The Federation of Horses in Education and Therapy International A.I.S.B.L.

Proceedings of the 18th HETI International Congress

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The HETI 18th International Congress was organised and hosted by the Hungarian Riding for the Disabled Federation.

Volume 23, Issue 2

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Letter from Scientific Committee President

Welcome to the Proceedings of the 18th International Congress on Equine Assisted Services. We are thrilled to present this collection of articles and abstracts from our congress, themed ”Horsepower is Your Power, From Science to Practice”. Within these pages, you’ll find a diverse range of perspectives and research exploring the multifaceted world of equine assisted therapies and services. From innovative treatment methods in equine assisted psychotherapy to the demonstrable effectiveness of equine assisted therapy in addressing disabilities, and the crucial educational components interwined within, this volume offers a comprehesive overview of the field.

Furthermore, the profound horse-human relationship at the heart of this work is explored, and readers are inspired by pilot projects pushing the boundaries of what’s possible. The articles and abstracts in this volume are dedicated to all colleagues devoted to advancing equine-assisted therapy, with the shared aim of fostering a deeper global understanding of the scientific foundation upon which this remarkable therapeutic modality is built. The present volume is dedicated to all those engaged in this field and may it serve as a source of inspiration and knowledge for all those who utilise it. We invite the reader to enjoy the journey of discovery.

Prof. Dr. Laszlo V. Frenyo

Rector Emeritus
Chair of Scientific Committee

Editorial

Dear Reader,

A notable event in HETI this year was the 18th International Congress of Equine- Assisted Services, held in Budapest, Hungary in June. We had the opportunity to observe numerous presentations and practical demonstrations across all EAS disciplines.

HETI Journal: International Research and Practice provided a space for authors to present their work in the form of short papers published in the proceedings of the 18th HETI International Congress. In this issue of the HETI Journal, you will have the opportunity to read the short papers presented as oral presentations in the congress.

Short papers provide an opportunity to describe significant novel work in progress or research that is best communicated in an interactive or graphical format. Compared to full papers, their contribution may be narrower in scope, be applied to a narrower set of application domains, or have weaker empirical support than that expected for a full paper.

I hope you enjoy reading the proceedings of the 18th HETI International Congress, 2024 and I look forward to convening with you all at the 19th International Congress, which will be held in Oslo, Norway, in May 2027.

Thank you to all those who took part in this project! I would especially like to thank Dr. Anne Barnfield and Sanna Mattila-Rautiainen (PhD Cand.) for their assistance in this publication.

Kind Regards,

Alexandra N. Stergiou

Editor in Chief
HETI Journal, International Research and Practice

Call for Submissions

We are seeking original submissions with the purpose of advancing knowledge in the fields of Equine Assisted Services.

The HETI Journal has several submission categories:

Original Research - An original research study conducted by the author.
Literature Review - A comprehensive or systematic review of research on a specific topic.
Study Protocols - Procedures for proposed original scientific investigations that contribute to the development of Equine-Assisted Services.
Clinical Cases (Case studies) - A presentation of a simple comprehensive case study or multiple case studies.
Theory and Practice - A discussion of a specific topic in the field.
Letter to the Editor - Comments on articles published in the HETI journal or in other journals on topics related to the Equine-Assisted field.

Manuscripts are reviewed through a double-blind peer-review system and submissions are welcome throughout the year.

For more information about article submission visit:
https://hetifederation.org/call-for-journal-submissions/

Contact: Please direct all communication regarding the journal to editors Alexandra Stergiou, Inês Pereira Figueiredo and Emily Kieson at: editorial@hetifederation.org

Call for Reviewers

The Federation of Horses in Education and Therapy International (HETI) publishes the HETI Journal: International Research and Practice. The focus of this journal is to advance knowledge about equine interactions in human services, such as equine-assisted therapies, equine-assisted activities, and therapeutic riding. Reviewers are needed to ensure the quality and status of the HETI Journal as a peer-reviewed journal. Peer-reviewers conduct blind reviews of manuscript submissions within their area of knowledge as a step in the review process.

Expectations for reviewers are:

- Ability to provide constructive feedback for a scholarly manuscript in terms of its quality and contribution to the field.
- Timely and respectful communication with Editorial Team.

Requirements for reviewers are:

- Professional experience in an area of equine interactions in human services.
- A PHD or Post-Doctoral degree Experience in reviewing scholarly texts.
- Ability to complete a review within four weeks of receiving a manuscript.

If you are interested in contributing your time as a peer-reviewer for the HETI Journal please submit a letter of interest and your curriculum vitae (CV) via email to editorial@hetifederation.org.

Please type “Reviewer Application” in the subject line.

Pilot Project: Adaptation of the Segmental Assessment of Trunk Control for Equine-Assisted Therapy

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The Segmental Assessment of Trunk Control (SATCo) scale identifies the trunk segment with reduced postural control, providing essential insights for interventions in equine-assisted therapy. The SATCo is a validated scale for evaluating and measuring outcomes by testing head and trunk control in a neutral, seated, vertical position.

The aim of this project was to adapt the scale to monitor head and trunk control on horseback. The practitioner's assessment is conducted in a neutral seated position, using various equestrian tools, including a wooden trestle, mixed saddle, stirrups, cushion, and adjustable foam pad. The saddle is secured to the trestle, ensuring proper alignment of the hips, legs, and feet at 90 degrees in the stirrups. A three-strap belt provides additional stability during evaluation. Two examiners carry out assessments lasting 20 to 50 minutes. One examiner fixes the trunk while the other applies active and reactive multidirectional stimuli. Support is given just below the tested segment (e.g., scapular region, ribs, pelvis) to stabilize it during the evaluation. The foam pad helps position the upper thoracic region for the initial SATCo assessment. The adaptation was made to assess static, active, and reactive trunk control, generating data across these dimensions. It is anticipated that the results of this study will help categorize trunk control levels and guide therapeutic planning. The SATCo scale will assist in selecting appropriate riding equipment, determining the therapist's hand positioning for support, adjusting the horse's biomechanics, and positioning the rider to target specific trunk segments. This approach ensures personalized therapy that matches the practitioner's developmental stage, optimizing the outcomes of equine-assisted interventions.

Keywords: Equine-assisted therapy, SATCo, postural control

Postural control involves regulating the body's position in space to achieve the dual goals of stability and orientation, which reflect postural control ability and are essential for the proper execution of daily tasks. During the performance of such tasks, the trunk primarily functions to stabilize posture. For this postural adjustment to occur, balance, range of motion, maintenance of strength, and coordination of the trunk muscles are required (Curtis et al., 2015).

The ability to maintain balance in a seated posture gradually emerges in typically developing children around six months of age, beginning with the development of head control, followed by the progressive development of trunk control. In children with neuromotor disabilities, motor control may be impaired, and depending on the severity of the condition, restrictions in seated posture can persist throughout life, preventing the independent

control of trunk movement. Thus, there is a clear need for interventions that promote the improvement of trunk control (Butler et al., 1998).

Horseback riding in equine-assisted therapy has shown to be an effective approach, using the horse as a therapeutic resource due to its three-dimensional movement and other biomechanical, task, environmental, and material-related variables, facilitating the development of trunk control (Freitas et al., 2021; Santos et al., 2023).

The Segmental Assessment of Trunk Control (SATCo) identifies the highest target segment of the body where control is poor and/or absent, allowing for the progressive assessment of static, active, or reactive postural control along a cephalocaudal (head-to-tail) direction. Unlike other tools that assess the trunk as a single unit, the SATCo enables a more detailed analysis and precise identification of the level at which trunk control difficulties arise, offering a new perspective for the treatment of these impairments (Butler et al., 2010; Sá et al.,2017).

Assessing trunk control in the seated posture is essential to guiding interventions for individuals with neuromotor disabilities. There has been an increasing development of instruments focused on posture evaluation in both research and clinical practice (Karthikbabu et al.,2011). Without proper measurement of trunk control, it is not possible to provide reliable information on the effectiveness of therapeutic approaches, such as equine-assisted therapy.

This pilot project proposes adapting the SATCo scale to the context of horseback riding in equine-assisted therapy, utilizing all existing prerequisites, creating a tool for evaluating and monitoring potential improvements in trunk control. This instrument will also provide essential parameters for therapeutic planning.

Method

Participant

The study participant was a 5-year-old child diagnosed with spastic cerebral palsy, characterized by deficits in motor control, particularly trunk control. The child had poor trunk control, which makes him representative of the target audience for interventions that aim to improve postural control in equine-assisted therapies. The participant's legal guardians signed the Free and Informed Consent Form before the study began.

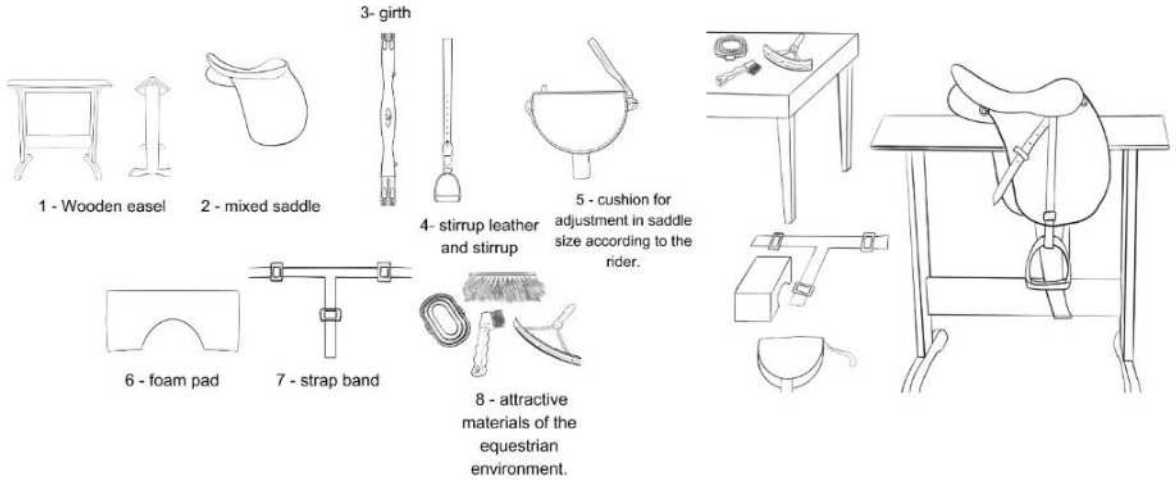
Materials

The materials used were a one-meter-high and 45cm-wide-at-the-base wooden easel, a mixed saddle, a girth, stirrup leathers, stirrups, a half-moon cushion, adjustable dense foam pads, a three-strap belt with buckles, a printed SATCo scale for trunk control, and attractive materials from the equestrian environment.

The saddle was fitted and secured onto the saddle tree by the girth, and the stirrups were adjusted in height and position to reach the alignment of the hips and lower limbs in a neutral vertical position with the feet supported at 90 degrees in the stirrups. Upon achieving the neutral vertical position, the hip was stabilized with the half-moon cushion and with the belt system adjusting the hip stability on the saddle only for evaluation on the easel (Figure 1).

Figure 1

Demonstration of environment and evaluation materials.



Procedures

To carry out the study, the child was positioned on the easel, equipped with an adjusted saddle, following all buckling rules. All conventional procedures for applying the SATCo Scale were then carried out. The evaluationswere carried out by two examiners - one to stabilize the trunk and the other to generate active stimuli with attractive and reactive materials with the necessary manual multidirectional imbalances (Table 1).

Table 1

Parameters of the types of controls evaluated.

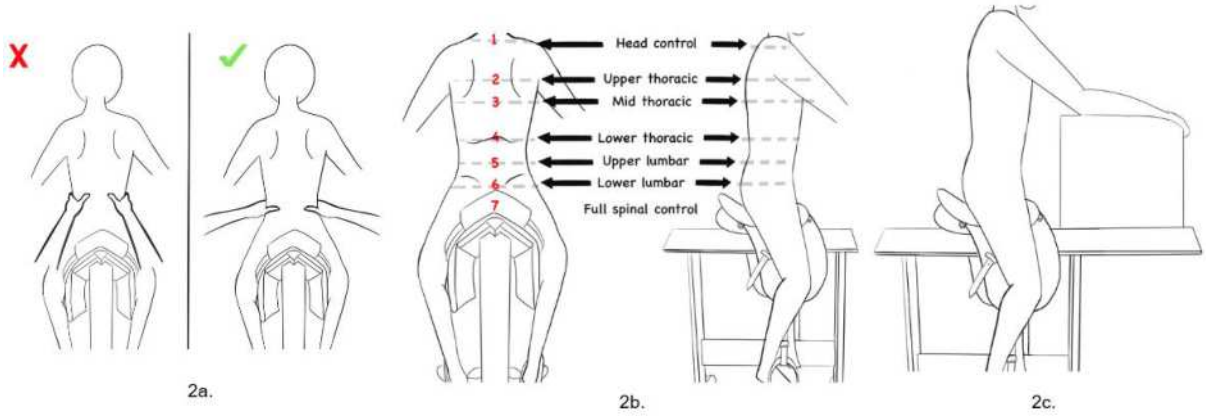
Static control:	• Keep a neutral vertical posture without movement for 5 seconds.
Active Control:	• Keep a neutral upright posture with voluntary head movements - turn head right and left at 45 degrees.
Reactive Control	• Recovery of neutral upright posture after a balance disturbance caused by a multidirectional push.

The evaluator provided firm, horizontal manual support around the trunk of the practitioner at each of the levels designed for each condition; the manual support is provided just below the segment being tested. In this procedure, support is initially given in the scapular waist, then in the axillary region, in the lower scapular, in the lower ribs, below the lower ribs, and in the pelvis; finally, support is removed.

The support provided must be sufficient to ensure that the supported segment is stabilized, and manual support generally extends downward on the trunk beyond the lower stabilized segment. The foam table was used to position the upper thoracic area while performing item 1 of the SATCo (Sitting and Standing Trunk Control Scale) scale (Figure 2)

Figure 2

a. Demonstration of the position of the evaluator's hands.
b. Demonstration of key segments to be tested. Manual support is given just below the segment to be tested.
c. Demonstration of the use of the foam pad for upper thoracic positioning (Item 1 of the SATCo scale).



Results

The study participant was a 5-year-old child diagnosed with spastic cerebral palsy, characterized by deficits in motor control, particularly trunk control. The child had poor trunk control, which made them representative of the target audience for interventions that aim to improve postural control in equine-assisted therapies.

The evaluation using the easel equipped with a fixed saddle was demonstrated to be viable for the application of SATCo in the context of equine-assisted therapy. This adaptation allowed the participant to reach a neutral vertical position and for adjustment of the straps to investigate the level of head and trunk control in a similar way to conventional assessment executed on benches.

The data generated from this methodology made it possible to categorize the levels of static, active and reactive control of the head and trunk, considering the three modes together. The materials used and the specific positioning inspired by the equine-assisted therapy environment were shown to be suitable for bringing the assessment closer to the real therapeutic context. This adaptation makes it possible to collect detailed information about postural control in different conditions, in line with the objectives of segmental and progressive analysis recommended by the SATCo scale.

Discussion

The adaptation of the SATCo Scale using an easel with a fixed saddle was shown to be a practical methodology for application in the context of equine-assisted therapy. This approach demonstrated not only technical feasibility but also the potential to expand the analysis of postural control by incorporating specific elements of the equine therapeutic environment. By achieving a consistent vertical neutral position and enabling personalized strap adjustments, the methodology provided detailed information about static, active, and reactive trunk and head control levels. These findings reinforce the applicability of SATCo in more dynamic therapeutic contexts and brings it closer to real practice, contributing to the personalization of therapeutic planning and the segmental analysis of postural control.

The findings of this study corroborate previous research, such as the work of Butler et al. (2010), which highlights the accuracy of the SATCo scale in the segmental assessment of trunk control, allowing the identification of segments where postural control is compromised. While the original study used fixed benches

as a base, the present adaptation expands the use of the scale to a dynamic context and closer to the clinical practice of equine-assisted therapy. This approach, using interaction with materials from the equine environment, meets the principles highlighted by Santos et al. (2023) and Freitas et al. (2021), which highlight the effectiveness of equine-assisted therapy in promoting postural control, taking advantage of biomechanical and three-dimensional properties of the horse's movement.

Additionally, Curtis et al. (2015) and Karthikbabu et al. (2011) reinforce the centrality of trunk control for motor function in children with cerebral palsy, highlighting that interventions that progressively segment and analyze this control, such as SATCo, are essential for therapeutic planning. The adaptation outlined here differentiates itself by integrating the equine-assisted therapy environment directly into the assessment methodology, providing a more contextualized and practical tool for interventions. Thus, this study expands the possibilities of applying SATCo, aligning with existing literature and offering an innovative approach to postural control in children with neuromotor impairment.

The use of this adapted scale for equine-assisted therapies will serve as a quantitative evaluative parameter in the development of head and trunk control; it will also assist in the reasoning and therapeutic planning related to (i) the choice of: the ideal horse, riding material, leader or trained assistant, side aide, soil type, riding figures, positioning and the rider's position on the horse, biomechanical modifications on the horse to deal with different challenges and postural control, the place for arm locks on the rider, whether to use stirrups, whether to use the palm rest on the saddle handle; and (ii) specificity of the segment of the rider's head and trunk control and rider's key support throughout the ride, and stimulation of the ideal and necessary body segment during equine-assisted therapy sessions.

Given the scarcity of instruments and quantitative indicators with specificity for equine-assisted therapy, which makes reliability and improvement within its specific context unfeasible, the development of new tools is relevant. This pilot study showed the possibility of applying the SATCo scale in a context closer to equine-assisted therapy. In the future, perhaps this instrument could serve as a quantitative assessment, as well as helping to define parameters to facilitate therapeutic planning.

IMPORTANT NOTE: It is not recommended to fix the practitioner with a strap on the horse.

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Key Aspects within the Field of Equine Assisted Services

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Presenting an illustrated overview of the interface between categories of Equine Assisted Services (EAS), this article clarifies the key aspects as they relate to the service providers, service users and equines within the specific categories within EAS. The infographic was created during the Erasmus + project 2019-1-FI01-KA202-060805 between international organisations associated with HETI. The methodology to create the infographic was through discussion and brainstorming the ideas how to visualize Best Practice in EAS for everybody in a comprehensible way. The infographic is divided into four main EAS categories (Psychology, Education, Medicine, Sport). The verbal presentation added to the infographic includes examples for each category, taking into account the International Classification of Functioning (ICF) by the World Health Organisation (WHO). Visual demonstration and descriptive examples clarify the differences and overlaps of the key aspects within the EAS categories. The infographic and verbal presentation provide transparency within the field of EAS and contribute to increased professionalism.

Keywords: Equine Assisted Services, ICF, Professional qualifications

This paper offers an illustrated overview of the interface between categories of Equine Assisted Services (EAS). The amount of different services has been growing during the last decades (Mattila-Rautiainen et al., 2023; Wood et al., 2021) which has been causing confusion within the service providers, service users, stakeholders and within research in the field.

The article clarifies the key aspects within a form of infographic chart (Naparin & Saad, 2017) and how they relate to the service providers, service users and equines within the categories of EAS. In addition, the focus is on the service user and how the service providers can classify the service user's characteristics using the International Classification of Functioning (ICF) by the World Health Organisation (WHO) (Üstün, Kostanjsek, Chatterji, & Rehm, 2018).

The aim of this project was to extend and develop the competences of educators in the field of EAS and to compare education models offered by our European partners. One goal of this Erasmus project was to achieve an overview by defining required and desirable competencies both at the professional level and the equine-related level of the EAS providers.

Method

HETI partnered with its members from Finland, Poland, Italy, and Ireland in an Erasmus+2019-1-FI01-KA202-060805: Best practice in Equine Facilitated Interventions – Education, to discuss and establish best practice in EAS. Erasmus Plus Projects are funded by the European Union.

This project was aimed primarily at the educators and trainers which made a total of 19 participants who brought varied backgrounds of expertise- from teaching, rehabilitation and service providing- towards the aims of the project. The partners who joined this project were provided with the space to share ideas as well as gain knowledge from one another;

they were able to share and compare their knowledge of the current curricula from each country, establish the key elements of this education and find best practice. The meetings were held both online and onsite, hosted by partner organisations.

It was proposed that by collaborating in this way partners could stand to gain a great deal from each other in relation to each organization's current curriculum model, programme overview, and research basis. It was also proposed that learning more about what each country offers may open the door to qualified learners from partnering countries to travel and take part in internships and training by collaborating in this way.

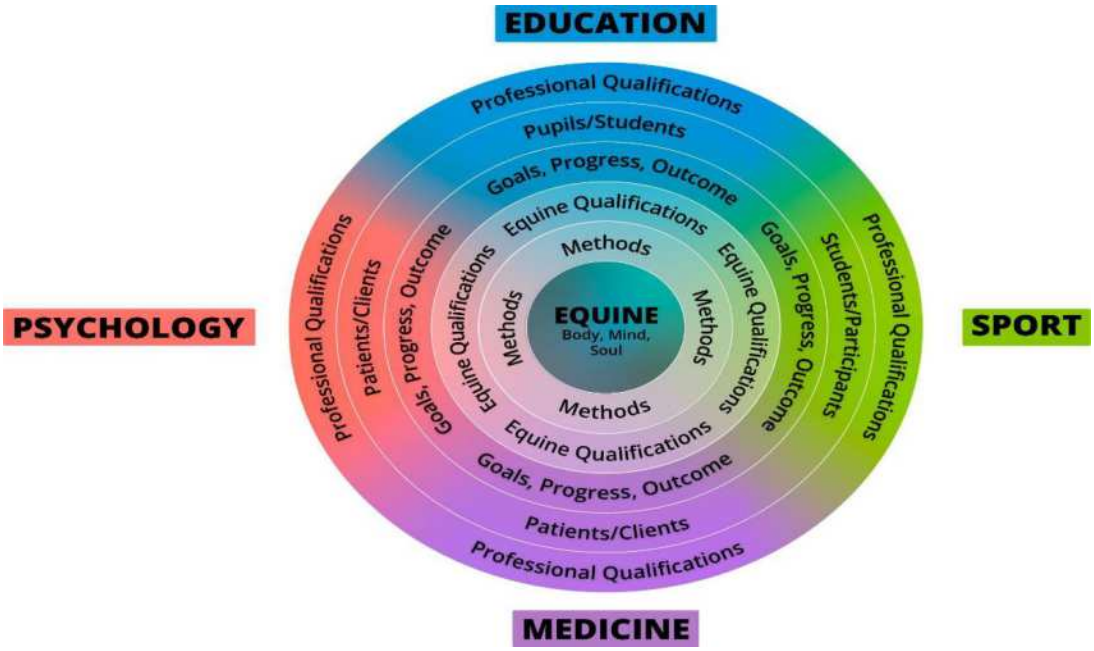
We were also able to develop a comparison tool to compare current education curricula and an "Illustrated model of EAS".

Results

During this project, the word Equine Assisted Services (EAS) was globally recognized and thus the reason for the change of the term in this report from Equine Facilitated Interventions. Diversity and inclusion were evident throughout the lifetime of the project. The participants also had respect for different working practices.

Figure 1

Infographic of all components of the four categories – Education, Sport, Medicine, Psychology – within equine assisted services.(Erasmus+2019-1-FI01-KA202-060805)



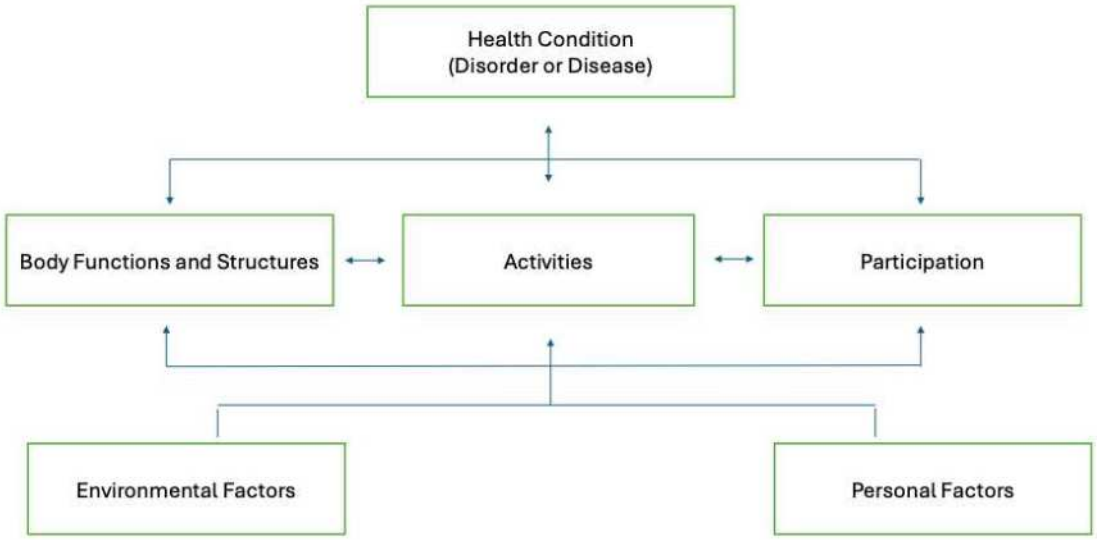
This figure describes the constellation of service providers, activities, service users, and equines and captures the differences and commonalities within the EAS field. The professional qualifications of the service providers, their horsemanship skills and their equine-related activities & methods, as well as the characteristics of the service users, their goals and outcomes are considered. Those characteristics are grounded in, and based on, understanding and respecting the intrinsic nature of the horse as a sentient being. The common denominator for all four categories is the equine with its own body, mind, and soul.

Classification

To deliver professional services the providers need to understand and classify the characteristics of the service users and their specific goals. The World Health Organisation offers several classifications: a. ICD-11(WHO, 2024) is the International Classification of Diseases and related health problems, which classifies by diagnosis, disorder and other health conditions. This WHO manual classifies the causes of mortality and morbidity. b. ICF is the International Classification of Functioning, Disability and Health, which classifies disorders by looking at the functioning and disability associated with health conditions. The ICF manual classifies health by providing "a standard language and a conceptual basis for definition and measurement of health and disability" (WHO, 2013, p. 5).

Figure 2

Interaction between the components of the ICF (WHO, 2013)

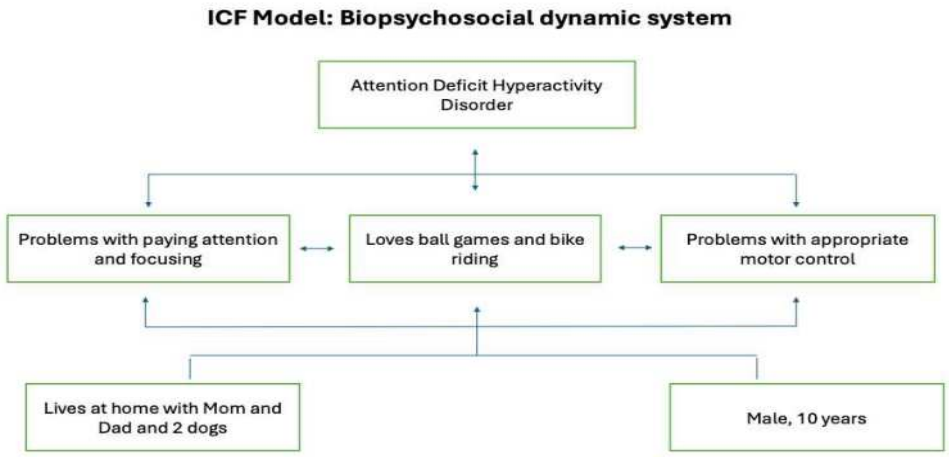


The ICF Model is a bio-psychosocial system, a multi-dimensional concept, and it shows the interactions between environmental and personal factors, body functions and structures, activities and support/limitations the person experiences, which all cumulate in the health condition.

Example: Student with Attention Deficit Hyperactivity Disorder (ADHD), 10-year-old male, lives in a supportive environment with mother, father and 2 dogs. He attends grade 5 in school. He is athletic and loves ball games. He has difficulties paying attention and is forgetful in daily activities. Running and climbing in inappropriate situations are disruptive.

Figure 3

Example of ICF Model for a client



Discussion

The ICF classification offers a comprehensive assessment of the service user. Instead of attaching a label, the ICF asks how the person functions. This form of evaluation allows for tailored interventions to maximize the functioning, goal setting, progress monitoring, and measuring the outcome/usefulness of the intervention and interdisciplinary collaboration. The ICF is a tool for communication between professionals regarding decisions and can be a tool for self-evaluation and lead to "Evidence Based Practice", demonstrating the interface between categories of Equine Assisted Services. The ICF can be the measurement tool to collect data and to provide evidence for the effectiveness of EAS.

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An Attempt to Measure Chronic Stress in Horses Used for Equine-Assisted services

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This study measured the levels of cortisol and oxytocin accumulated in the coat to measure chronic stress in horses used for Equine-Assisted Services. The results showed that both cortisol (COR) and oxytocin (OXT) were measured in the hair. Although no correlation was found between these values, it can be said that the present study provides a good method for assessing chronic stress in horses.

Keywords: cortisol, oxytocin, coextraction, equine, hair, horse, non-invasiveness

Equine-Assisted services (EAS) for people with disabilities are practiced worldwide, and their effects on humans have been widely reported (Nimer & Lundahl, 2007). However, research on the horses used in EAS is still developing, and evaluating the stress of these horses is an important aspect of improving their welfare.

One of the main methods for assessing stress is the measurement of cortisol. This hormone, secreted in response to stress via the Hypothalamic-Pituitary-Adrenal (HPA) axis, is typically extracted and measured from blood or excreta. However, collecting these samples presents various challenges. In particular, blood sampling involves unavoidable stress due to the puncture process. Additionally, it is necessary to avoid the influence of diurnal variations, making this method both advantageous and disadvantageous.

Therefore, this study focused on the hair of horses. Similar to human hair, horsehair grows based on nutrients from the blood, accumulating hormones present in the bloodstream. In equine research, cortisol in hair has been used in studies on wild horses (Medill et al., 2023) and in examining different rearing methods, such as grazing (Mazzola et al., 2021). Other studies have reported on the relationship between hair cortisol levels and factors such as personality and breed (Sauveroche et al., 2020).

Additionally, in stress-related research, the relationship between cortisol and oxytocin has also garnered attention. It has been reported that the ratio of cortisol to oxytocin changes with training experience (Niittynen et al., 2022), although this study used saliva and described instantaneous changes.

Thus, while the relationship between cortisol and oxytocin in horse stress research has garnered attention, there have been few studies that are non-invasive and allow for long-term evaluation. Therefore, this study aimed to measure long-term stress responses based on changes in the concentrations of cortisol and oxytocin in horsehair.

Method

Facility and Subject Horses

The facility involved in this study is referred to as Facility A, which provides developmental support for children in Japan. This facility incorporates therapeutic riding into its developmental support programs and houses horses of various sizes, from small to large. The facility is equipped with a pasture, paddocks, an

outdoor riding arena, and a short forest trail that loops through the on-site woods, offering services tailored to the needs of the children. All horses are allowed to graze in the paddock either alone or in groups at least once a day.

Sampling

Hair samples were collected every three months in June, September, and December 2023, and March 2024. Individual brushes were used during sampling to avoid contamination. Approximately 1 gram of hair shed during brushing was sealed in a zip-lock bag for storage. For the December sample, with the caretaker's permission, hair was clipped from the abdomen to a length of 3 mm from the skin using hair clippers. The samples were stored at room temperature (25°C) in a location protected from direct sunlight.

Analysis Method

The pre-treatment method was based on the method of Gardela et al. (2020). One hundred mg of hair was placed in a plastic tube, injected with 1 ml of isopropanol, and washed by vortexing for 30 seconds, repeated three times, and allowed to dry naturally. Then, 500 µl of 99% methanol was injected, and extraction was performed at room temperature for 24 hours at 25°C. After the extraction was completed, the hair was removed. After the extraction was complete, the coats were removed and dry coagulated at room temperature 25°C. The obtained products were reduced with assay buffer, and cortisol and oxytocin were measured by radioimmunoassay. The detection method of Murata et al. (2021) was used. The process from extraction to assay was performed by Airplants-Bio Co (Tokyo, Japan).

Statistical Analysis

Statistics were performed using SPSS Statistics (IBM, ver. 29.0). Statistics were performed using Pearson's correlation coefficient to determine the correlation between oxytocin and cortisol. Statistics were performed at the 5% level.

Ethical consideration

This study was conducted in accordance with the ethical standards of the Animal Experimentation Committee at the University of Tsukuba, where the authors are affiliated, and the Declaration of Helsinki of 2013 (approval number: 22-506).

Results

The subject horses included two Thoroughbreds (one mare and one gelding), two Westphalians (one mare and one gelding), and four mixed-breed horses (all mares), totalling eight horses. The details of the subject horses are shown in Table 1.

Table 1 Individual information on the horses used in the research.

ID	Breed	Sex	Ages (2023.12)
A	Mix	Female	13
B	Mix	Female	16
C	Thoroughbreds	Female	12
D	Mix	Female	14
E	Westphalia	Female	20
F	Thoroughbreds	Castration	10
G	Mix	Female	19
H	Westphalia	Castration	2

The mean concentration of cortisol in the coats was 1.67 pg/mg (SD ± 1.14). The mean concentration of oxytocin was 3.49 pg/mg (SD ± 2.53) (Table 2). The mean %CV was 1.9.

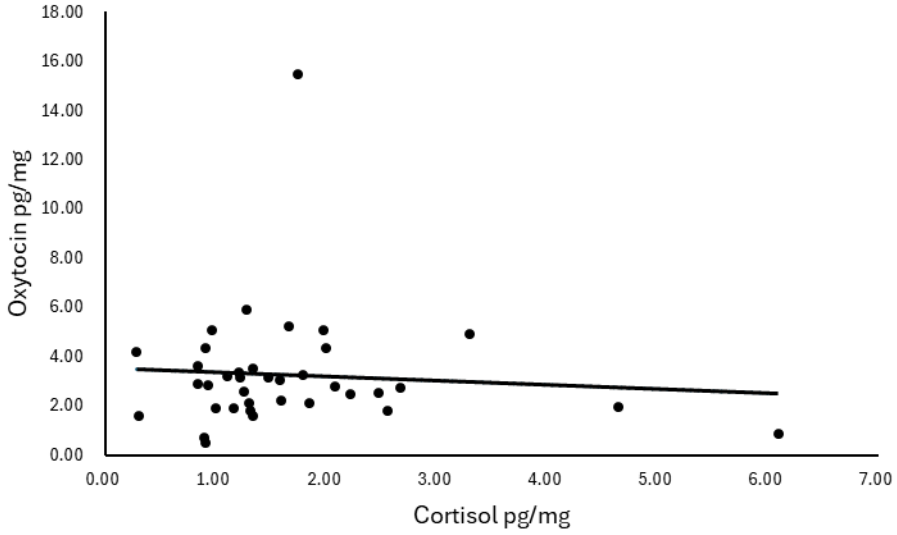
Table 2 Detection results for cortisol and oxytocin.

	Cortisol [pg/mg hair]				Oxytocin [pg/mg hair]			
ID	June(%cv)	Sept.(%cv)	Dec.(%cv)	Mar.(%cv)	June(%cv)	Sept.(%cv)	Dec.(%cv)	Mar.(%cv)
A	0.28(1.4)	0.91(0.7)	0.98(1.3)	0.84(0.6)	4.18(3.8)	4.36(2.5)	2.82(0.6)	3.6(1.5)
B	0.97(0.7)	1.34(1.9)	1.21(2.0)	1.28(2.6)	5.08(0.6)	3.52(2.8)	3.35(1.4)	5.91(1.2)
C	1.16(0.5)	2.22(0.7)	1.79(13.6)	1.48(2.5)	1.90(0.4)	2.48(1.4)	3.24(0.9)	3.13(3.3)
D	1.22(0.5)	0.90(2.0)	1.59(1.0)	1.58(1.3)	3.16(0.7)	0.52(2.0)	2.23(1.9)	3.03(2.6)
E	0.84(1.3)	1.11(0.9)	1.26(0.9)	2.00(0.0)	2.90(0.6)	3.18(3.5)	2.57(3.9)	4.37(2.1)
F	1.31(2.8)	1.34(1.9)	2.67(3.0)	3.30(0.3)	1.79(5.0)	1.58(0.5)	2.72(6.3)	4.91(0.8)
G	1.75(3.2)	1.30(0.9)	2.09(1.5)	2.56(1.5)	15.46(0.7)	2.11(1.4)	2.77(1.4)	1.79(4.7)
H	1.66(2.3)	1.98(0.9)	4.64(0.0)	6.09(0.0)	5.23(0.9)	5.07(2.6)	1.97(1.3)	0.86(5.8)
	Mean1.67 (SD±1.14)				Mean3.49 (SD±2.53)			

Statistical analysis using Pearson's correlation coefficient showed R = -0.13, P < 0.45, with no significant correlation (Figure 1).

Figure 1

Cortisol and oxytocin distribution chart.



Discussion

Although oxytocin in the coat had not been extracted previously, this study confirmed oxytocin in the coat for the first time. However, the lack of correlation between COR and OXT values may be due to individual differences in stress tolerance and work content. Based on the mean values of COR and OXT, it can be inferred

that the group of horses were experiencing stress due to social interaction.. This is an important result in human-animal relationship studies as well, as the results suggest that the relationship was similar to that between owners and their dogs (Romero et al., 2014). The report of an interrelationship between the baseline of cortisol and oxytocin in psychological responses and endocrine relationships (Bernhard, 2018) also suggests that the measurement of cortisol and oxytocin in the coat can be deciphered in a chronic state. This is especially useful for individual management and health status, including stress tolerance, as each individual responds completely differently.

Based on the above, it can be said that this study makes it possible to use the horse's coat to assess chronic stress and to use the balance between rest and training appropriate for the individual as an indicator of adjustment.

A limitation of this study is that we did not shave hair throughout the year. Also, the sample size was small, and more scientific validation is needed in the future.

Conflict of interest

This research was funded by the Japan National Association for the Promotion of Riding Clubs, 5-96.

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Animal-Assisted Intervention at a Dementia Community Center in Taiwan

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The number of individuals with dementia is increasing globally, and Taiwan is no exception, with over 350,000 cases diagnosed in 2024, representing 1.59% of the population. Dementia patients often suffer from behavioral and mood disorders, including disrupted routines, depression, anxiety, and fear. Finding effective care strategies that improve a patient's quality of life while reducing caregiver burden is crucial. This research focuses on an Animal-Assisted Intervention (AAI) program conducted by licensed social workers with an AAI background at the Dementia Center of Asia Eastern Hospital in Taiwan. The primary objective was to evaluate the effectiveness of the AAI program in enhancing several critical areas of participants' lives. The study employed both quantitative and qualitative methods, including Behavioral and Psychological Symptoms of Dementia (BPSD) scores, Clinical Dementia Rating (CDR) assessments, in-depth interviews, and observation notes of each activity. The results showed significant improvements in participants' cognitive function, emotional well-being, and social interactions. The study underscores the importance of incorporating AAI into traditional therapeutic models to create supportive environments for dementia patients and improve their quality of life.

Keywords: animal-assisted intervention, dementia, cognitive function, emotional well-being, social interactions

In many countries, the number of individuals with dementia is increasing, and Taiwan is not exceptional, with dementia diagnoses exceeding 350,000 in 2024 and standing at 1.59% of the whole population (Ministry of Health and Welfare, 2024)

Many dementia patients suffer from behavioral and mood disorders, including disrupted routines, depression, anxiety, and fear. Finding effective care strategies that improve patients' quality of life while reducing caregiver burden is crucial. This research focuses on an Animal-Assisted Intervention (AAI) program conducted by licensed social workers with an AAI background.

AAIs have emerged as a promising non-pharmacological approach to enhancing the quality of life for individuals with dementia, particularly in alleviating behavioral and psychological symptoms such as agitation and depression. A systematic review indicated that AAIs can significantly reduce agitation, with a meta-analysis revealing a notable decrease in agitation scores following the introduction of animal interventions (Latoch et al., 2022; Shoesmith et al., 2023). Furthermore, Robotic Animal-Assisted Therapies (RAAT) have demonstrated similar efficacy, particularly in managing agitation; however, they did not significantly enhance cognitive function or overall quality of life. (Du et al., 2023). Stakeholders' perceptions highlight the positive impact of AAIs on mood and social behavior, suggesting that these interventions foster meaningful interactions and enhance emotional well-being (Zhang et al., 2023). Despite the encouraging findings, the need for standardized implementation and further research to clarify the mechanisms and optimize intervention strategies remains critical (Batubara et al., 2022).

From empirical studies and practices, AAI can foster emotional connections, stimulate memories, and encourage communication—challenges often faced by dementia patients (Eline et al., 2023). Implementing AAI alongside traditional therapeutic approaches promotes a holistic care model, addressing patients'

emotional, psychological, and social needs. This paper examines a comprehensive case study conducted at the Dementia Center of Asia Eastern Hospital in Taiwan, focusing on implementing an AAI program tailored for the elderly with dementia.

Method

The animal-assisted intervention program consisted of 12 sessions, each lasting two hours, facilitated by a certified social worker. The methodology incorporated quantitative and qualitative approaches to evaluate the program's effectiveness. Quantitative methods included Behavioral and Psychological Symptoms of Dementia (BPSD) scores and Clinical Dementia Rating (CDR) assessments pre-and post-intervention. Qualitative methods involved in-depth interviews and observation notes, providing a holistic evaluation of the AAT program. Questions were asked during the interviews are shown in table 1. The program was offered for 15 dementia patients aged 65 to 93 with a CDR score between 0.5 and 2.

The sessions focused on interactions with therapy animals, integral to the therapeutic process. Activities were designed to stimulate cognitive, emotional, and social faculties. Cognitive Engagement: Activities like recalling animal names, discussing past pet experiences, and storytelling. Emotional Support: Encouraging expression of feelings through conversations about experiences with animals. Social Interaction: Group activities that foster social bonds among participants.

Table 1 Interview questions

What is the elder's motivation and willingness to participate in the group?
Have there been any changes in the elder's cognitive abilities during the group sessions?
Have there been any changes in the elder's daily behavior during the group sessions?
How is the elder's social interaction during the group sessions, including verbal and non-verbal expressions?
How is the elder's emotional expression during the group sessions?
Would you recommend the pet therapy group to other families? Why?

Results and Discussion

The study showed significant results in several areas. Over 80% of elders' post-test CDR scores were the same as their pre-test scores, indicating that the group activities helped slow the progression of dementia. The BPSD scores showed that elders exhibited more verbal and non-verbal expressions during group sessions than when they did not participate. Each elder could engage and integrate into the group rather than frequently dozing off as they did without the group. Over 90% of the elderly actively expressed positive emotions such as happiness, warmth, and calmness when accompanied by the therapy animal.

Participants were observed and evaluated by onsite professionals, finding that they had better memory recall and problem-solving abilities with animals than in their daily lives. As for emotional well-being, participants had less anxiety and depression and more positive moods when they were in the AAI program. Moreover, the presence of therapy animals significantly increased the frequency of social interactions among participants.

Quantitative assessments confirmed these findings, with BPSD scores indicating reduced agitation and depression. CDR scores reflected significant improvements in cognitive functioning and daily living activities, suggesting a promising impact of the AAI program on dementia symptoms and cognitive function.

Theoretical Framework

Extensive research has demonstrated that therapy animals' visits can significantly reduce stress, improve mood, and enhance social interactions among older adults, particularly those in long-term care centers (David et al., 2024). These studies reveal that AAI can serve as a beneficial and effective complementary treatment for behavioral and psychological symptoms commonly associated with dementia. AAI can enhance its efficacy by tailoring interventions to meet participants' needs and interests.

The theoretical underpinnings of AAI are drawn from various psychological and social theories, including attachment theory and the biophilia hypothesis (Sonia et al., 2023). These frameworks suggest that human-animal bonds can have profound therapeutic effects, particularly in fostering emotional connections and enhancing feelings of safety and comfort.

Discussion

The findings from the program highlight that Animal-Assisted Intervention is a valuable intervention in dementia care, enhancing mental health through engaging activities. Participants' connections with therapy animals illustrate the importance of animal companionship, fostering reminiscence and emotional well-being, which are essential for improving quality of life.

Participants maintained stable cognitive functions throughout the program, which is notable given the usual decline associated with dementia. The program also encouraged positive emotional expressions, allowing older adults to recall and share animal-related memories, boosting their happiness and enhancing communication.

The study underscores the importance of incorporating AAI into traditional therapeutic models to create supportive environments for dementia patients and improve their quality of life. Further research should explore long-term effects and potential modifications to enhance the program's effectiveness.

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Socks as a Fundraising Tool for an Equine-Assisted Services Center

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Maintaining an equine-assisted service center for low-income populations presents unique challenges, such as high costs for equine care, skilled staff, facilities, materials, and continuous improvements that demand sustainable resources. This study aimed to diversify funding sources through product sales, which also promotes the center's cause and helps build partnerships. The initial strategy involved creating a horse-themed product: a specially designed sock made in partnership with a sock company, logistics center, display company, and retailers. Six unique designs were produced, with each purchase linked to therapy support; for example, six pairs of socks fund one therapy session, sixty pairs fund a month, and six hundred pairs fund a year. At a business event, a company purchased six hundred pairs of socks as employee gifts, integrating social responsibility with corporate culture. Within three months, the initial investment was recouped, and clients were encouraged to share photos on social media, enhancing visibility. This study concludes that creating a cause-related product can successfully generate awareness and diversify funding, which is critical for the financial sustainability of equine-assisted services centers.

Keywords: fashion, financial sustainability, fundraising, social product, socks.

Equine-assisted services centers have numerous costs, including horses, a highly qualified team across several specialities (to ensure our therapy is comprehensive and in-depth), space maintenance, adapted materials, and ongoing improvements for both people and facilities. (Baatsch, 2019; Rodrigues et al., 2012). Therefore, financial sustainability is crucial for equine assisted centers.

To ensure sustainability, the equine assisted therapy centers use a variety of fundraising strategies. The most common practices are tax-incentive projects that allow directing part of the taxes owed to social initiatives (Franca, 2023). In addition, hosting charity events is an effective way to raise funds and increase the visibility of the cause (Rodrigues, 2023). The sale of products related to the organization's mission also contributes to generating revenue and engaging the public (Franca, 2023). Another relevant strategy is establishing partnerships with companies, which can provide financial support, material resources, or specialized services (Revicont, 2024).

The literature on marketing in nonprofit organizations highlights the importance of diversified strategies for resource mobilization. Shiraishi and Campomar (2007) identified that such organizations use marketing activities similar to those of for-profit companies, adapted to their specificities, such as attracting and retaining financial, material, and human resources. Furthermore, Wendler (2022) suggests that offering exclusive products related to the organization's cause can increase visibility and diversify funding sources. For instance, the sale of thematic products can attract new donors and strengthen the loyalty of existing ones, contributing to the institution’s financial sustainability.

Comparing the studies cited with the practice of Instituto Passo a Passo, convergence is observed in several strategic aspects. Studies such as those by Shiraishi and Campomar (2007) and Wendler (2022) highlight the effectiveness of diversified strategies and the sale of exclusive products for public engagement and financial sustainability. These elements are also corroborated by common practices in equine therapy centers, such as charitable events and corporate partnerships (Franca, 2023; Rodrigues, 2023). The difference of Instituto Passo a Passo was to integrate these approaches with a creative product, *Meias Passo a Passo* (Passo a Passo Socks), aligning itself with literature by serving a broad audience, increasing the visibility of the cause and promoting donor loyalty. This innovation exemplifies how strategic marketing applications can adapt widely accepted concepts to the specificities of equine-assisted services centers, expanding impact and sustainability.

Instituto Passo a Passo employs all the aforementioned strategies; however, it previously lacked a product-related initiative. To align with marketing recommendations for nonprofit organizations to use thematic products for resource mobilization, the "Meias Passo a Passo" were created, providing an exclusive product to promote the cause and generate revenue. (Figure 1)

Figure 1
Sample Passo a Passo Socks

Method

Passo a Passo Institute is a nonprofit organization in Itatiba City, São Paulo State, Brazil, founded in 2005. The institute provides free equine-assisted services for 144 children with disabilities, learning difficulties, and other disorders, and also holds monthly meetings to support their families with useful life topics. Recognized as a Brazilian reference training center for

health and education professionals, it has received awards, including the “Best Nonprofit in Brazil in 2023.”

The purpose of the institution has always been, and continues to be, to provide completely free treatment so that its services can reach populations with disadvantaged socioeconomic backgrounds. This is, in fact, a significant challenge for many social entrepreneurs.

The institute has been selling products for a while, allowing it to analyze customer purchasing behavior. Selling products not only generates revenue but also spreads awareness, expanding the institute's reach and fostering potential partnerships. Through discussions with parents, team members, and store customers, the institute found that socks, essential for equine-assisted services sessions, would make a perfect product. This led to the creation of “Passo a Passo Socks” a project aimed at resource diversification.

The sock company “Socks.Co” (Socks.Co, Brazil) joined as a key partner, offering expertise to design a pilot product with fashion designers (Cantarola, Brazil) creating horse-themed prints. The distribution center “Volo Logística” (Volo Logística, Brazil) and the visual merchandising partner “Creative Display” (Creative Display, Brazil) and “Artemidea” (Artemidea, Brazil) also contributed to the project. Together, they introduced the product to retail outlets, with seven horse-themed designs available in multiple sizes for children and adults. They also introduced a sock design themed around Down Syndrome, “Being different is cool,” and soon we will create an autism-themed design print.

The project team consisted of one individual managing the commercial area and one individual at marketing aspects of the project, utilizing computers, profitability analysis tools, cameras for photography, and Canva for promotional materials. Customer outreach was managed through phone calls and WhatsApp. The product line consisted of seven designs in five different sizes, designed to fit everyone from one-year-olds to adults.

Each sale or gift distribution was recorded in a spreadsheet, including profit calculations to evaluate the project's financial impact. (Figure 2)

Figure 2

Passo a Passo Socks Collection

Results

The institute identified potential customers through social media and online searches, focusing on businesses selling horse-related products, socks, or general children's accessories.

Creating a unique product was essential for the project's success. The socks are not just for therapy practitioners but appeal to a wide audience. The product's exclusivity, combined with a strong association with the cause, enhances its appeal. The team developed a simple promotional approach to encourage purchases: for every six pairs of socks sold, one therapy session is funded; sixty pairs fund a month of therapy; six hundred pairs cover a year.

The results have been promising, with the initial investment in sock production recouped within three months. During a training event (Metanoia, Brazil) in another city, Passo a Passo used the opportunity to launch the collection. At this event, a business executive from "BTFlex" purchased six hundred pairs as gifts for employees, aligning with the company's commitment to social responsibility. Social media has also been an effective promotional tool, with customers sharing photos of themselves wearing the socks and tagging the institute. (Figure 3)

Figure 3

Practitioners during Passo a Passo Socks Photoshoot

Discussion

The results achieved by Instituto Passo a Passo corroborate the findings in the literature on marketing in non-profit organizations, but present significant nuances. While studies such as those by Franca (2023) and Wendler (2022) highlight the effectiveness of exclusive products in diversifying resources and engaging the public, the institute's experience goes further by creating a strong emotional connection with supporters through *Meias Passo a Passo*'/Passo a Passo Socks. The recovery of the initial investment in just three months, driven by corporate partnerships and promotion on social media, reflects the importance of a multifaceted approach, as advocated by Shiraishi and Campomar (2007). However, the socks' appeal to a wide audience, including children, and the use of collectable designs, adds a layer of innovation that is not widely discussed in the literature. This approach not only diversified revenue sources but also expanded the reach of the cause, reaching individuals who were previously unaware of equine

therapy, perfectly aligning with recommendations for creative marketing strategies adapted to the organizational context.

The initiative reached individuals previously unfamiliar with equine-assisted services. After learning about Passo a Passo's mission, many became supporters of the cause and purchased additional socks to help. The project appealed to children as well, who were excited to collect all the designs. The horse-themed socks serve as a daily reminder of the institute's work and the importance of supporting it.

This unique product has successfully increased the institute's visibility, improved resource flow, and strengthened donor loyalty, all of which are essential for the financial sustainability of an equine-assisted services center.

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New Matrix for Education Curricula Comparison in EAS: Application to ERASMUS Associations

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Evaluative comparisons were made between different Education Curricula in Equine Assisted Services (EAS) to understand the main content of the education and orientation. An elaboration of an original Matrix which analyses each Erasmus+ 2019-1-FI01-KA202-060805 Partner's curriculum (Finland, Ireland, Italy, Poland) was created, and definition and evaluation of the Main Topics, and the Disciplines for each Topic, used to analyse the curricula. The comparison between the Education Curricula in EAS of Erasmus Partners was completed with qualitative and quantitative analysis assessing the Topics and their Disciplines according to their importance in Education: members of each Partner organisation assigned a qualitative value to each item on the Matrix to which a mathematical value was assigned. The sum of these values showed the significance of each Topic/Discipline to the Partner's curricula. The values can be related to the importance of the Topic/Disciplines in Education as follows: Top, Almost the best, Fair, Slight and minimal. Elaboration of data to outline the characteristics of each curriculum was carried out, and the analysis of the results of the Education Curricula revealed the main Topics and the assessment of the Disciplines for each Topic, and the type of curriculum of each Partner and its curriculum orientation. This Matrix then could be applied to other EAS Curricula as well to achieve an understanding of the different Education Curricula.

Keywords: Curriculum, EAS, Education, Matrix

In the literature, we can find only a few papers that refer to general data relating to Education Curricula in Equine Assisted Services (EAS), such as information about coursework offered by universities and colleges in the United States, for example, geographic location, number of courses and their general areas (adaptive/therapeutic riding, equine assisted mental health, equine-assisted education/learning, hippotherapy), the academic department offering the course, level of study (Ekhlom Fry et al., 2018; Connolly K & Ekhlom Fry, 2023, Burk & Gramlich, 2015, Brady et al., 2011). We don't find any papers specifically referring to the main topics and disciplines of the EAS course, despite the importance of reviewing such training. Therefore, we want to suggest a model for analysis and comparison of the EAS curriculum, to help the understanding of the education course orientation.

The comparison between different EAS Education Curricula meets:

- the main objective of the Erasmus + project 2019-1-FI01-KA202-060805 Best Practice in Equine Facilitated Intervention - Education which was "to extend and develop the competences of educators and to compare current European Partners Education models offered in the field of EAS" (p. 3)
- the HETI Strategic Goal 1 (2022) -"Redevelop and relaunch HETI Education and curriculum" whose 1st key objective is "to create basic educational HETI EAS workshops which require a review of current curriculum……and the development of a basic online module" (HETI, 2022, p. 12)

The different Partners of Erasmus + Project 2019 were: HETI, EAS of Finland, Ireland, Poland, and Italy (Lapo Association).

The aim of this work was the development of a New Matrix for Comparison of Different Education Curricula in EAS, its application to the Erasmus+ Associations and the qualitative and quantitative analysis of the results to understand the main content and orientation of each Curriculum.

Method

The method consists of the development and application of an original Matrix which analyses the different Education Curricula of each Erasmus Association in relation to:

- 1st - the main identified Topics:
    A. General Aspects
    B. Neurology and Psychiatry
    C. Rehabilitation
    D. Education/Learning
    E. Monitoring Tools and Assessment of the Results
    F. Horse
    G. Veterinary
- 2nd - the main Disciplines for each Topic (see below)
- 3rd - the elaboration of data to outline the main characteristics of each Partner curriculum.

The comparison was completed with qualitative and quantitative analysis assessing the Topics/Disciplines according to their importance in Education: each Partner organisation assigned to each item a qualitative value to which it was attributed a mathematical value. The sum of these values showed the significance of each Topic/Discipline to the Partner's curricula. The values can be related to the importance of the Topic/Discipline in Education as follows: Top, Almost the best, Fair, Slight and minimal.

Specifically: each Partner organisation assigned to each item a qualitative value: M (Main), F (Fair), S (Slight), m (minimal) or left empty if None (=).

We can attribute to each qualitative value a standard mathematical value:

- M = 10
- F = 7.5
- S = 5
- m (minimal) = 2.5

The sum of the values was assessed as follows:

- Top = 40
- Almost the best = 35-39
- Fair = 30-34
- Slight = 25-29

- minimal ≤ 24

In this way, we can obtain quantitative results and compare each item by a mathematical value.

Results

The results are based on the quantitative values assigned:

1st – Main Topics:

- Top (40): no Topic as a whole
- Almost the best (range 35-39): General Aspects, Rehabilitation, Monitoring tools and Assessment of the Results, Horse
- Fair (range 30-34): Neurology and Psychiatry
- Slight (range 25-29): Education/Learning, Veterinary
- minimal (≤ 24): no Topic as a whole

2nd – Main disciplines for each topic

For each Topic, we selected the main Disciplines (written in Italics) and assessed the qualitative and quantitative values attributed in the same way as previously.

General Aspects

Very good: *Planning of Therapeutic individualised project/intervention* was the Main Discipline for curricula for every partner (Top) and also *Multi-Professional Team: role and responsibility* and *Indications and contraindications* represent very important Disciplines (Almost the best) in almost every curriculum. The other Disciplines (*Definition of the main EAS disciplines, Planning of an educational intervention, Organisation and management of EAS Center*) are represented, but at a lower level (Fair).

Neurology and Psychiatry

Semeiology in Neurology (Spasticity, Dystonia, Ataxia, Mixed forms, Dyspraxia, Clumsiness) represents the Main Discipline of each curriculum (Top); the other Disciplines are Slight represented (*Progressive and Non-Progressive Forms, Spinal Disorders, Sensorineural Disorders, Child and Adolescent Psychopathology, NLD and SLI, Social Difficulties and Deviance*) or minimal represented *(Neuromuscular Disorders, Orthopedics, Adult Psychopathology)* except for *Intellectual Disorders* (Almost the best).

Rehabilitation

Good: *Observation Techniques* are considered a Main Discipline of all curricula (Top), while the others are well represented but at a lower level (3 Fair and 3 Slight) (Fair: *Principles of Rehabilitation, Application of EAS methodology to Neuromotor Disorders and Social Difficulties and Deviance*) (Slight: *Rehabilitation project, Methodology: general aspects; Application of EAS methodology to Mental Disorders*).

Education/Learning

These Disciplines are not represented much in the curricula, scoring values of only Slight (*Principles of Education/Learning, Education/Learning project/plan, Observation techniques*) or minimal (*Methodology Education/Learning general aspects, Application of the EAS methodology in education/learning program).*

Monitoring Tools and Assessment of the Results

Monitoring tools of the sessions are well represented in general (Almost the best) and specifically in *Mental Disorders* (Fair), the other Disciplines result Slight (*Monitoring tools in Neuromotor Disorders*) or minimal (*Monitoring tools* in *Education/Learning and Social Difficulties and Deviance).*

Horse Disciplines

Very good for all Disciplines (Almost the best) (*Horse behaviour, biomechanics and biodynamics, management and welfare, Safety, Tack and special equipment),* except for *Schooling/training /teaching*, which was valued at a lower level (Fair).

Veterinary Disciplines

These Disciplines are not represented much in the curricula (only minimal) (*Principles of Anatomy & Physiology, Morphology, Diseases*), except for *"Vices", Prevention of behavioural disorders* (Almost the best).

Results for each discipline for each Country/Association

From the analysis of the values attributed by each Association to each Topic/Discipline, ordered from greatest to least involvement, the results are as follows:

Festina Lente - Ireland

The main target of the Festina Lente curriculum is Education/Learning, especially for subjects with Social Difficulties and Deviance, with particular attention to the clinical semeiology, observation techniques and monitoring; particular attention is aimed at General Aspects of EAS activity and Horse.

Minimal involvement in Neuromotor Disorders and child/adolescent or adult psychopathology.

EAS of Finland

The main targets of the Finnish curriculum are the Rehabilitation of neuromotor and mental disorders and General Aspects (Multiprofessional Team: role and responsibility, Planning of therapeutic individualised project).

Particular attention to the horse and his management.

No involvement in Education/Learning.

Lapo/University - Italy

The main Topics of the University/LAPO curriculum are General Aspects, Neurology and Psychiatry, Rehabilitation, Monitoring tools and Assessment of the Results, Horse.
Fair involvement in Education/Learning and Veterinary.

This broad and intensive involvement of the University/Lapo Association in all the evaluated Topics/Disciplines, reporting mainly Main, less Fair, only three Slight (Neuromuscular Disorders, NLD and SLI, Social Difficulties and Deviance), no None, is probably due to the fact that the Course is a University biennial Master of 590 hours of direct activities, specific for EAS.

EAS of Poland

The main target of the Polish curriculum is Rehabilitation in Neuromotor Disorders, particularly in Sensorineural Disorders, child and adolescent Psychopathology. The related observation techniques and EAS methodology are used, together with planning of an individualised project, indications and contraindications.
Fair involvement was found also in Education/Learning and Horse, particularly Safety.

There was minimal involvement in Veterinary except for Diseases and "Vices" and prevention of behavioural disorders.

Discussion

The analysis of the results of the EAS Education Curriculum in four Countries/Associations, applying the proposed Matrix, revealed:

- the main Topics and the assessment of the Disciplines for each Topic
- the type of curriculum of each Partner and its curriculum orientation.

Given the results of this study, it is proposed that this Matrix could be applied to other EAS Curricula to make a comparison between different Education Curricula as well as to achieve an

understanding of the different orientations of the Education Curricula. In this way, we can offer an answer to the suggestion of Connolly and Ekholm Fry (2023) for future research: "examination of curricula and their connection to competencies and standards of professional practice in the various areas of coursework is of central importance" (p. 06) for the development of EAS.

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