

Animal-friendly horse husbandry: Analysis of factors influencing riders' additional willingness-to-pay

Tiergerechte Pferdehaltung: Analyse der Einflussfaktoren auf die Mehrzahlungsbereitschaft von Reitern

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Summary

In recent years, the discussion about animal welfare in equestrian sports has gained increasing importance. One of the main points of criticism are horse husbandries that do not prioritise animal welfare. Therefore, the objective of this study is to analyse the additional willingness-to-pay for a more animal-friendly horse husbandry. For this propose, an online-survey was conducted among 738 riders throughout Germany. The results show that riders are willing to pay a price premium of 31.9% if their horse/horses were kept in more animal-friendly husbandry conditions compared to current conditions. Furthermore, age, level of education, riding ambition, as well as attitude towards animal welfare, are revealed as factors influencing riders' additional willingness-to-pay for a more animal-friendly horse husbandry.

Keywords: Additional willingness-to-pay, animal welfare, horse husbandry, riders

Zusammenfassung

Die Diskussion rund um verschiedene Tierwohlaspekte im Pferdesport gewinnt seit einigen Jahren zunehmend an Bedeutung. Im Fokus der öffentlichen Kritik steht u.a. die geringe Orientierung von Pferdehaltungssystemen an den eigentlichen Grundbedürfnissen des Pferdes. Das Resultat ist eine Beeinträchtigung von Tierwohl und Tiergesundheit. Das Ziel des vorliegenden Beitrags ist es deshalb, die Mehrzahlungsbereitschaft von ReiterInnen für eine tiergerechtere Pferdehaltung zu analysieren. Hierzu wurde eine Online-Umfrage unter 738 ReiterInnen aus ganz Deutschland durchgeführt. Die Ergebnisse zeigen, dass ReiterInnen bereit sind, durchschnittlich 31,9% mehr für eine tiergerechtere Pferdehaltung im Vergleich zur derzeitigen Haltung ihrer Pferde zu bezahlen. Als signifikante Einflussfaktoren der Mehrzahlungsbereitschaft haben sich das Alter, das Bildungsniveau, die reiterlichen Ambitionen sowie die Einstellung zu Tierwohl herauskristallisiert.

Schlagworte: Mehrzahlungsbereitschaft, Tierwohl, Pferdehaltung, ReiterInnen

1 Introduction

In recent years, there is a significant increase of social requirements and interest in animal welfare (WBA, 2015). Due to doping scandals, evidence of non-animal-friendly training methods and husbandry, as well as health concerns about horses in high-performance sports, equestrian sports and horse husbandry are increasingly in the focus of a critical public (Müller, 2015; Müller et al., 2015; Horseman et al., 2016). Different studies pointed out that current horse husbandry does not meet horses' basic needs in part (Arndt, 2001; Fleming et al., 2008; Niederhöfer, 2009; Szivacz, 2012; Horseman et al., 2016). Horses' basic needs are social contact to conspecifics, free movement, feed and water, rest as well as adequate climate conditions. Therefore, crucial for horses' well-being are species-appropriate husbandry which ensures animal health and allows natural behaviour, as well as fair handling (Zeeb, 1981). In horse husbandry, it is distinguished between single and group housing with variations of additional access to free movement on pasture or paddocks (BMELV, 2009). Single housing is the most common horse husbandry in Germany (Hoelker et al., 2017). However, single housing allows horses only limited natural behaviour and realisation of basic needs (Bachmann, 1998). Joining single housing in a box with a permanently accessible small paddock is an improvement in this husbandry (Pirkelmann, 2002), and is becoming increasingly popular, as well as group housing – which is considered to be the husbandry that best fits the basic needs of horses (Piotrowski and Kreimeier, 1998; Hoelker et al., 2017). Furthermore, surveys among equestrians, visitors of equestrian events, as well as people who do not visit such events, showed that animal welfare in high-performance sports is estimated critically (Müller, 2015).

Improvements to the level of animal welfare in horse husbandry is influenced by riders' and horse owners' attitudes towards animal welfare and their willingness to implement more animal welfare, as well as their additional willingness-to-pay for a more animal-friendly horse husbandry (Visser and van Wijk-Jansen, 2012; Ikinge et al., 2016; Drittler et al., 2017). Drittler et al. (2017) found that many horse business managers have a positive attitude towards more animal welfare in horse husbandry. However, higher animal welfare requirements can only be implemented if owners and riders of horses are willing to pay the additional costs. But to our best knowledge, there are so far no scientific studies that investigate whether riders are willing to pay a price premium for a higher level of animal welfare in horse husbandry. However, studies from the food sector showed that consumers' willingness-to-pay for products from animals which live in improved husbandry conditions vary partly considerably (e.g. Schulze et al., 2008; Weinrich et al., 2014). Furthermore, only a few studies exist that deal with riders' attitudes towards animal welfare. These studies certify riders' positive attitudes towards issues of animal welfare (Visser and van Wijk-Jansen, 2012; Ikinge et al., 2016). To close this research gap, the objective of this current study is to analyse German riders' additional willingness-to-pay for a more an-

imal-friendly horse husbandry in comparison to the current husbandry their horse/horses live in, and to identify factors that influence this additional willingness-to-pay.

The current study is structured as followed: Chapter two outlines material and methods. The results are shown in Chapter three. Chapter four discusses the results. A closing conclusion completes this study.

2 Material and Methods

2.1 Study design and methods

In the summer of 2017, a standardised online-survey was conducted that questioned German riders regarding animal-friendly horse husbandry. The questionnaire consisted of various questions concerning riders' attitudes towards animal welfare, their additional willingness-to-pay for a more animal-friendly horse husbandry in comparison to the current husbandry their horse/horses live in (e.g. more frequently feeding in smaller portions, weather protection in the field), as well as their sociodemographic data. After a one-week pre-test, the link leading to the online-survey was spread by social media channels like Facebook, as well as by personal addresses of potential participants. Thereby, the link could be used only once to prevent riders from participation multiple times. Statements regarding the attitudes were measured with the help of five-point Likert scales from -2=totally disagree to +2=totally agree and sociodemographic data were collected using nominally scaled questions. The additional willingness-to-pay was measured metrically; riders were asked to state the price premium in percent that they are willing-to-pay additional for a more animal-friendly horse husbandry, compared to current husbandry costs.

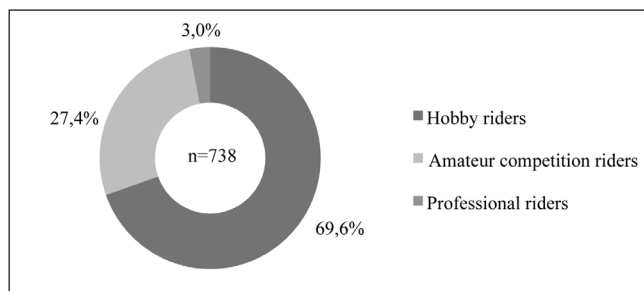
Statistical data analysis of this explorative study was performed with the help of IBM SPSS statistics 24. Firstly, univariate analyses were conducted to gain an overview of the sample and to measure the additional willingness-to-pay. Frequency distributions, mean values, as well as standard deviations, were thereby considered (Raab-Steiner and Benesch, 2008). Subsequently, variables that influence the additional willingness-to-pay for a more animal-friendly horse husbandry were identified with the help of correlation analysis, as well as mean comparisons in form of variance analysis (Backhaus et al., 2011).

2.2 Sample description

In total, 738 riders from all over Germany completed the survey. The age averages 35 years; the youngest respondent is 13 years old and the oldest one 69 years. 97.3% of the riders surveyed are female, 2.7% are male. Thus, the sample differs considerably from the basic population of all German riders, where nearly one-quarter of all 3.89 million riders is male (female riders: 78%; male riders: 22%) (FN, 2019; Ikinge et al., 2014). Furthermore, the sample is characterised by a good level of education; higher education entrance qualifica-

tion was gained by 58.4% of the respondents. This finding is consistent with the education level of the basic population, where about 50% of all riders have passed A-levels or a university degree (Ikinger et al., 2014). In addition, 69.6% of the respondents describe themselves as hobby riders (people who spend their leisure time with horse riding), 27.4% as amateur competition riders (people who attend horse trials but do not earn their living with horses) and 3.0% as professional riders (people who earn their living with horses) (figure 1).

Figure 1: Frequency distribution of participants' riding ambition



Source: Authors' calculation.

The largest share of respondents stated their horses are kept in single housing with a daily stay on pasture or paddock in groups, or in single housing with directly connected small paddocks and additional stay on pasture or paddock in groups (40.5%). 35.1% of the riders keep their horses in group housing with permanently accessible paddock. Only 0.8% stated that their horses are kept in single housing or single housing with directly connected small paddocks without additional movement opportunities.

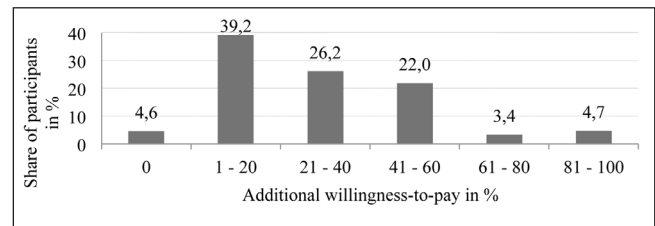
3 Results

Riders' additional willingness-to-pay for a more animal-friendly horse husbandry in relation to the current husbandry costs averages 31.9%. But a high standard deviation illustrates heterogeneity in riders' additional willingness-to-pay (SD=23.0). Frequencies shown in Figure 2 demonstrate that the largest share of respondents is willing to pay up to 20 % more for a more animal-friendly horse husbandry (39.2%). According to their own statement, only 4.6 % of the riders are not willing to pay a price premium for a more animal-friendly horse husbandry.

To identify different variables that influence the additional willingness-to-pay of riders, correlation and variance analysis were conducted. Thereby, age, level of education, riding ambition and attitudes towards animal welfare were classified as influencing variables.

A significant negative correlation was revealed between riders' age and the additional willingness-to-pay for a more animal-friendly horse husbandry ($r=-0.103$; $p=0.005$). Even

Figure 2: Frequency distribution of participants' additional willingness-to-pay



Source: Authors' calculation.

though the correlation coefficient identified indicates only a weak connection, the significant mean comparison between riders' age groups and the additional willingness-to-pay for a more animal-friendly horse husbandry under-pins this finding ($p=0.042$; μ_{13-19} years=40.2%; μ_{20-29} years=32.8%; μ_{30-39} years=32.0%; μ_{40-49} years=30.7%; μ_{50-59} years=27.1%; μ_{60-69} years=25.8%). Riders' additional willingness-to-pay declines, thus, by an increasing age. Furthermore, riders' additional willingness-to-pay for a more animal-friendly horse husbandry differs significantly according to their level of education ($p=0.031$). The additional willingness-to-pay for a more animal-friendly horse husbandry decreases when the level of education increases ($\mu_{\text{Primary school certificate}}$ =42.4%; $\mu_{\text{Secondary school certificate}}$ =31.6%; $\mu_{\text{A-levels}}$ =30.9%). Riders' ambition was detected as a further influencing variable of the additional willingness-to-pay for a more animal-friendly horse husbandry. Significant mean comparisons show ($p=0.000$), that hobby riders have the highest additional willingness-to-pay ($\mu=34.5\%$), followed by amateur competition riders ($\mu=26.3\%$) and professional riders ($\mu=22.7\%$).

In total, analysis of mean values shows that riders questioned have a rather positive attitude towards animal welfare (table 1). As table 1 illustrates, riders disagree or totally disagree with all statements that dismiss animal welfare. Therefore, on average, riders totally disagree that sport horses only can be kept in single housing, that horses that are only kept in a stable can behave naturally and that a horse in single housing can develop its normal social behaviour by contact to neighbouring horses just as well as in group housing. Furthermore, they do not consider the current discussion about grievances regarding animal welfare as exaggerated. Riders on average disagree that a horse that cannot behave completely naturally can still feel comfortable. Moreover, on average, they reject the statement "It does not matter if a horse has no access to drinking water for several hours". On the contrary, on average, riders agree or totally agree with all pro animal welfare statements. On average, they totally agree that they always endeavor to ensure their horse feels comfortable and that the opportunity to have constant free movement on a paddock is essential for horses' well-being. Furthermore, on average, riders believe that horses in group housing are more balanced and they agree that a horse needs permanent access to roughage. However, partly higher standard deviations show that riders' attitudes towards animal welfare are not homogeneous.

Table 1: Mean values and standard deviations of riders' attitudes towards animal welfare and correlations between riders' attitudes and additional willingness-to-pay

Statement	μ	SD	r
I consider the current discussion about grievances regarding animal welfare in equestrian sports/horse husbandry as exaggerated.	-1.11	0.94	-0,189***
A horse that cannot behave completely naturally can still feel comfortable.	-1.07	0.90	-0,177***
Sport horses only can be kept in single housing.	-1.66	0.61	-0,173***
A horse that is only kept in a stable can behave naturally.	-1.69	0.64	-0,141***
It does not matter if a horse has no access to drinking water for several hours.	-1.35	0.92	-0,132***
A horse in single housing can develop its normal social behaviour by contact to neighbouring horses just as well as in group housing.	-1.53	0.71	-0,126***
The opportunity to have constant free movement on a paddock is essential for horses' well-being.	1.54	0.75	0,177***
I always endeavour to ensure my horse feels comfortable.	1.83	0.40	0,156***
Horses in group housing are more balanced.	1.27	0.86	0,151***
A horse needs permanent access to roughage.	1.07	0.91	0,097**

μ =mean value; scale from -2=totally disagree to +2=totally agree; SD=standard deviation; r=Correlation coefficient according to Pearson; Significance level: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$;

Source: Authors' calculation.

Significant correlations were found between riders' attitudes towards animal welfare and their additional willingness-to-pay for a more animal-friendly horse husbandry (see table 1). A rejective attitude towards animal welfare in horse husbandry is negatively connected with the additional willingness-to-pay, whereas a supportive attitude is positively connected with the additional willingness-to-pay.

4 Discussion and conclusion

The objective of this study was to examine German riders' additional willingness-to-pay for a more animal-friendly horse husbandry, and to identify variables influencing this extra willingness-to-pay. The results of an online-survey among 738 German riders were therefore analysed. The descriptive results showed that riders have an additional willingness-to-pay for a more animal-friendly horse husbandry of about 30%; Schulze et al. (2008) were able to identify a similar willingness-to-pay for improved husbandry conditions in the food sector. Variables influencing riders' additional willingness-to-pay significantly were age, level of education, riding ambition, as well as attitude towards animal welfare. Whereas a supporting attitude towards animal welfare in combination with a high additional willingness-to-pay was to be assumed (e.g. Plassmann et al., 2009; Henseleit, 2011), it is unexpected that younger riders and riders with a low level of education have the highest additional willingness-to-pay for a more animal-friendly horse husbandry. Due to age and level of education, this contrasts that this group of riders has actually only a low income at hand. One interpretation is that

the issue of animal welfare is more common to younger riders' and they thus have higher animal welfare awareness than the older ones, by contrast, it appears, older riders hold a more outdated view that a horse belongs in the stable.

This study presents first insights into German riders' attitudes towards animal welfare as well as their additional willingness-to-pay for a more animal-friendly horse husbandry. However, this study has some limitations which have to be taken into account when interpreting the results. Due to its limited sample size, as well as differences between sample and underlying population, this study cannot be described as representative of the basic population of all German riders; female riders, for instance, are considerably overrepresented which may result out of a greater involvement and sensibility of women regarding animal welfare issues. An additional limitation arises from a possible selection bias due to participants' recruitment; because the survey was distributed via social media, only more internet-savvy riders were included. This possible selection bias might indicate that the low average age of the sample is a result of the recruitment method used. Furthermore, the effect of social desirability has to be taken into due to the topicality of animal welfare issues in society. Regardless of these limitations, this study provides first important insights about riders' additional willingness-to-pay for a more animal-friendly horse husbandry and thus contributes to closing the existing research gap.

However, a reliable statement regarding the exact high of additional willingness-to-pay cannot be made, in total, the current study demonstrates that there is a considerable potential for an improvement of animal welfare in horse husbandry. Riders are mainly willing to pay for higher animal

welfare standards and therefore to raise the general animal welfare level of horse husbandry.

In further research, the variables identified could contribute to revealing different target groups for an improvement of animal welfare in horse husbandry. Furthermore, discrete choice experiments for determining the additional willingness-to-pay, as well as for identification of possible effects of social desirability, represent further approaches. Besides that, future studies should seek to be representative concerning sample composition as well as sample size.

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