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Dairy producer attitudes to pain in cattle in relation to disbudding calves

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ABSTRACT

Pain is an important indicator of poor welfare of livestock. Despite this, pain has largely gone unrecognized in farm animals due to attitudes of producers and veterinarians, although they play a key role in monitoring and managing the perception of animal pain. Producer attitudes toward animal welfare influence livestock management and production. The aim was to quantify dairy producer attitudes to the painfulness of various cattle diseases and disbudding, a painful routine procedure performed on farm to ensure safer handling of cattle. A questionnaire on disbudding-related opinions and practices was sent to 1,000 Finnish dairy producers (response rate: 45%). Attitudes toward disbudding were gauged using a 5-point Likert scale and attitudes to cattle pain scored on an 11-point numerical rating scale. Principal components analysis was used to assess the loadings, which were further tested for differences between producer gender and housing systems with Mann-Whitney U-tests, and between herd milk yield, herd size, and age and work experience of producers with a Kruskal-Wallis test. Four main factors were identified: factor I ("taking disbudding pain seriously"), factor II ("sensitivity to pain caused by cattle diseases"), factor III ("ready to medicate calves myself"), and factor IV ("pro horns"). Female producers took disbudding pain more seriously, were more sensitive to pain caused to cattle by diseases, and were more ready to medicate disbudded calves than male producers. Producers with tie-stalls favored horns over producers with freestalls. Male producers with tie-stalls were sensitive to cattle pain and preferred horns over male producers with freestalls. Female producers with freestalls were more ready to medicate calves, but did not prefer horns more than female producers with tie-stalls. Taking disbudding seriously correlated with sensitivity to pain caused by cattle diseases. Producers with low-milk-yielding herds were less willing to medicate calves and more willing to keep cattle with horns than producers with higher-yielding herds. Older producers were more sensitive to cattle pain than middle-aged and younger producers. No effect was established for taking disbudding pain seriously: the pro-horn factor was associated with work experience, age, and herd size. Women rated pain higher and were more positive toward pain medication for animals than men. Maintaining horns are more important for producers with tie-stalls than for those with freestalls.

Key words: dairy cattle welfare, disbudding, pain, producer attitude

INTRODUCTION

Pain has a substantial effect on animal welfare: the greater the pain the poorer the welfare (Broom, 1991). Pain has often gone unrecognized in farm animals due to attitudes of producers and veterinarians, but also for economic reasons (Huxley and Whay, 2006; Weary et al., 2006; Viñuela-Fernández et al., 2007). In addition, part of the evolutionary strategy of prey species has relied on their not showing any signs of pain, sickness, or weakness in the face of predators (Huxley and Whay, 2006; Viñuela-Fernández et al., 2007). It is, therefore, not easy for producers to see the signs of pain and hence poor welfare of dairy cattle can result.

Producers play a key role when it comes to recognizing pain, taking care of the animals, and alleviating pain. The producer is the main caregiver and influences animal welfare, health, and production (Coleman et al., 2003; Hemsworth, 2003). According the theory of planned behavior, human behavior is guided by an individual's behavioral intention and behaviors are shaped by his or her attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 2002). A positive attitude toward cattle leads to positive human-cattle interactions (Raussi, 2003) and better animal handling (Grandin, 2000). Several studies have been done on producer attitudes to animal welfare (Hemsworth et al., 2002; Waiblinger et al., 2002; Coleman et al., 2003) and corresponding production figures (Hanna et al., 2009; Kauppinen et al., 2012). However, no studies have been done on how attitudes to cattle pain are reflected in dairy producer behavior.

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Routine painful procedures, such as disbudding cattle, are performed on farm. According to legislation of most European countries, disbudding can be performed on calves less than 4 wk old without anesthesia or pain medication by a skilled person (ALCASDE, 2009), although use of sedation, local anesthetics and nonsteroidal antiinflammatory drugs is recommended for calves to be disbudded (AVA, 2004; New Zealand Government, 2005; AVMA, 2012). However, in countries such as Finland, in which the use of animal drugs is very restricted and tightly controlled (Act on the Medical Treatment of Animals 617/1997; Finlex, 1997), it is not possible for producers themselves to use local anesthetics and sedatives to alleviate calf pain during disbudding. Thus, application of medical pain relief for disbudded calves requires the producer to use a veterinarian.

Disbudding practices and pain medication were studied previously (Hewson et al., 2007; Misch et al., 2007; Fulwider et al., 2008) as well as farmer opinions regarding the use of pain medication (Gottardo et al., 2011). The novelty of our study lies in the aim to investigate producer attitudes toward calf pain during disbudding as an indicator of overall attitude toward treating cattle pain.

Gender may play a role in assessing pain in animals. Several studies showed that female veterinarians assess pain in animals to be stronger than male veterinarians do (Capner et al., 1999; Huxley and Whay, 2006; Fajt et al., 2011). Also female veterinary students show more empathy than male colleagues toward animals (Paul and Podberscek, 2000; Kielland et al., 2009; Hazel et al., 2011). Similar studies have not been conducted among producers.

Age and work experience may have contrasting effects on pain assessment. Younger veterinarians rate pain higher and treat pain more than older veterinarians do (Raekallio et al., 2003), and medical students have been shown to rate more chronic conditions as more painful than older colleagues (Niemi-Murola et al., 2007). Moreover, the empathy of medical students was reported to decline during their education (Hojat et al., 2004; Neumann et al., 2011). On the other hand, work experience has been related to higher pain rating by cattle veterinarians (Huxley and Whay, 2006) and veterinary nurses (Coleman and Slingsby, 2007). No studies exist on the effect of producers' experience and age on their attitudes toward cattle pain.

Cattle housing systems have moved from conventional tie-stalls to modern freestalls in Finland. Currently, approximately equal numbers of dairy cows are housed using each of the 2 systems (Tike, 2011). However, no studies have been done on the possible differences in animal welfare attitudes associated with tie-stall barns and freestalls, or young and old producers. Such issues are of growing importance due to the major changes producers have faced during the last 2 decades.

Our aim was to study dairy producer attitudes to the painfulness of different cattle diseases and practices, using disbudding as a model painful procedure, and to establish background factors associated with such attitudes.

MATERIALS AND METHODS

Questionnaire

In spring 2010, we sent a 4-page, postage-paid questionnaire to 1,000 Finnish dairy producers. The research was approved by the Finnish Agency for Rural Affairs. Producers were selected randomly from a geographically balanced list of all 11,224 dairy producers in Finland (Tike, 2011). The questionnaire was available in the 2 official languages of Finland, Finnish and Swedish, so that all dairy producers were able to respond in their mother tongue. The questionnaire was tested on 10 dairy producers, before being distributed, to ensure it was appropriate and valid. The dairy producers' names did not appear in the questionnaires and we analyzed all data without identifying the respondents or their farms.

The questionnaire consisted of 5 sections. The first section (background information) included 14 questions on basic issues about the respondent and their farm, including producer gender, barn type, length of time employed as a dairy producer, herd size, and milk yield. The second section (disbudding of calves) included 6 questions about on-farm disbudding and the association of horns with dangerous situations, and on the occurrence of polled, hornless, and horned cattle. The third section (disbudding practices) was intended only for producers performing disbudding and the 11 questions were related to how disbudding was performed on the farm (e.g., who disbuds on the farm, whether pain medication and analgesia are used, at what age disbudding occurs and if the producer is aware of training in disbudding). Some of the results from sections 1 to 3 are reported elsewhere (Hokkanen et al., 2011).

Section 4 (attitudes to disbudding) was intended for all producers, regardless of whether disbudding was done on the farm or not. In this section, we asked the respondents to rate their agreement with 25 disbudding-related and animal welfare-related statements on a 5-point Likert scale (Raekallio et al., 2003). The scores ranged from 1 to 5, in which 1 corresponded to complete disagreement and 5 to complete agreement. In section 5 (pain in dairy cattle), we asked for opinions about cattle diseases and practices that caused pain