

Explanatory Note on Current Status & Confidentiality

As indicated in the original project application, OUS will continue to employ the researcher to enable completion of the project and publication of relevant papers (which will include acknowledgment of the Swedish-Norwegian Foundation on Equine Research as the source of funding). As papers are published, we will forward them to the Foundation.

The Summary and Popular Press contributions in Sections 3 and 4 of the electronic form are not confidential. However, much of the material in the following Final Report will be included in papers for publication. Therefore, **the Final Report must be treated as confidential or publication of the results could be prejudiced.**

Project No H1047212 – Final Report

The Impact of Horse Assisted Therapy (HAT) on Addiction Treatment and Dropout

Summary

Background: Horse assisted therapy is an innovative psychotherapy that actively involves horses in the therapeutic process. It is a rapidly growing health activity with claimed motivational and other benefits to physical and psychological health, including addiction. However, there is little substantiating evidence. Keeping addiction patients actively engaged in successful treatment is a challenge. This project was established to assess the impact of horse assisted therapy on addiction treatment and outcomes and to contribute to the HAT evidence base.

Method: A mixed method, multi-aspect design was used to assess HAT's impact on addiction treatment, dropout and completion, in a hospital context over an 18 months period.

Results: Six studies (4 quantitative & 2 qualitative) undertaken with the same population, under the same conditions show that patients who participated in the horse assisted therapy program were significantly more likely to have a successful treatment outcome. The patients' explanations of their experience of working with the horses added strong supporting material in the qualitative studies. Results from an RCT, which is still in progress, and a cost analysis will be reported when completed.

Conclusion: We cannot infer causality from the naturalistic studies completed to date. However, the relatively large and homogeneous population plus the multi-aspect approach, make this a unique contribution to horse assisted therapy research. It has already contributed to academic education and research, and has received media coverage in Norway and internationally.

Project Background

The Project - In 2010 we applied for, and received from the Swedish-Norwegian Foundation for Equine Research, funding to study the impact of horse assisted therapy (HAT) on addiction treatment and outcome. In the application, we said:

- Inclusion of horses in therapeutic settings had major social and health implications. The challenges include increasing provision of HAT with little substantiating evidence due to lack of research, design issues, mainstream clinicians'/scientists' scepticism of "alternative therapy" and associated difficulties in attracting top researchers and funding.
- The proposed study would be undertaken at the Department of Addiction Treatment (Youth) at the Oslo University Hospital because of the hospital's unique research potential and extensive HAT experience.
- The proposed objective was to examine whether a structured therapeutic program with horses is a beneficial and cost-effective treatment modality for young males and females aged 16-26 years with addiction and co-occurring diagnoses. The longer-term aim is to expand use of this therapeutic method, and in so doing increase the use of horses and enhance Norway's standing in innovative addiction therapy.
- The proposed method included a literature review; collection of quantitative and qualitative information on the impact of the therapy on patients' treatment and co-morbidity, plus a randomised controlled trial of dropout and a study of the costs.

Against the above background, we planned to address the following research questions:

- What is HAT?
- What is its impact on patients under treatment for addiction and co-occurring morbidity?
- Does HAT influence addiction treatment dropout?
- Is HAT a cost/effective addiction treatment?

Addiction - In the International Classification of Disease (ICD 10) of the World Health Organisation (WHO), addiction and substance use disorders are serious, often chronic illnesses. Many different types of treatment and other measures have been tried to curb and cure the illness. Success rates are generally poor. However, retention in treatment improves prognosis for substance use disorders and completion of treatment is associated with successful outcome. Yet despite the wide diversity of treatments available [1, 2], there is a continuous struggle to find methods that motivate patients to remain in treatment for sufficient time to enable beneficial change in morbidity [2-9]. Reported studies of complementary or alternative health treatments are rarely funded or reported [10], including for addiction and substance misuse.

Horse Assisted Therapy (HAT) - Horse assisted/facilitated therapy is an innovative complementary approach to psychotherapy that actively involves horses or other equines in the therapeutic process. Challenges in this rapidly developing field of experimental therapy include increasing provision of a high cost therapy, often of unknown quality, to vulnerable population groups with little substantiating evidence of associated benefits [11].

Horses have worked with man in various ways for about 6000 years and since Greek and Roman times their use in treating both physical and psychiatric disabilities has been advocated. Since the 1990s, there has been a dramatic increase in the number of equine programs that claim to provide psychotherapy and/or education and development [12, 13].

However, horse assisted psychotherapy therapy (or Equine assisted/facilitated psychotherapy, EAP/EFP as it more commonly known) is still very much in an evolutionary phase, lacking an accepted theoretical framework. There is a variety of emerging schools of thought, approaches and terminology [13, 14]. In order to avoid association with individual schools (and because OUS's therapy is based on Bodynamic mind-body work) we have used the more neutral term Horse Assisted Therapy (HAT) in this project.

Most reported studies of HAT, including those relating to substance misuse and addiction, conclude with a recommendation for further research. However, few HAT programs have the resources, patient numbers, diagnostic homogeneity, or research capacity and skills required.

Oslo University Hospital (OUS) - In contrast to many other similar projects, the Department of Addiction Treatment (Youth) at OUS presented a unique opportunity to study HAT because:

- It had approximately 100 new patients per year with a primary diagnosis of substance misuse and/or addiction.
- It had a resident herd of five specially selected and trained horses that worked exclusively with the Department's young patients in a structured, addiction relevant program of horse-assisted therapy.
- It had recently established the Youth Addiction Treatment Evaluation Project (YATEP) database, which comprises basic patient information, psychological tests, reason for exit, and HAT participation data.

Project Material

The project is part of a larger, on-going, mixed method project to investigate the impact of HAT on addiction and substance use disorder treatment outcomes.

The Patients – The patient population mean age is 23 years (range 17-33 years, SD: 3.4), approximately one third are female; all have a primary diagnosis of substance use disorders and approximately half have psychiatric co-morbidity. Patient participation in research at OUS is voluntary and dependent upon a signed informed consent form. At entry to treatment, participating patients are registered in the YATEP database.

The Timing – Although originally intended to include data for the 3 years 2011-2013, the studies to date have been restricted to patients in treatment during the 18 months period from 1 January 2011 to 30 June 2012. The timeframe was limited to this period because of concerns about possible confounding arising from YATEP “teething problems” in 2010 and major organisational and staff changes in mid-2012. We plan in due course to replicate some of the studies using data from 4 years.

The treatment site - is part of the specialist health care in Norway. Patients are referred by general practitioners and specialists or from another hospital department. They must have a primary diagnosis of Mental and Behavioural Disorders due to Psychoactive Substance Use (ICD 10, F10-19). The Social Services authority has oversight of this process. The treatment is a

person-centred program which comprises individual and group therapy based on a bio-psychosocial model with emphasis on mentalisation based theory and practice [15]. An individual treatment plan, which includes treatment goals, is prepared in cooperation with each patient. Medical treatment is offered, plus assistance/counselling on accommodation, education, employment and post treatment living, adjustment and support. Psychological treatment is provided according to the individual's specific problems and treatment goals. The likely duration of treatment is decided with the patient as part of the treatment plan in accordance with the patient's needs. It can include movement between units, for example from in-patient to day patient. In the day unit, as patients become more established in school, work or a domestic situation, the therapist gradually reduces contact until final discharge.

The HAT Program is an integral part of the program of addiction [16]. It comprises 12 × 90 minutes sessions of body-orientated psychotherapy with horses, which have been selected and trained for this work to be strong, secure, responsive, and interactive. Patients and staff are insured against injury by the hospital. Serious incidents and injuries must be recorded.

All patients are eligible to participate in HAT, but must be referred by their treating clinician. The referral can be requested by the patient or suggested by the clinician. A final decision on suitability and the treatment objectives of the individual's HAT participation (for example to strengthen boundary setting, reduce anxiety, depression, aggression, etc.) is agreed at a preparatory meeting between the HAT therapist, the patient and clinician. Patients normally start HAT two to three weeks into their overall treatment. Patients are encouraged to attend and participate fully but can choose not to undertake an activity, for example mounted work.

The sessions are planned and provided by two qualified therapists who are also Norwegian Level 1 Riding Instructors. The program design is structured for small group work (maximum 4 participants per session) but with provision for individual work on specific needs if required. It involves a three-way interactive process with reflective feedback.

Activities can involve any combination of herd behaviour observation, stable duties, ground, mounted, and/or driving work with the horses. Groundwork is used to address issues relating to boundaries/contact, anxiety/trust, communication/connection, mastery, body awareness and focus. Mounted work addresses posture, balance/centring, coordination, rhythm/regulation, mastering of anxiety and focus. Carriage driving can be used to promote forward thinking and outlook, plus, with other passengers, group responsibility and a different mastering experience [17, 18] .

These activities involve good healthy exercise, having fun, and learning new skills. However, while physical exercise, fun and skills acquisition are important, the prime purpose of this program is therapy and contribution to successful treatment.

The focus of the first 4 sessions is on getting to know about horses, herd behaviour, basic handling and safety. The following 8 sessions are tailored to meet individual's therapy objectives using a range of group and individual ground based, mounted or driving exercises outlined in the stable manual [17].

Project Output (Study Methods, Results & Publication status)

The HAT Research Project to date includes a literature review and six studies (4 quantitative & 2 qualitative) involving patients registered in the YATEP database. Below we summarize the results of the literature review, plus the *method*, *results* and *publication status* for the six empirical studies. The section concludes with a list of the on-going and planned studies.

The Literature Review

Method: We searched broadly in Medline, PsychINFO, AMED, CINAL and EBSCO, plus ProQuest, Google Scholar and a variety of equine related media using a general search term of “equine and/or horse assisted” in combination with “therapy” or “treatment” or “rehabilitation”. The search was restricted to English language but with no date restriction. We refined the results using “addiction” or “drug abuse” or “substance abuse” or “alcoholism”, or “alcohol abuse.”

Results: We located more than 200 articles or books and a number of literature reviews conducted over the past 20 years. There have been two published systematic reviews of peer reviewed HAT literature. The first, reviewed material in 16 databases, identifying 103 studies of which 14 met selection criteria. Only two could be rated as having evidence of (moderate) effectiveness [19]. The second more recent review identified 14 studies from a more restricted search. It reported all were compromised by threats to validity and all failed to provide consistent evidence of superiority over mere passage of time. The authors concluded that psychotherapy involving equines should not be marketed but that research should continue with improved methodology [11]. Since then, findings from a randomized controlled study reported that long-term psychiatric patients at risk of violence responded positively to a program of equine-assisted psychotherapy [20].

While many HAT programs offer therapy for substance abuse or addiction problems, few studies are reported. During the course of our study we found only 9 specific HAT and substance abuse disorder related articles, one of which was in a peer reviewed journal [21] and none of which met the selection criteria for the two systematic reviews referred to above.

We concluded that while some results of psychotherapy involving equines appear to be promising, there is still little convincing scientific evidence supporting the therapeutic value of either horse, or indeed other animal assisted therapy[22, 23].

Addiction literature was reviewed largely through 4 major reviews which were undertaken over almost 40 years [3, 6, 7, 9] . Treatment method, staff and treatment duration are identified as important predictors of successful addiction treatment outcome [9] .

Publication Status - While the literature search was essential to our study, we doubt our findings add sufficient additional information to warrant publication. However, the list of 200+ studies identified was provided to the Equine Research Network for inclusion in their literature database.

Empirical Studies

Study 1 (quantitative): Treatment: a preliminary study – Riding out of Addiction?

Method -Univariate analysis of the impact of HAT on case treatment (n = 126) for patients who entered treatment in the 18 months between 1 January 2011& 30 June 2012.

Results – HAT participants had as significantly better chance of a successful treatment outcome (OR 3.6, $x^2= 10.7$, $p= < 0.01$). See http://aushf.no/files/Riding_out_of_addiction_HAT_Poster_3.pdf

Publication Status – Reported to ISAM 2012 (poster presentation) & in detail to the First Nordic EAT Network Seminar, Stockholm, Sweden. 2012

Study 2 (quantitative): Treatment Outcome - A prospective study of the impact of HAT on treatment retention and completion outcome

Method – Univariate & multivariate analyses (controlling for sociodemographic & treatment factors) compared HAT (n = 65) with non-HAT (n = 46) participants admitted & discharged between 1 January 2011 & 30 June 2012.

Results –Despite lack of randomization, the background characteristics of the two groups were similar. However, HAT participants had a higher chance of remaining and completing their treatment compared to those not following the HAT program.

Publication Status – Under review by BMC Journal Addiction Science and Clinical Practice

Studies 3 & 4 (quantitative): Co-morbidity: Two longitudinal studies of the impact of HAT on:

- **Depression & anxiety**, as measured using the Hopkins Symptom Check List 25, and
- **Self-esteem**, as measured using Rosenberg’s Self Esteem Scale

Method – Comparison of HAT & non-HAT participants’ first & last tests

Results – No significant difference.

Publication Status – MA theses ([PDF](#) from uio.no& [PDF](#) from uio.no) Reported to the Second Nordic EAT Network Seminar, Stockholm, Sweden 2014. Early draft of a paper for publication (combines results from both studies).

Study 5 (qualitative): The patients’ experience of HAT

Method - semi structured interviews with 8 patients analyzed using thematic analysis in a social constructionist framework

Results – Rich material on horses’ meaning to individuals & on HAT’s role in the total addiction therapy context

Publication Status – MA thesis [PDF](#) from uio.no Reported to Horses4Humans Conference, Singen, Germany 2013 (poster presentation) & to the Second Nordic EAT Network Seminar, Stockholm, Sweden 2014. Two draft papers for publication (held pending Study 2 acceptance).

Study 6 (qualitative): A study of the patients’ and the therapist’s experience of Video Intervention Therapy (VIT) as part of the HAT process.

Method – observation, filming & semi-structured interviews with 4 patients & the therapist aimed at phenomenological & descriptive understanding using systematic text condensation.

Results - largely positive, enhances HAT process but requires training in VIT methodology & video techniques

Publication Status – MA thesis available. Possible paper in 2015.

On-going studies

- A randomized controlled study (RCT) to assess validity of our findings. Registered in <http://www.clinicaltrials.gov>
- Cost benefit analysis of HAT as a part of the OUS youth addiction treatment process.
- A comparison of the two 18 month periods (1/1/11- 30/6/12 with 1///12-31/12/13). This is needed to measure possible differences arising from organizational and staff changes, before progressing with further HAT quantitative work using 4-year data (2011-2014).

Possible future studies (subject to funding) to increase understanding/validity of HAT in addiction treatment include

- Study to map horses' behavior/contribution/stress during HAT
- quantitative/qualitative examination of horses' motivation & "alliance" factors in HAT
- quantitative/qualitative study of patients' ability to recognize/interpret horses' behavior
- HAT biomarkers (heart rate, cortisol & oxytocin) of patients, horses & therapists

We believe these studies would be unique, as we have found no published precedent for them.

Discussion

Our findings to date indicate an association between HAT and retention in treatment, and HAT and better treatment outcome, but not between HAT and treatment of co-morbidity. With the exception of co-morbidity, they are consistent with recurrent claims about the benefits of psychotherapy involving horses. They are also consistent with current advocacy by the major international equine assisted therapy organisations (EAGALA <http://www.eagala.org/>, PATH Intl. <http://www.pathintl.org/> and HETI www.HETIfederation.org).

A major challenge in addiction treatment is to find what keeps patients in treatment and why [9]. From addiction [3, 6, 7, 9] and HAT literature [13, 14, 24], we identified a number of possible explanations of why our HAT participants remained in treatment longer and had better treatment outcomes. **Therapeutic alliance** is one of the most promising predictors of treatment completion. HAT literature claims that horses' size, strength, warmth, body language and herd behavior can be used with therapeutic benefit when working with clients who are mistrusting, depressed and anxious, or who lack the boundary setting or other skills needed to deal with everyday life or who have issues related to self-esteem and self-efficacy [13, 14, 18, 24-29]. In addition, there are claims that the horse "mirrors" the patient and provides immediate honest feedback, untainted by the usual human and social constraints and that the horse can promote trust in vulnerable clients, particularly those with trauma backgrounds [13, 18, 28, 30]. These are claims with obvious relevance to therapeutic alliance in addiction treatment. We believe many of the claims may be valid. However, we found no empirical study of the actual therapeutic part played by the horse, or of the nature of the three-way therapeutic alliance in HAT. Further research is required in this area.

Before the project started, we heard patients claim “the horses keep me in treatment”. Our quantitative and qualitative studies seem to indicate that this may well be true. If that is so, it is an important finding for addiction treatment. From the naturalistic studies to date we cannot claim causality, but we can claim a strong association between HAT and duration and completion of treatment. The RCT, currently in process will add an important dimension about HAT’s applicability as an adjunct treatment for addiction and substance misuse disorders.

Conclusion

We have outlined the full scope of OUS’s HAT Research Project. The multi-study design is we believe a rare, if not unique approach to researching HAT. It enabled reporting of a mix of positive and negative quantitative findings plus rich qualitative data. Although causality cannot be claimed, the studies add to the HAT evidence base. We have also used the project in academic institutions to educate and inspire future researchers, and to promote discussion of our multi-dimensional approach as a means to developing better understanding of HAT.

Ethics: All necessary patient consent and data inspection authority approvals were obtained as part of the Youth Addiction Treatment Evaluation Project (YATEP). The study was reviewed and approved by the Norwegian Regional Committee for Medical Research Ethics. It is performed to their guidelines and the Helsinki Declaration.

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- The OUS patients, Stallen therapists & their support staff,
- The Oslo & Slemdal Lions Clubs which have provided Stallen’s horses for 40 years,
- The Norwegian Research Council & the Swedish-Norwegian Foundation for Equine Research
- The 4 Master-level co-researchers
- PhD Supervisor, Prof Edle Ravndal, SERAF.

The project has received academic support from SERAF and the Psychology Department of Oslo University. In addition, research colleagues in the Equine Research Network and the Nordic Network for Equine Assisted Therapy, plus a range of individual experts in the US, Canada, Australia, Germany and the UK, have provided advice.

Many students have asked if they could be involved in the project. Four Master level students from four different departments in two universities were accepted. We also gave three undergraduate students placements and assistance for their final year projects. In addition we participated in undergraduate and graduate level teaching/research at 4 universities in Norway, two in Sweden and one in the USA (via webcam).

Major international horse therapy organisations with whom we have worked include Horses in Education and Therapy International (HETI, Former FRDI) www.HETIfederation.org, Horses & Humans Research Fund (HHRF) <http://www.horsesandhumans.org>, The Equine Research Network (EqRN) www.eqrn.net Professional Association of Therapeutic Horsemanship International (PATH Intl.) (<http://www.pathintl.org/>), Equine Assisted Growth and Learning Association (EAGALA) <http://www.eagala.org/>

Media Coverage

General media

VG Helg, 9Feb 2013 Interview by Hanne Kruetz-Hansen for article Terapeutiske Hestekrefter – Nå brukes hester som terapeuter I behandlingen av stastig flere psykiske lidelser

NRK Interview Oct 2014 <http://www.famo.no/TSB/AnnKern/vimeo.html>

Horse Therapy media

HETI

Newsletter Nov 2012 – Reflections on the Paralympics

Newsletter Spring 2013 Book Review - The Listening Heart: The Limbic Path Beyond Office Therapy - A Manual for the HEAL Model for Equine-facilitated Psychotherapy and Learning

Newsletter May 2013 Article – Riding out of addiction

Newsletter December 2014: Two short articles: Something Good in Everything I See and The Most Egalitarian of Sports? <http://www.hetifederation.org/pdfs/Newsletters/1214.pdf>

Horses and Humans Research Foundation (HHRF) June 2013 – inclusion of the HETI article of May 2013 received more hits than any previous HHRF Facebook item

Cloud Productions Aug 2013 - Horse Medicine Trailer <https://vimeo.com/73706761>

Popular Addiction media. Rus og Samfunn

Feb. 2013 *Å ride seg av avhengighet*: Minister for Health visits OUS [Å ride seg ut av avhengighet](#) <

Oct 2013 *Å ri ut av avhengigheten* <http://www.rus.no/id/820.0>

Medical media: The Lancet Vol 381 12 Jan 2013 –*The Real Meaning of Innovation [31]*

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