

QUALITY OF LIFE CONCERNS IN ANIMAL SHELTERS – PART 2: WHY IS IT IMPORTANT AND HOW DO WE MEASURE IT?

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HOW DO WE MEASURE QUALITY OF LIFE?

In humans, measurement of quality of life (QOL) continues to be a source of great controversy, debate, and difficulty, and to date there is no consensus as to the best method for assessment. Because of its highly subjective nature QOL continues to defy efforts at quantification. There exists much greater agreement about *why* we should measure QOL than *how* to do it.

The usual method—and considered gold standard—for collecting QOL information in people is through self-assessment questionnaires. Questionnaires may be comprised of a single question, such as “How do you rate your QOL?” or a series of questions in a lengthy questionnaire format. Most questionnaires are designed to produce a single aggregate score. However, as logical as these scores may appear, their inherent meaning in terms of QOL remains unclear.

In animals, and particularly shelter animals, it is essential that we develop methods of QOL measurement that are based on clear and specific criteria rather than intuition or “gut feelings.” Numerous examples have shown that QOL assessed by intuitive feel is frequently wrong, and such misjudgments may then lead to decisions that harm, rather than help, animals.

Furthermore, in some cases the complexity of QOL makes intuitive assessments a virtual impossibility. Consider: A recent study in dogs showed that feeding low palatability rations allowed the dogs to be housed in groups. Intra- and intercage aggressiveness was reduced or eliminated, allowing dogs to interact peacefully in social play and exercise. However, the low palatability food likely decreases QOL, while social companionship increases it. Thus, would intuition lead one to conclude that the highest net QOL achieved by feeding food of low or high palatability?

Some of the key questions we must attempt to answer in deciding how to measure QOL include:

- How can you measure it if you can't define it?
- What, exactly, should be measured?
- What units are QOL measured in?
- Would measuring stress tell us everything that we need? If not, what else should be measured?

TWO APPROACHES TO MEASUREMENT

In humans, the gold standard for measurement of QOL is considered to be the self-assessment, in which the individual him or herself provides direct answers to questions about how s/he feels. While even this method

is not 100% reliable, it is currently regarded as the most accurate. Self-reports are limited, however, to people who can communicate adequately with the test administrator, and there are many people lacking these communicative skills, such as infants, mentally disabled, and the cognitively impaired. The two approaches to measuring QOL in these individuals are what have been adapted for use in assessing QOL in animals.

- **Proxy assessment** – Substituting the judgment of others for the individual's self-reported thoughts and feelings
- **Measurement of objective criteria** – Behavior (normal, abnormal, and preference studies), neurochemical and endocrine factors (eg, catecholamines, glucocorticoids, and other indices), health status, physical functioning (ie, degree of disability), immune function, morphologic changes, and brain imaging.

Proxy Assessment

Individuals have unique interests, values, needs, and desires—all contributing to an individual mental disposition that uniquely characterizes the QOL experience. Because of this, in people it is now well accepted that the individual should be the primary source of information regarding his or her QOL. But for those who cannot provide first-hand information about themselves, QOL measurement is done by a proxy: parents, spouses, partners, caregivers, siblings, friends, and health care providers.

The accuracy of proxy ratings has been studied extensively in adolescent humans by comparing data from proxy informants with data from pediatric patients themselves. Poor agreement between children and parents on measures of private experiences, such as emotions and subjective states, regardless of whether the child is healthy or sick, is well documented. The importance for animal care is that if parent-child proxy QOL assessment is inaccurate, then person-animal assessment is likely to be even more so. Most importantly, while it is certainly the goal, the proxy's perspective is not the animal's perspective.

Proxy measurement of QOL in the animal shelter faces a problem virtually never seen in people and rarely in pet animals: there may be no proxy available. The overriding goal in measurement is to assess QOL from the perspective of the animal. Interests, needs, and desires are meaningful only as they are perceived by and in that animal's mind. This requires knowledge of the individual animal's personality and nature. Unfortunately, typical shelter animals, at least early in their shelter stay, have no one who knows them well enough to serve as a proxy assessor.

The most commonly utilized behavioral criteria are: normal, species-typical behavior (eg, social interactions, grooming, foraging, exploring, play), abnormal behaviors (eg, pacing, rocking, bizarre postures, self-mutilation), response to environmental manipulations (enrichment techniques), and avoidance and aversion behavior.

Does measurement of stress yield of measurement of QOL? First, it is important to clarify that in looking for signs of “stress” we are actually looking for signs of specific unpleasant emotions that a stressor elicits, such as fear, anxiety, depression, helplessness, isolation/loneliness, separation anxiety, anger, and frustration. There have been “stress” tests developed for use in animals, most notably Kessler and Turner’s “Cat Stress Score” in their 1999 paper in *Animal Welfare*. Unfortunately the name of this test is misleading, as the test actually measures fear level, not stress. More importantly, however, even an accurate measurement of stress (which is far from possible) would not give us a level of QOL, for several reasons. One, some stress is beneficial to well-being, so a score of zero stress would actually be detrimental to QOL. Two, stress occurs in many activities that we regard as positive influences on QOL, such as play, exercise, and sexual activity. Three, QOL involves pleasurable experiences in life, thus making one’s stress level only a part of one’s QOL.

MEASUREMENT OF OBJECTIVE CRITERIA – BEHAVIOR

Normal, Species-Typical Behavior

It is widely accepted that good QOL requires that animals should have the opportunity to display a relatively diverse range of their species-typical behavior patterns. Normal behaviors include such actions as foraging, hunting, eating, playing, grooming, digging, rooting, socially interacting, and many more. Other behavioral indices include level of activity, posture, facial expressions, vocalization, locomotion, food and water intake, and sleep patterns.

It is important to understand that “normal” refers to both the quality and quantity of a behavior. A normal behavior may be abnormal when performed too frequently, or for too long a duration. In this way, behavioral measures of QOL work like those for physical well-being. A cough or scratching an itch is normal behavior; however, either one performed at a high frequency indicates a diminished physical well-being. Likewise for emotional feelings: fear behavior or self-grooming are normal behaviors, but an animal displaying either at excessive frequency or duration may be experiencing unpleasant feelings detrimental to QOL. Other normal behaviors that, when performed too frequently or for extended periods, would suggest an impaired QOL include vigilance, attempts to flee or hide, immobilization (freezing), urination or defecation, eating, and aggressive behavior. Thus, when using normal behavior to measure QOL it can be said that either too little or too much of a species-typical behavior may be indicative of a compromised well-being. Unfortunately, research is currently lacking to establish the optimal quantities of each behavior pattern.

Abnormal Behavior

When an animal is experiencing unpleasant feelings and its QOL is diminished; its behavior is often altered, becoming abnormal. Because abnormal behavior

patterns usually occur in response to chronic conflict, frustration, anxiety, or other stressors, their presence has been used as one indicator of compromised QOL. In using abnormal behavior as an indicator of QOL, we can ask: What does an animal do when it is feeling bad (emotionally or physically)? One response is that the animal may perform species-typical behaviors in increased frequency, duration, or intensity, in a presumed effort to lessen the unpleasant feelings. As mentioned in the previous section, normal behaviors can be considered abnormal if they occur in excess quantity or in inappropriate contexts. For example, unrelenting escape behavior—normal when performed as an occasional behavior—suggests things are not going well emotionally. However, unfortunately, research to date has not demonstrated an unequivocal relationship between the presence or absence of abnormal behavior and QOL.

Abnormal behavior has been defined as a persistent, undesirable action shown by a minority of the population that is not due to any obvious neurologic disorder. In addition, the behavioral changes result either in only partial adaptation to the environment or are in some way maladaptive. Although some behaviors, such as extensive barking in domestic dogs, may be difficult to categorize as normal or abnormal, it generally is agreed that self-mutilation and stereotypic behavior are examples of abnormal behaviors. In a broad overview, generally accepted causes of abnormal behavior include fear, anxiety, frustration, social position, social separation, depression, insufficient mental stimulation, and physical health disorders. For example, monkeys kept in single cages—where they are denied social companionship—sometimes exhibit bizarre, stereotypic, and self-directed patterns of behavior.

As one example of published guidelines for the use of behavior in assessing QOL in animals, the following is a list of “Behavioral indicators of poor welfare in kennel dogs” (note that these authors use welfare and well-being interchangeably and both are commonly considered equivalents of QOL)⁷:

- Repetitive pacing
- Wall bouncing
- Tail chasing
- Circling
- Play bouncing
- Chewing bedding
- Self-licking
- Polydipsia
- Panting
- Lack of appetite
- Excessive vocalization
- Listless
- Escape attempt
- Hiding
- Chewing bars

Summary of Behavioral Measures of QOL

Behavioral indicators provide useful insights into animal QOL. However, it is widely accepted that such measures be used in conjunction with other measures, such as physiological measures, physical health indices, and brain scanning studies.

Current evidence allows us to propose general guidelines for behavioral criteria in assessing QOL in animals. The following criteria imply a good (positive) QOL, meaning that the animal is feeling good, with minimal unpleasant feelings and the ability to cope with adversity:

- The animal is alert, busy, and exhibits a substantial range of context-appropriate species-typical behavior
- The animal engages in play behavior
- The animal displays an absence or no more than minimal levels of abnormal behaviors
- The animal is confident; it moves around freely, is outward going, and does not display fear towards trivial nonthreatening stimuli
- The animal is able to rest in a relaxed manner, without constant signs of vigilance
- The animal exhibits a very low incidence of behaviors associated with the lessening of unpleasant feelings, such as limping (pain), labored breathing (inadequate oxygen intake), or escape behavior or hiding (fear)
- The animal eats normal quantities of food, has a stable body weight, and is in good general physical health

QUALITY OF LIFE MEASUREMENT TOOLS DEVELOPED FOR ANIMALS AS OF JANUARY 2009

While still far too inadequate to cover all animal species in all circumstances, a few specific methods for QOL assessment in animals have been proposed (cited in reference list), some validated and some not. Space and time does not permit a discussion of each one, but a good illustration of some of the difficulties of designing an accurate assessment tool can be seen in the "HHHHMM Scale" devised by Alice Villalobos.⁸ The scale is a summation of scores from 1 to 10 (1 = poor, 10 = best) for Hurt, Hunger, Hydration, Hygiene, Happiness, Mobility, and More good days than bad. Instructions for interpreting the scores state that >5 on each is acceptable; >35 is acceptable for hospice care (ie, not to a point where euthanasia is indicated). Questions: What would this seven-item scale tell you that Happiness alone would not? Do each of these seven items carry the same level of importance for QOL; would, for example, a score of 9 (very good) on hygiene balance out a 2 (very bad) on pain? What if pain was unbearably severe—would the score on any of the others matter?

Other QOL measuring tools face similar difficulties. The most evident is the selection of factors to assess. For any list of such factors, how do we know for sure that each factor contributes to the animal's QOL? Some cats strongly desire human companionship; others don't. Thus, if human companionship is included as a factor on the questionnaire, the score for this factor will be a valid part of one cat's QOL score, but not a valid part of the other cat's. The QOL score for the latter cat is thereby falsely altered.

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Additional references available from the author upon request.