

Welfare as a Broad Scientific Concept

Donald M. Broom

*Department of Clinical Veterinary Medicine
University of Cambridge*

I consider that Mench is right when she argues that those who use animals should endeavor to ascertain the quality of life of those animals and provide for them in such a way that their quality of life is good. It is not sufficient to just reduce the likelihood of extreme hardship, and animal welfare research should not be limited to identifying very poor welfare. However, when considering animal welfare, I see more of a necessity for a change of attitude and of emphasis in those who legislate than in scientists studying welfare. I have argued for some time that there should be more research aimed at recognizing pleasure and other aspects of good welfare (Broom, 1988, Broom & Johnson, 1993), but research funding is most frequently directed toward evaluating problems, and those formulating legislation have so far been influenced much more by evidence of poor welfare than by studies indicating what animals strongly prefer. I hope that this situation will change, but arguments against considerable economic pressures have to be perceived to be very strong.

An increase in consideration of positive aspects of welfare does not necessitate a change in the definition of welfare that I have used for the last 10 years: The welfare of an individual is its state as regards to its attempts to cope with its environment (Broom, 1986). This concept of welfare is a broad one that allows measurement separate from moral considerations. Some of the other key aspects of the concept are that welfare is a characteristic of an animal, not something given to it (Broom, 1991a) and refers to how well an animal fares or travels through life (Broom, 1993). Welfare varies on a continuum from very good to very poor (Broom, 1988) and subjective feelings are an important part of it (Broom, 1991b, 1996). Poor welfare may be a consequence of failure to cope with the environment or of having difficulty in coping (Broom, 1986). All of these points and the fact that the concept of welfare embraces that of health are discussed further by Broom and Johnson (1993, pp. 75-85).

Mench suggests that animal welfare science has reached an impasse and that ethical and scientific questions have become hopelessly entangled. In my view, animal welfare research has increased enormously during the last 10 to 15 years and now encompasses a broader area and is more scientifically rigorous than it was formerly. Her "hopeless entanglement" is not present for most researchers and is partly a consequence of the way in which she uses the term, sometimes to refer only

to the good end of the spectrum and sometimes, for example, "positive aspects of welfare" to imply that there is a range. The idea that welfare varies over a range and can be measured using a variety of indicators, as mentioned earlier, has been emphasized by Curtis (1986), Duncan (1987), and many others. If welfare were viewed as an absolute good state that either existed or did not exist, then it would be of little use as a concept when discussing the effects on individuals of various conditions in life or of potentially harmful or beneficial procedures. Even Fraser (1993), who sometimes used welfare to mean just good welfare, referred to scales of how good welfare is and followed Broom (1986) and Broom and Johnson (1993) in drawing a conceptual parallel, with the term *health*, which is encompassed within the term *welfare* and ranges from good to poor. If welfare is to be a broad and usable scientific term, it must refer to a wide range, including bad as well as good states and measured by disease, immunosuppression, injury, and abnormal behavior and physiological indicators of comfort, satisfaction, or pleasure and indications of control and social support. Indeed, many researchers have used a wide range of measurements of welfare, and Mench is quite wrong when she says, "Farm animal welfare science has so far concerned itself primarily with questions about desires."

When people are asked what they mean by good welfare, contentment, or happiness, they usually make reference to absence of problems. There are, of course, good feelings that are also an important aspect of good welfare. However, an important way in which animals know that they have control of their environment is that they have no information coming into the brain that indicates that they are not in control. Some of these indicators of lack of control are interpreted as mild, whereas others signify considerable problems. Indicators of poor welfare must be considered together with positive welfare indicators in our overall evaluation of welfare and, hence, of the more long-term concept of quality of life.

The term *welfare* must be defined in such a way that scientific measurement can be separated from ethical decisions about what is acceptable and what is not. The argument that no consideration of welfare allows separation of what does and does not involve ethics, presented by Tannenbaum (1991) and repeated by Mench, is incorrect for key parts of welfare evaluation when my definition is used. As I have previously explained (Broom, 1996), there are four components of a study of welfare. The first is to decide that there is a problem, and ethical considerations are involved in this. However, the second and third components, which are to select measurements, make them, and analyze them, can and must be carried out independently of any ethical view about the likely results of the study. The fourth component is the taking of ethical decisions once the science is presented. Again, my view is, "Where measurement and ethics are inextricably linked, this is bad science."

In conclusion, to limit the term *welfare* to the good end of the range and omit much of what we can measure would narrow it considerably rather than broadening it. We have a usable definition of welfare, but Mench's central point that we should pay more attention to recognizing good welfare is an important one and should be addressed especially to legislators and those who fund research.

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