Compatibility of riders' personality traits and the perceived personality of their horse

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This study addresses the relationship between competition riders' personality traits and the perception of their horse's personality, and it assesses whether a match in personality is associated with aspects of the riders' self-esteem, general self-efficacy, satisfaction with life, anxiety and depression. An invitation to participate in the study and a link to an online questionnaire were distributed via e-mail to members of the Norwegian Equestrian Federation (NEF). In total, 662 riders (95.5% female) accessed the survey site and completed the questionnaire. Most riders perceived of themselves as planned and systematic, extraverted and sociable, open to new experiences and non-neurotic. They tended to perceive of their favourite horse in a similar manner. Based on the riders' perceptions, three dimensions of personality in the horses were identified: 'neuroticism', 'agreeableness' and 'extraversion'. To study the match and discrepancy in human and horse personality, new variables were constructed to measure the differences between human personality and horse personality. Positive self-esteem and higher subjective well-being in the rider correlated with a match in both agreeableness and extraversion. On the other hand, riders who had a discrepancy with their horse in agreeableness and extraversion reported more depression. Riders who experienced a match in extraversion with their horse had higher self-efficacy. Lastly, riders who had a discrepancy with their horse in neuroticism and extraversion reported more anxiety.

Keywords: Competition riders, human–horse interaction, Big Five personality traits, horse's personality

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Humans have learned to control and interact with horses for centuries. A warrior's success depended upon it, as did the farmer for the harvest and the coachman for his wagon. Today, horseback riding is popular as a sport. The interaction between the rider and the horse should ideally develop as a trustful relationship that enables the rider to communicate with the horse in a positive manner (Górecka-Bruzda et al., 2011; Hausberger et al., 2007; Visser et al., 2008). Accordingly, sport-riding activities differ from most other sports, as the partnership dimension between the horse and the rider comes into focus (Wipper, 2000). Riders—and particularly female riders—have been shown to express a high degree of perceived self-efficacy and self-esteem (Forsberg & Tebelius, 2011; Hauge, 2013; Koren & Træen, 2003; Træen & Wang, 2006). In this context, the personalities of those who interact may be of importance for a successful outcome for both the human–animal relationship (Hausberger, Roche, Henry, & Visser, 2008; Visser et al., 2008) and for the rider's psychological well-being.

Human personality has been subject to investigation in numerous studies (John, Robins, & Pervin, 2008). Within trait psychology, five basic dimensions of personality have consistently been identified; *neuroticism* vs. emotional stability (e.g. anxiety, depression, vulnerability to stress, moodiness); *agreeableness* vs. antagonism (e.g. trust, tendermindedness, cooperation, lack of aggression); *extraversion* vs. introversion (e.g. sociability, assertiveness, activity, positive emotions); *open* vs. closed to experience (e.g. ideas/intellect, imagination, creativity, curiosity); and *conscientiousness* vs. impulsiveness (e.g. deliberation, self-discipline, dutifulness, order) (Gosling & John, 1999). In riders, it was recently found that those who were high in conscientiousness and low in neuroticism scored better on mental health indicators, such as general self-efficacy and positive emotions (Træen, Finstad, & Røysamb, 2019). This indicates that horseback riding may represent a benefit for certain aspects of humans' psychological well-being. However, the research does not give any clues as to the role of the horse's personality in the human–horse interaction. More specifically, it should be questioned which combination of rider and horse personality may result in a successful interaction to support or enhance psychological well-being.

For centuries, riders have acknowledged that horses have personalities, and studies have shown the validity of using personality traits as a way to describe horse behaviour (Lloyd, Martin, Bornett-Gauci, & Wilkinson, 2008; Morris, Gale, & Howe, 2002; Wolframm & Meulenbroek, 2012). On a broader scale, it is increasingly acknowledged by scientists that animals have personalities (Gosling & John, 1999; Gosling, Kwan, & John, 2003; Weiss & Gartner, 2017; Wolf & Weissing, 2012). However, studying animal personalities is challenging, as we cannot ask the animals how they perceive of themselves directly through a common language. One way to get around this difficulty can be to ask riders how they perceive of their horse's personality. This, of course, is not an ideal way to measure a horse's personality, as what we are measuring is, in fact, more the rider's perception of the horse's personality, rather than the horse's actual personality. However, previous studies have shown substantial reliability and validity in scores of animal

personality (Morris, Gale, & Duffy, 2002). Moreover, among humans, both self-reports and peer-reports of personality have been shown to be valid measures with high convergence (Clifton, Turkheimer, & Oltmanns, 2005; Kandler et al., 2010; Riemann & Kandler, 2010).

It is fair to say that a rider and his or her horse have a special dyad, as they preferably should act as one unit (Górecka-Bruzda et al., 2011; Hausberger et al., 2007; Visser et al., 2008). Research on humans has shown that when people search for a partner, partners who are alike have a better chance of experiencing a successful, happy and long-lasting relationship than partners who are very different from one another (Gaunt, 2006; Luo & Klohnen, 2005; Montoya, Horton, & Kirchner, 2008). In turn, a happy and successful relationship is shown to be of importance to aspects of mental health (David, Boniwell, & Conley Ayers, 2013; Diener, Oishi, & Tay, 2018). On this background, it may be hypothesised that the same associations would be found in the dyad of a rider and his or her horse. Thus, a match in personality between the rider and the horse is likely to be associated with good mental health in terms of, for instance, self-esteem, general self-efficacy, satisfaction with life, anxiety and depression, and a discrepancy in the dyad is likely to be associated with reported symptoms of depression and/or anxiety and other poor mental health outcomes.

The purpose of the present study is to explore the relationship between riders' personality traits and the perceptions of their favourite horse's personality traits in Norwegian competition riders. Furthermore, we aim to explore whether or not a match or a discrepancy in personality between the rider and the horse is associated with higher or lower self-esteem, general self-efficacy, satisfaction with life and reported symptoms of depression and anxiety.

Method

From October to December 2013, an online questionnaire survey of 5,360 licensed horseback riders, registered with the Norwegian Equestrian Federation (NEF), was administered via e-mail address. The survey focused on health issues, such as life satisfaction, positive affect, self-efficacy and resilience. The NEF has 36,000 members, organised in terms of 380 active clubs within the equestrian disciplines of dressage, driving, endurance, eventing, show jumping and vaulting, including para-equestrian dressage and driving. However, the invitation was only sent to those currently licensed, i.e. those individuals who had been or were competing in some equestrian discipline during the competition year 2013. The University of Oslo was responsible for the scientific component of the study.

Using their membership register, the NEF sent out information about the study and an invitation to participate via e-mail. By clicking on a link in the e-mail, the respondent was directed to the questionnaire on a commercial site that hosted the survey (www.surveymonkey.no). Of the riders who received the invitation to participate, 662 individuals who accessed the survey site completed the questionnaire, yielding a response

rate of 12.4%. We should note that the number of incorrect or out-of-use e-mail addresses was not known; thus, the response rate presented must be interpreted as the lowest likely response rate. When collecting the data, no IP addresses were recorded.

The first page of the questionnaire provided the respondent with basic information about the study. The respondents were informed about the purpose of the study, what the data would be used for and that the data would be confidential and anonymous. Participants were asked to confirm that they were 16 years of age or older and to provide informed consent. The study was approved by the Norwegian Social Science Data Services.

The questionnaire contained 125 items and took approximately 20 minutes to complete. Most questions were derived from scales that had previously been tested and possessed good psychometric qualities, but some questions relating to human–horse interactions were specially constructed for this study. The questionnaire included a life satisfaction scale (Diener, Emmons, Larsen, & Griffin, 1984), a self-efficacy scale (Schwarzer & Jerusalem, 1995) and a 20-question version of the Big Five personality trait measure (Engvik & Clausen, 2011). Questions to measure the riders' perceptions about their favourite horse's personality were also constructed. The questionnaire also included sociodemographic background variables (gender, age, education, occupation, riding competence level and rider discipline) related to lifestyle and health.

Measures

Personality of the rider was measured using a 20-item version of the Big Five Inventory (BFI; Engvik & Clausen, 2011). The full 44-item BFI is well established, widely used and has solid psychometric properties (John & Srivastava, 1999; Soto & John, 2012). The short version was constructed to provide a more succinct measure (Engvik & Clausen, 2011), enabling measurement of the Big Five traits when space considerations do not allow for use of the full scale. Correlations between the short-form traits and those on the full version of the scale are in the region of .90 (Engvik & Clausen, 2011). The items were evaluated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. The BFI measures five different personality traits: extraversion, agreeableness, conscientiousness, neuroticism and openness to experience. In this study, Cronbach's alpha for each of the traits in this study were as follows: .83 (extraversion), .53 (agreeableness), .61 (conscientiousness), .75 (neuroticism) and .68 (openness).

Perceived personality of the favourite horse was measured by items constructed by the authors based on their own experience associating with riders and horses, in addition to the items included in the Big Five scale (Engvik & Clausen, 2011). The items were introduced by the following text: 'Below you will find a range of claims about the horse's personality. Mark what best describes the horse that you experience having the best communication with. Don't think too much about each question, but make your mark in the box you immediately think matches your experiences'. The items were evaluated on a 7-point scale ranging from 1 = *does not apply to the horse* to 7 = applies *completely to the horse*. The items are shown in Table 3.

Self-efficacy was measured using the 10-item generalized self-efficacy scale (GSE) (Schwarzer, 1992, 2009). The GSE includes items such as, 'I can always manage to solve difficult problems if I try hard enough', and 'I am confident that I could deal efficiently with unexpected events', with response options ranging from 1 = *not at all true* to 4 = *exactly true*. Studies have shown excellent psychometric properties for the GSE, including high reliability and validity (Leganger, Kraft, & Røysamb, 2000; Røysamb & Strype, 2002). Cronbach's alpha for the current sample was .89.

The satisfaction with life scale (SWLS) was measured using Diener et al.'s scale (1984). The SWLS includes items such as, 'In most ways my life is close to my ideal', and 'I am satisfied with my life'. The items were evaluated on a scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Cronbach's alpha was .91.

Self-esteem was measured using Rosenberg's self-esteem scale (Tambs & Røysamb, 2014). The scale includes items such as, 'I take a positive attitude toward myself', and 'I feel that I am a person of worth, at least on an equal level with others'. Each item was evaluated on a scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. Cronbach's alpha was -.79.

Anxiety and depression were calculated using Søgaard and Bech's (2009) 10-item scale, with items such as, 'Feeling blue' and 'Feeling suddenly scared for no reason'. The response categories ranged from 1 = *not at all* to 5 = *extremely*. The scale was computed with mean sum scores (Cronbach's alpha = .90), and high scores indicate more anxiety and depression.

Gender

The majority of the sample was female (see the Results section). Some previous studies have reported gender differences in mental health, well-being and personality traits. As a first step, we thus examined gender differences in the study variables. However, with the exception of age (male respondents were older, p<0.01), there were no gender differences in any variables. Thus, we proceeded with the full sample in all main analyses. Additionally, we reran analyses with (a) control for gender and (b) a female sample only, and the results were virtually the same as reported. The issue of gender is also addressed in the Discussion section.

Statistical analyses

All statistical analyses were performed using SPSS/PC version 25 (SPSS IBM, New York, USA). The data were analysed using frequency tables, means, bivariate correlation analysis and factor analysis.

Results

The sociodemographic characteristics of the sample are presented in Table 1. Nearly all riders were female (95.5%). The mean age of the riders was 41.2 years (median = 40.0 years; SD = 8.3; range = 16–69 years), and the male riders (mean = 46.8 years, SD = 9.9) were significantly older than the female riders (mean = 41.0 years, SD = 8.2; $p < 0.001$). Regarding the highest level of education, 4.0% reported primary school education, 29.1%

high school education and 66.9% university-level education. Of the riders, 73% were married or cohabiting.

Table 1. Socio-demographic characteristics of the sample of licensed competition riders in Norway (percent)

		All riders	Male riders	Female riders	Sign
Gender					
	Men	4.5			
	Women	95.5			
		(n = 643)			
Age					
	16-34 years	23.7	11.5	24.4	**
	35-40 years	26.1	23.1	26.0	
	41-47 years	25.8	11.5	26.2	
	48 + years	24.5	53.8	23.4	
		(n = 613)	(n = 26)	(n = 581)	
Level of education					
	Primary	4.0	7.1	3.9	ns
	High school	29.1	25.0	29.1	
	University/university college	66.9	67.9	66.9	
		(n = 649)	(n = 28)	(n = 611)	
Relationship status					
	Single, never in a committed relationship	3.1	3.4	2.9	ns
	Single, have been in a committed relationship	16.7	20.7	16.8	
	In a committed relationship, not cohabiting	7.2	3.4	7.5	
	Living with a partner (cohabiting/married)	73.0	72.4	72.7	
		(n = 651)	(n = 29)	(n = 612)	
Health problems					
	None	62.8	76.2	62.2	ns
	Somatic	32.1	23.8	32.4	
	Psychological	2.1	0.0	2.2	
	Somatic and psychological	3.1	0.0	3.3	
		(n = 486)	(n = 21)	(n = 460)	
Main occupation					
	Studying	2.8	0.0	2.9	ns
	Working	86.5	96.0	85.8	
	Job seeker	0.6	0.0	0.7	
	Sick leave	2.2	0.0	2.3	
	Social security/pensioner	3.7	3.4	3.8	
	Maternity leave	1.2	0.0	1.3	
	Other	3.1	0.0	4.3	
		(n = 651)	(n = 29)	(n = 612)	

*Note. ns = not statistically significant; ** = p < .01*

The majority of the participants were in paid employment (86.5%). In total, 62% reported no health problems, 32.4% had some type of somatic problem (most often muscular-skeletal problems), 2.2% had psychological problems and 3.3% reported a combination of somatic and psychological problems. Although not shown in Table 1, 50.1% reported that they had been riding horses for 21 years or longer. Regarding rider discipline, 80.1% were active within dressage, and 40.5% participated in jumping. Most of the riders owned and rode one horse (60.9%), but some owned and rode several horses (30.9%). However, it was not recoded how long they had interacted with the horses. Nearly three-quarters of the riders (73.8 %) participated in riding competitions occasionally or often. It was most common to report competing on a medium level (LA) (32.8%).

Table 2 shows the scoring on each of the items included in the Big Five inventory. The results indicate that an average competition rider sees him-/herself as extraverted, care-giving, conscientious, fairly open and a little neurotic.

Table 2. Riders' perception of their own personality

Big 5 factor	Item	n	Mean	St.dev
E	Is talkative	512	5.29	1.52
E	Tends to be quiet	513	3.05	1.69
E	Is outgoing and social	512	5.45	1.40
E	Can be shy and inhibited	510	2.35	1.51
A	Can be cold and distant	511	3.00	1.69
A	Is helpful and unselfish compared to others	511	5.53	1.32
A	Can sometimes be rude	510	3.11	1.71
A	Is considerate and kind to most people	511	6.14	0.97
N	Is depressed, moody	513	2.32	1.51
N	Is relaxed, handles stress well	511	5.20	1.53
N	Worry a lot	505	3.67	1.80
N	Being easily excitable	511	2.80	1.65
O	Is original, comes up with new ideas	511	4.71	1.48
O	Have a vivid imagination	513	4.80	1.79
O	Likes to speculate, play with ideas	509	4.87	1.63
O	Has few artistic interests	510	3.61	2.10
C	Do a thorough job	507	6.04	1.12
C	Tends to have low order of existence	510	2.29	1.54
C	Makes plans and follows them up	510	5.52	1.23
C	Can be careless	511	3.36	1.73

Note. 1 = does not apply to me, to 7 = applies completely to me.
E = Extraversion, A = Agreeableness, N = Neuroticism, O = Openness, C = Conscientiousness

Table 3 shows the scoring on each of the items connected to the perception of the favourite horse's personality. The findings show that an average rider perceives of his or her favourite horse as approaching to and interested in its surroundings, honest and sociable, willing to learn, calm and balanced.

Table 3. Riders' perception of their favorite horse's personality

	n	Mean	St.dev
Is very communicative and gregarious	572	5.81	1.20
Is social	574	6.05	1.25
Can be shy	573	2.67	1.86
Can be careless	577	3.47	1.80
May seem remote and distant from humans	572	2.15	1.57
Is honest always does its best	575	5.67	1.31
Can sometimes be cheeky	577	4.19	2.01
Is considerate and friendly to most people	574	5.88	1.40
Is relaxed, handles stress well	577	4.93	1.67
Is anxious about different things	576	3.91	2.01
Easily becomes nervous	576	3.22	1.89
Learns fast and remembers well	576	5.96	1.07

Note. 1 = does not apply to my horse, to 7 = applies completely to my horse.

Based on eigenvalues, an exploratory factor analysis suggested three or four factors in perception of the horse's personality. Initially, all 12 items were included in the analysis. Four factors yielded eigenvalues above one. However, the scree plot suggested three main factors, and a parallel analysis also identified three solid factors, with eigenvalues clearly above the level expected by random variation. A total of nine items loaded substantially on these three factors, and the remaining three variables were excluded due to low communality. Table 4 shows the factor structure with loadings.

Three variables loaded highest on factor 1: 'easily becomes nervous', 'is anxious about different things' and 'is relaxed, handles stress well' (reversed). Factor 1 corresponds well to the human personality trait 'neuroticism' and was labelled accordingly. The three variables that loaded highest on factor 2 were 'learns fast and remembers well', 'is honest, always does its best' and 'is very communicative and gregarious'. Factor 2 corresponds to the human personality trait 'agreeableness'. Three items loaded highest on factor 3: 'can be shy' (reversed), 'is social' and 'may seem remote and distant from humans' (reversed). The dimension corresponds to the human trait of 'extraversion'.

Table 4.
Dimensions of perceived personality of the favorite horse
(Factor analysis, varimax rotation, n = 512)

	Factor 1	Factor 2	Factor 3
	Neuroticism	Agreeableness	Extraversion
Easily becomes nervous	0.877	0.002	0.083
Is anxious about different things	0.859	0.059	-0.120
Is relaxed, handles stress well (reversed)	0.667	-0.511	0.029
Learns fast and remembers well	0.034	0.763	0.136
Is honest always does its best	-0.169	0.751	-0.084
Is very communicative and gregarious	0.087	0.671	0.354
May seem remote and distant from humans (reversed)	-0.112	0.071	0.814
Is social	0.006	0.420	0.615
Can be shy (reversed)	-0.564	-0.056	0.615
Can sometimes be cheeky (reversed)	0.015	0.009	-0.032
Can be careless (reversed)	-0.173	0.042	0.050
Percent of variance	27.52	17.65	12.31
Eigen value	3.028	1.941	1.354

The following three new mean sum score variables were constructed: 1) 'Neuroticism', composed of the three items loading on factor 1 (Cronbach's alpha = 0.78). Higher scores indicate less emotional stability and more nervousness. 2) 'Agreeableness', composed of the three items loading highest on factor 2 (Cronbach's alpha = 0.65), and higher values indicate a stronger perception of riding an honest horse. 3) 'Extraversion', composed of the three items loading highest on factor 3 (Cronbach's alpha = 0.60), and higher values indicate a stronger belief that the horse is making an approximation to humans.

Table 5 shows the scoring on each of the mean sum score variables related to human personality and the riders' perception of their horse's personality. The findings reveal that the riders perceive of themselves as planned and systematic, extraverted and sociable, open to new experiences and non-neurotic; they tend to perceive of their favourite horse in a similar manner (in the sense that scores are mostly above the midpoint of the scales).

Table 5. Riders' perception of their own and their favorite horse's personality

	n	Mean	St.dev
Rider's personality			
Extraversion	513	5.34	1.25
Agreeableness	513	5.39	0.94
Conscientiousness	513	5.48	0.96
Neuroticism	513	2.89	1.23
Openness	513	4.69	1.25
Horse's personality			
Neuroticism	577	3.40	1.55
Agreeableness	577	5.81	0.92
Extraversion	576	5.74	1.18

Note. 1 = does not apply to me, to 7 = applies completely to me

Table 6 shows the correlation between the five dimensions of riders' personality traits and the perception of their favourite horse's personality. Riders who were high in *extraversion* tended to perceive the personality of their favourite horse as emotionally stable and agreeable. Riders who were high in *agreeableness* tended to perceive of their horse's personality as emotionally stable, agreeable and extraverted. Riders who were high in conscientiousness perceived of their favourite horse's personality as emotionally stable and agreeable. Riders who were high in *neuroticism* tended to perceive of their horse as more neurotic or emotionally unstable and less agreeable. Riders who were high in *openness* tended to describe their horse as agreeable.

To study the match and discrepancy in human and horse personality, three new variables were constructed by calculating the absolute difference between the scores of the riders' personality and the perceived personality of the horses. Responses for the new variables ranged from 0–6, with 6 indicating a strong match in personality. Higher scores reflect an increasing match between the human personality and horse personality. The new variables were called: 'match in neuroticism' (mean 1.54; SD = 1.19, range = 0.00–5.17), 'match in agreeableness' (mean 1.02; SD = 0.80, range = 0.00–4.33) and 'match in extraversion' (mean 1.34; SD = 1.08, range = 0.00–6.00). A score of zero indicates a high discrepancy, and the higher the value, the more a match in personality is present.

Table 6. The correlation between riders' own personality and the personality of their favorite horse (n = 493; Pearson's r)

| | Rider's personality | | | | |
	Extra-version	Agreeable-ness	Conscientious-ness	Neuroticism	Openness
Horse's personality					
Neuroticism	-0.09[*]	-0.11[**]	-0.12[**]	0.12[**]	0.06
Agreeableness	0.10[*]	0.16[***]	0.21[***]	-0.13[**]	0.12[**]
Extraversion	0.07	0.25[***]	0.08	-0.09	-0.03

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

As shown in Table 7, positive self-esteem in the rider correlated with a match in both agreeableness (r = 0.14, $p < 0.01$) and extraversion (r = 0.15, $p < 0.001$). Riders who experienced a match with their horse in extraversion had higher self-efficacy (r = 0.10, $p < 0.05$). Riders who had a match with their horse in agreeableness (r = 0.11, $p < 0.05$) and extraversion (r = 0.14, $p < 0.01$) reported higher life satisfaction. On the other hand, riders who had a match with their horse in agreeableness (r = -0.11, $p < 0.05$) and extraversion (r = -0.21, $p < 0.001$) reported less depression. Lastly, riders who had a match with their horse in neuroticism (r = -0.12, $p < 0.05$) and extraversion (r = -0.22, $p < 0.001$) reported less anxiety.

Table 7. The correlation between degree of match and discrepancy between riders' personality and the horse's personality, and indicators of quality of life (Pearson's r).

Discrepancy in	Self-esteem	General self-efficacy	Satisfaction with life	Depression	Anxiety
Neuroticism	0.006	0.077	-0.032	0.071	0.115[*]
	(n=508)	(n=511)	(n=513)	(n=482)	(n=482)
Agreeableness	-0.140[**]	-0.060	-0.110[*]	0.110[*]	0.076
	(n=508)	(n=511)	(n=513)	(n=482)	(n=482)
Extraversion	-0.150[**]	-0.100[*]	-0.140[**]	0.208[***]	0.220[***]
	(n=507)	(n=510)	(n=512)	(n=481)	(n=481)

Note. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Discussion

This study set out to explore the relationship between riders' personality traits and the perception of their favourite horse's personality and assessed whether a match or a discrepancy in personality between the rider and the horse is associated with aspects of psychological well-being. We found that most riders perceived of themselves as planned

and systematic, extraverted and sociable, open to new experiences and emotionally stable. In addition, they tended to perceive of their favourite horse in a similar manner. Three dimensions of personality in the horse were identified: 'neuroticism', 'agreeableness' and 'extraversion'. To study the match and discrepancy in human and horse personality, three new variables were constructed to examine the difference between human personality and horse personality. Positive self-esteem and higher life satisfaction in the rider correlated with a match in both agreeableness and extraversion. On the other hand, riders who had a discrepancy with their horse in agreeableness and extraversion reported more depression. Riders who experienced a match with their horse in extraversion had higher self-efficacy. Lastly, riders who had a discrepancy with their horse in neuroticism and extraversion reported more anxiety.

There is limited previous knowledge about the underlying structure of horses' personalities as seen through the eyes of the rider. It was therefore interesting to discover that the perception of the horse's personality could be described along the same dimensions of personality as human personality. This need not objectively be true, as it rests upon the riders' self-reported accounts and thus is likely to also reflect the horse's personality more as the riders wish it to be. However, this will also depend on the time the rider has spent with the horse and which experiences the equipage has created in the course of their relationship (Hausberger, Roche, Henry, & Visser, 2008; Visser et al., 2008). Thus, this is likely to also reflect the horse's personality more as the riders wish it to be. It may also be of importance that we asked about the favourite horse's personality and not just any horse's personality. For one, the favourite horse is likely to be the most well trained and the horse that the rider feels they can most unite with. This resembles human relationships, where partners who are alike have a better chance of a successful relationship than partners who are different from one another (Gaunt, 2006; Luo & Klohnen, 2005; Montoya, Horton, & Kirchner, 2008). Horses are naturally flock animals, and thus they regard the rider as the leader of the flock. For this reason, the horse is dependent on reading the leader's intentions. Thus, the horse functions as an emotional mirror for humans (Carlsson, Ranta, & Træen, 2014, 2015). This implies that the horse is sensitive to its rider's emotions, and it will act accordingly, particularly if the human–horse relationship has lasted for a longer period of time. This may also explain the reason a perfect match between a rider and horse will make the rider perceive of their personality as being similar.

In general, riders seem to have high perceived self-efficacy and self-esteem (Forsberg & Tebelius, 2011; Hauge, 2013; Koren & Træen, 2003; Træen & Wang, 2006), and the personality of the rider is associated with self-efficacy and positive emotions (Træen et al., 2019). The present study provides clues as to the role of the horse's personality in the human–horse interaction, and it indicates that a match in human and animal personalities is of importance to positive and high self-efficacy, self-esteem and satisfaction with life and that a discrepancy in personality is connected to depression and anxiety.

Some limitations of this study should be addressed. First, the uncertain and low response rate of the study impedes generalisation to the population of competition riders in Norway. This constitutes a problem when presenting percentages and means, but it is not

necessarily a problem for estimates of the strength of the relationships studied, as these are robust against sample biases and limited response rates (Gustavson, von Soest, Karevold, & Røysamb, 2012). Second, due to the cross-sectional nature of the study, causality cannot be assumed. For example, we cannot determine whether personality influences the perception of the horse's personality or whether a match or discrepancy influences self-esteem, self-efficacy, satisfaction with life, anxiety or depression. Longitudinal and life history studies may be needed to further clarify causality. Third, the large majority of the sample was female. As the study was not set up to examine gender differences—neither in levels nor associations—further studies are required to address questions of gender differences. Our findings are primarily generalisable to the female population. However, it is noteworthy that we did not find any significant gender differences in the study variables, with the exception of age. This might be indicative of similar processes involved for both women and men.

Conclusions

The findings from this study add to the literature on human–animal interaction and, more specifically, to the link between personalities of those in the human–horse dyad and positive health-related outcomes, such as self-esteem, general self-efficacy, satisfaction with life and less anxiety and depression, for the rider. However, this research is only at the beginning of exploration, and more research is needed to conclude what may be the perfect match between the rider's and his or her horse's personality, as well as the impact on positive health outcomes.

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