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# Equine quality of life assessment: a review of protocol and practice

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**ABSTRACT:** Quality of life (QoL) assessment in horses may easily be overlooked, often as a consequence of practitioner time constraints and a lack of consensus regarding effective and reliable methodologies.

This review explores the concept of QoL, the principles and methods of QoL measurement and discusses the usefulness of qualitative judgements. It draws conclusions on the importance of life-long, multifaceted QoL evaluation and the advances being made in this field.

Quality of life (QoL) assessment of horses is a concept easily overlooked in daily veterinary practice, often as a consequence of the time constraints placed upon practitioners. In addition, the beliefs of some animal carers that the veterinarian can provide a pharmacological 'cure all' for their animals may impede multifaceted QoL analysis.

In practice, these limitations mean that analysis of QoL is often primarily undertaken to inform end-of-life decisions with exploration of wider considerations relinquished to ethicists and welfare specialists.

This review discusses a number of QoL assessment methodologies and explores the concept and relevance of ongoing, multifaceted, QoL assessment to address regression or progression and facilitate timely and appropriate intervention on welfare grounds.

## The concept of quality of life

Quality of life analysis is acknowledged as a valuable concept within both human medicine and veterinary practice; it is utilised widely in small animal clinical settings. However, standardised methodologies are yet to be developed within equine practice.<sup>1</sup>

The assessment of QoL should play a pivotal role within the equine clinical

decision-making pathway; but it is a complex, dynamic and multidirectional term, the perception of which may differ markedly between and within groups of veterinarians and clients.<sup>2</sup>

The World Health Organisation (WHO) defines human QoL as a complex incorporation of a person's physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to salient features of the environment.<sup>3</sup>

Many of these terms are applicable to animal QoL and are closely intertwined with welfare.<sup>4</sup>

## Measuring quality of life

The Farm Animal Welfare Council (FAWC) recommends the use of both subjective and objective measures of QoL assessed through 'iceberg indicators' of welfare (such as body condition, normal and abnormal behaviour, presence of injury or disease and demeanour) amongst other validated measures.<sup>5</sup>

Wathes (2010) suggests that all veterinary students (including, in the author's view, veterinary nurses) should be taught to evaluate the 'tips of each iceberg' to determine the whole welfare challenge confronting the individual animal; he proposes QoL as a universal measurement that may be applied to any animal regardless of its perceived value or

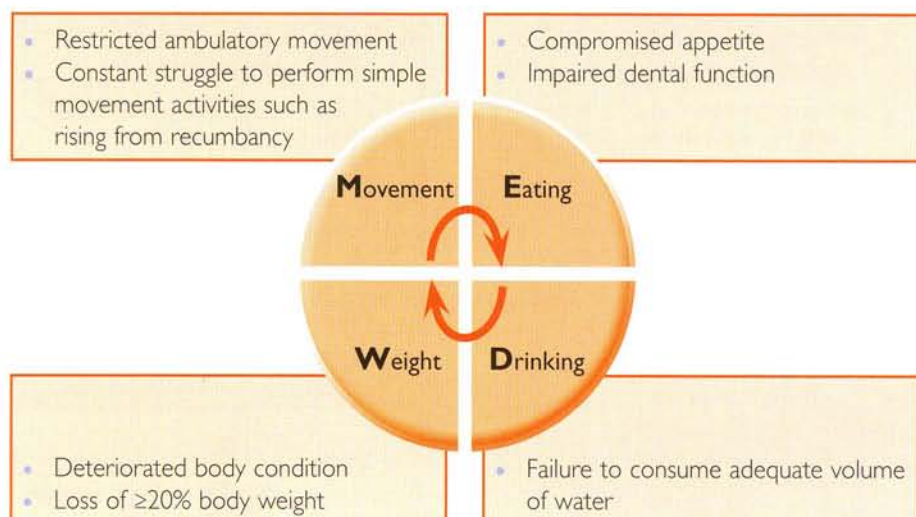


Figure 1. MEDW concept for quality of life assessment (Adapted from Stull, 2013)

use in order to gain a holistic insight into its true state.<sup>6</sup>

In order to be both reliable and repeatable, all welfare and QoL measures must be validated through research, which is both expensive and time consuming.<sup>5,7</sup>

However, results of a 12-year validation of qualitative assessment of behaviour (QAB) methods reported by Wemelsfelder (2007) suggest that the investment in these newer forms of welfare assessment are justifiable in order to enable scientific acceptance, and thus incorporation, of qualitative QoL analysis in decision-making algorithms.<sup>2,5</sup>

Wemelsfelder argues that in order to address quality we must assess 'how' rather than simply 'how much'; for example 'how does the animal walk around the stable' in addition to 'how many times'? From this we can glean more, albeit subjective, information about the animal's behaviour and derive suitable approximations of its welfare.

Whilst this approach is certainly valuable, its utilisation in everyday assessment of an animal's QoL is often overlooked owing to the perceived time required to observe these variables, and also the fact that other indicators, such as disease process, are often considered more salient features of the decision-making process.<sup>1,2</sup>

Taylor and Mills (1997) put forward a definition of QoL in animals as:

'The state of an individual animal's life as perceived by them at any one point in time. It is experienced as a sense of well-being, which involves the balance

between negative and positive affective states and any cognitive evaluation of these, where the animal has the capacity. To some extent, QoL can be predicted by the fulfilment of basic and species-specific health, social and environmental needs (and individual preferences for these) and is reflected in the animal's health and behaviour'.<sup>8</sup>

Parker and Yeates (2012) build on previous assertions that QoL should be assessed in terms of inputs (opportunities such as pleasure, selection of dietary

inputs, control of the environment for enrichment and so on) as well as animal outcomes, and that these can be objectively assessed for each species.<sup>1,2,4,5&9</sup>

## Quality of life analysis tools

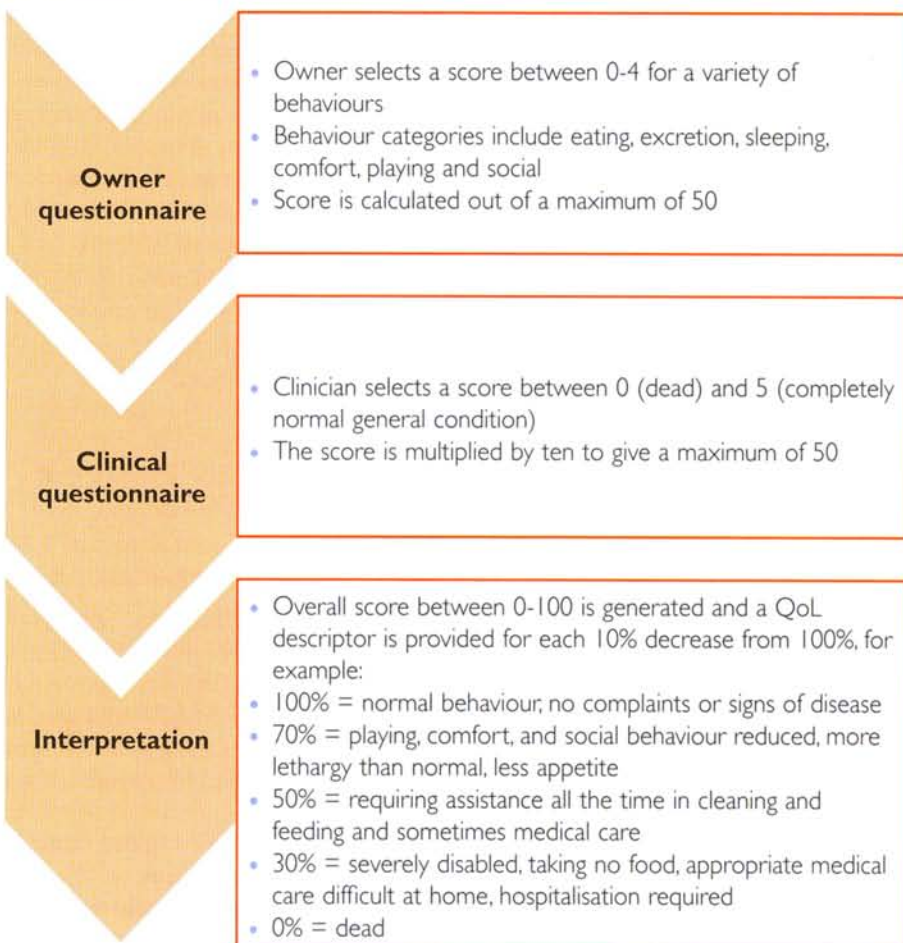
Stull (2013) states that the MEDW (Movement, Eating, Drinking, Body Weight) criteria can be an effective and reliable daily monitoring tool for assisting equine QoL analysis (Figure 1).<sup>10</sup>

Stull (2013) highlights that this method can be utilised by both vet and owner to record observations over time and is most useful when combined with assessment of biological and pathological measures, as well as owner perception of QoL as supported by Villalobos (2011).<sup>10,11</sup>

Whilst this method focuses on animal outcomes if utilised alongside assessment of inputs it could constitute a useful health-related QoL analysis tool.

Ireland *et al* (2011) support the view that QoL assessment should be a holistic and ongoing process whereby measures such as health-related QoL and disease-related QoL (as expressed by Taylor and

Figure 2. Modified Kamofsky's score summary (Adapted from Hartmann and Kuffer, 1998)<sup>14</sup>



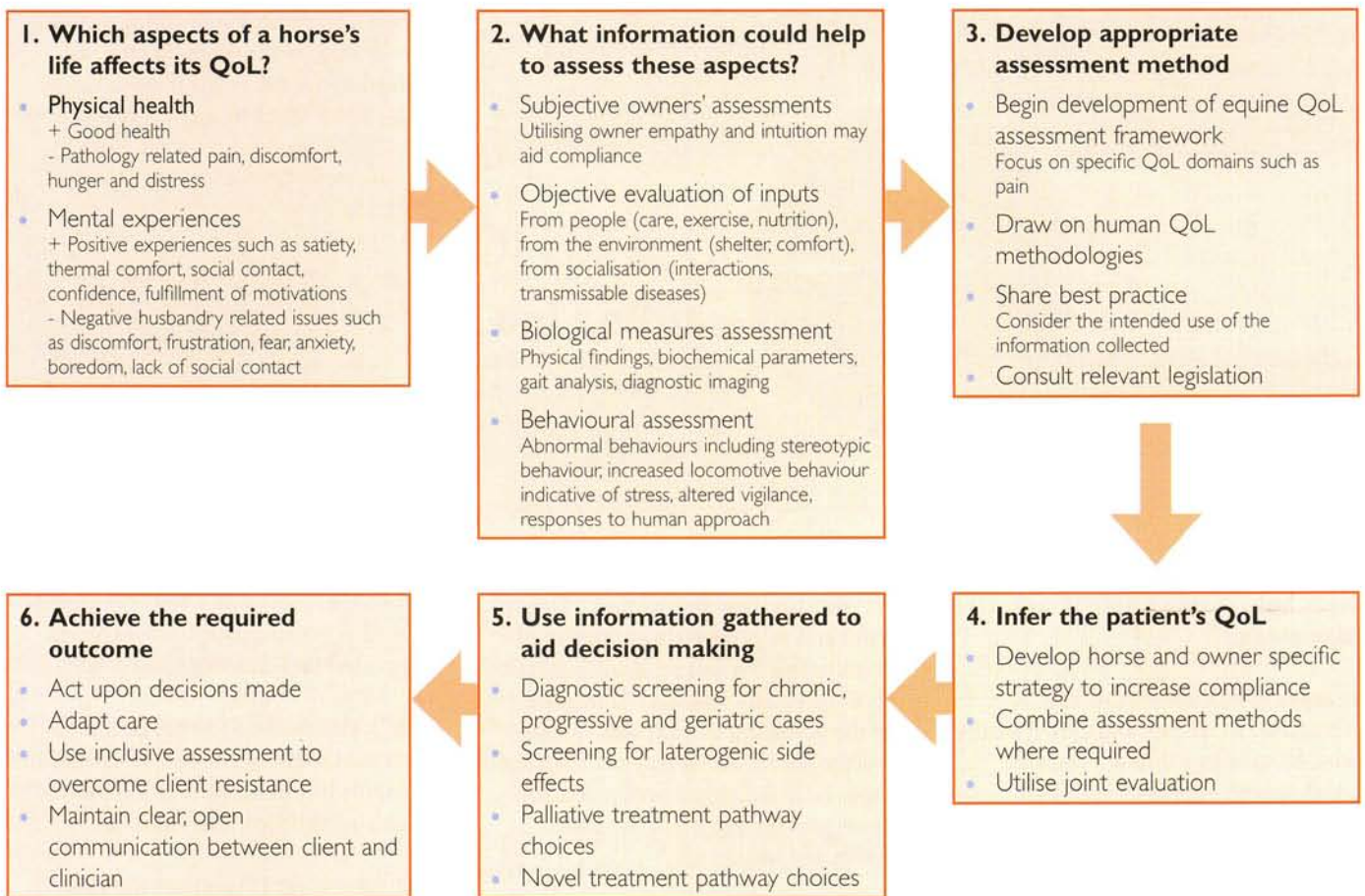


Figure 3. Synopsis of Parker & Yeates' (2012) six-step QoL assessment process<sup>1</sup>

Mills (2007), Wiseman-Orr *et al.* (2004) and Freeman *et al.* (2005) respectively) are considered alongside the animal's environment and prospective experiences. 4, 8, 12 & 13

They state the importance of ensuring that QoL assessments consider the ability of the animal to adapt to illness or injury, for example using a modified Karnofsky's score (summarised in Figure 2), to ensure that poor health is not solely equated with poor welfare.<sup>14</sup>

Parker and Yeates (2012) reviewed assessment techniques for QoL in equine patients and concluded that QoL is affected by a number of aspects including mental experiences, pathological states and husbandry related systems.<sup>1</sup>

They suggest that immediate veterinary assessment is useful in evaluation of QoL; although it could be greatly enhanced by making use of additional evaluative criteria, such as owner assessment, biological measures assessment, and appraisal of inputs from owner, environment and other horses, as well as behavioural evaluation.

They suggest a six-step QoL assessment process as outlined in Figure 3.

Villalobos (2011) devised a scale aimed at veterinarians, veterinary nurses, animal technicians and owners to monitor and assess an animal's QoL in a non-emergency (often palliative care) situation, to help make end of life decisions.<sup>11</sup>

It utilises a Hurt, Hunger, Hydration, Hygiene, Happiness, Mobility, More good days than bad (HHHHHMM) QoL analysis system (Figure 4). It is designed to be used in conjunction with the Emotional – Subjective, Objective, Assessment, Plan (E-SOAP) chart developed by Lagoni and Butler (2000).<sup>15</sup>

E-SOAP is an adaptation of SOAP charts used in human medicine designed to enable assessment of animal medical variables and owner emotional variables using subjective questioning (what do you feel/notice/suspect...?), objective questioning (what are the facts?), assessment (conclusions from overall synthesis of data) and a treatment plan inclusive of owner support options.

Villalobos's HHHHHMM system scores each variable on a quantitative 1-10 scale to provide observations of the animal on successive occasions and to

aid improvements to the animal's QoL or euthanasia pathway choices (Figure 4).

This system, as with most QoL analysis scores, is subject to observer bias, especially as there are no definitive descriptive categories to aid score choice at each criterion. The system has not been scientifically validated or subjected to inter-observer reliability analysis to date. So, as such, the accuracy and repeatability of this QoL analysis is undeterminable at present.

In theory, however, a QoL tool which is clear and simple enough to be effectively and reliably utilised by both professionals and laypersons (including owners) could be very valuable for monitoring QoL over time.

### Are qualitative judgements useful?

Wemelsfelder (2007) suggests that it is only when the 'whole animal' is acknowledged as one sentient being (rather than an aggregation of systems) that an integrative system of observation may be applied to QoL assessment.<sup>2</sup>

Qualitative observations are purported to have scientific merit provided that formal

Hurt: 1-10	Adequate pain control - is pain successfully managed? Breathing ability - is help required?
Hunger: 1-10	Is the animal eating sufficient quantity? Does hand feeding help? Is help required?
Hydration: 1-10	Is the animal dehydrated? Is help required?
Hygiene: 1-10	Ensure the patient is kept brushed as suitable for the individual Ensure the patient is kept clean especially after elimination Ensure wound cleansing is thorough and appropriate Avoid pressure sores
Happiness: 1-10	Does the animal express interest in surroundings? Is the animal responsive? Does the animal appear depressed, lonely, afraid or anxious?
Mobility: 1-10	Can the animal rise from recumbancy without help? Is assistance required? Is the animal ataxic? Does the animal move voluntarily?
More good days than bad: 1-10	When bad days outnumber good QoL may be too compromised. When healthy human-animal bond is no longer possible a decision must be based on animal welfare grounds.
Total	A total >35 points indicates an acceptable QoL

Figure 4. The HHHHMM QoL scale used to evaluate treatment success particularly for palliative care (Adapted from Villalobos, 2011)<sup>11</sup>

methodologies (such as those employed in free choice profiling) are followed and that they are used alongside quantitative measurements.

In contrast to many viewpoints – such as those of Wojciechowska *et al.*, 2005; Bradshaw and Casey, 2007) – Wemelsfelder highlights that in their daily interactions with animals, carers use qualitative assessment of health and well-being.<sup>16, 17</sup>

As such, they may be useful candidates to undertake reliable QoL assessment. However, it must be remembered that observers are active measurement instruments that, by nature, are less reliable than passive measurement methods.

Ireland *et al.* (2011) report that owners rate pain and stress as having lower importance than nutrition and environmental comfort when assessing their animal's QoL which means that inaccurate representations of QoL may be put forward.<sup>4</sup>

It is necessary to recognise that, by nature, qualitative judgements are subject to personal bias as well as the anthropomorphic influences central to many animal-owner relationships; for example Morris *et al.* (2007) reported that over three quarters of owners believed that their horse could feel 'pride' and

'jealously'; and over a quarter reported 'guilt' as a real emotion in their horse.<sup>18</sup>

In addition, experts such as veterinary surgeons, may anthropocentrically place the wrong emphasis on an animal's situation when evaluating QoL and inadvertently make an inaccurate judgement in relation to QoL.<sup>10, 17</sup>

These human biases must be considered seriously as 'confounds' in the reporting process, especially in significant, emotional decisions such as the option to euthanase. Bradshaw and Casey (2007) advise that in such cases owners and close carers may be poor proxies for reporting the animals QoL.<sup>17</sup> This is supported by Snow *et al.* (2005).<sup>19</sup>

Wemelsfelder (2007) disagrees, stating that emphasis should be placed upon dealing constructively with these biases in order that a more holistic view of each animal may be achieved.<sup>2</sup>

## Conclusion

In essence, continual evaluation of an animal's QoL within routine health checks may facilitate the identification of both physiological and psychological changes. Analysis can help to initiate rapid diagnosis and aid implementation of treatment pathways which in turn will promote welfare.

Both veterinary surgeon and veterinary nurse could find substantial benefit in

utilising multifaceted measures of QoL – including owner assessment, health-related status, disease-related status and veterinary assessment, if allowance is made for anthropomorphic and anthropocentric bias within the reporting process.

Whilst it is apparent that fully-formed QoL assessment methodology for horses (backed by expert consensus) has not yet been developed or validated, research is ongoing and emphasis on scientific exploration of life-long QoL analysis in horses should serve to improve the welfare of individual horses on a daily basis. [m](#)

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