. https://doi.org/10.1080/17482631.2021.1874771

Tercan, S., Ekinci, Ü. & Kaya, E. (2025). The effect of recreational activities and education on the quality of life of parents of ındividuals with autism. Journal of Education and Recreation Patterns (JERP), 6(1), 199-215. DOI: https://doi.org/10.53016/jerp.v6i1.286

Van Der Heide, J. C., Begeer, C. O., Fock, J. M., Otten, B., Stremmelaar, E., Van Eykern, L. A., & Hadders-Algra, M. (2004). Postural control during reaching in preterm children with cerebral palsy. *Developmental medicine & child neurology*, *46*(4), 253-266. https://doi.org/10.1017/S0012162204000416

Yalçın, C., Altındöker, M.& Yıldız, H. (2025). The moderating role of leisure satisfaction in the effect of peer relationships on happiness in adolescents. *Journal of Education and Recreation Patterns (JERP), 6*(1), 1-16. DOI: https://doi.org/10.53016/jerp.v6i1.278

Walton, G., Schleien, S. J., Brake, L. R., Trovato, C., & Oakes, T. (2012). Photovoice: A collaborative methodology giving voice to underserved populations seeking community inclusion. *Therapeutic Recreation Journal*, *46*(3), 168-178.

Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, *24*(3), 369-387. https://doi.org/10.1177/109019819702400309

Whittingham, K., Sanders, M. R., McKinlay, L., & Boyd, R. N. (2016). Parenting intervention combined with acceptance and commitment therapy: A trial with families of children

with cerebral palsy. *Journal of Pediatric Psychology*, *41*(5), 531-542. https://doi.org/10.1093/jpepsy/jsv118

Winchester, P., Kendall, K., Peters, H., Sears, N., & Winkley, T. (2002). The effect of therapeutic horseback riding on gross motor function and gait speed in children who are developmentally delayed. *Physical & Occupational Therapy in Pediatrics*, *22*(3-4), 37-50. https://doi.org/10.1080/J006v22n03_04

Wingate, L. (1982). Feasibility of horseback riding as a therapeutic and integrative program for handicapped children. *Physical Therapy*, *62*(2), 184-186.

Woźniak, P., & Weber-Nowakowska, K. (2019). Assessment of the influence of hypotherapy on psychosocial development of children until 18 years old. *Journal of Education, Health and Sport*, *9*(5), 280-297. http://dx.doi.org/10.5281/zenodo.3072055

Zadnikar, M., & Kastrin, A. (2011). Effects of hippotherapy and therapeutic horseback riding on postural control or balance in children with cerebral palsy: A meta-analysis. *Developmental Medicine & Child Neurology*, *53*(8), 684-691. https://doi.org/10.1111/j.1469-8749.2011.03951.x

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None