



The impact of owner presence or absence on heart rate and behaviour in canines undergoing effleurage massage

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Introduction

Veterinary environments can induce stress in dogs¹, which can cause disruptive behavioural changes that can impact a dog's quality of care². Moreover, it can also delay the healing process³, which will subsequently reduce a dog's mobility and function⁴. Massage may be an effective way to reduce canine stress in veterinary settings due to its ability to increase serotonin and endorphin release, whilst decreasing cortisol levels⁵. Previous research investigating this in dogs is lacking. Nonetheless, studies have reported that stroking, a form of touch similar to effleurage massage, has this effect on dogs⁶. Additionally, equine studies have found that massage reduces heart rate^{7, 8}. Furthermore, there are conflicting findings in research surrounding the influence of owner presence on canine stress indicators, including heart rate and behaviour^{1, 9}. Therefore, the aim of this study was to determine the effect of owner presence on heart rate and behaviour in dogs undergoing effleurage massage. It was hypothesised that both owner presence and effleurage massage would decrease canine heart rate and the number of stress behaviours exhibited.

Methods

11 healthy dogs and their owners took part in the study; participants volunteered following the distribution of a recruitment email to all staff at Harper Adams University. All dogs were older than 1 year (mean age = 4.5 years old; SD = 2.69 years) and weighed between 10.6kg and 40.9kg (mean weight = 21.5kg; SD = 11.03kg). Each dog underwent four randomly allocated treatments: effleurage massage with their owner present (A), effleurage massage without their owner present (B), interacting normally with the researcher with their owner present (C), and interacting normally with the researcher without their owner present (D). Each treatment was performed at least five days apart. The study took place in a consulting room in the Veterinary Services Centre at Harper Adams University (Fig. 1). Throughout each treatment, the dog's heart rate was measured by palpation of the femoral artery on entry of the treatment room; after a 5-minute exploration phase; and after 5-minutes and 10-minutes of treatment A, B, C, or D. All sessions were videotaped using a Go Pro HERO 10 situated in the corner of the room. These recordings were analysed using a behavioural ethogram, formulated from others used in the literature^{1, 10, 11}. The total amount of stress behaviours shown in each treatment was documented. Data was then analysed using descriptive and inferential statistics and a P value of ≤ 0.05 was set as the level of statistical significance. Ethical approval for the study was granted by Harper Adams University ethics committee and a small pilot study was conducted prior to data collection.



Figure 1: The set up of the treatment room.

Results

After five minutes of treatment, dogs undergoing treatments that involved owner presence and/or effleurage massage (treatments A, B, and C) had significantly lower heart rates ($p = 0.037$) than those undergoing the treatment with no effleurage massage or owner present (treatment D) (Fig. 2). There was no significant difference in heart rate between treatments after 10 minutes ($p=0.092$). Furthermore, owner presence significantly reduced the occurrence of canine stress behaviours compared to owner absence ($p = 0.003$) (Fig. 3). Effleurage massage did not significantly affect canine stress behaviours ($p = 0.959$).

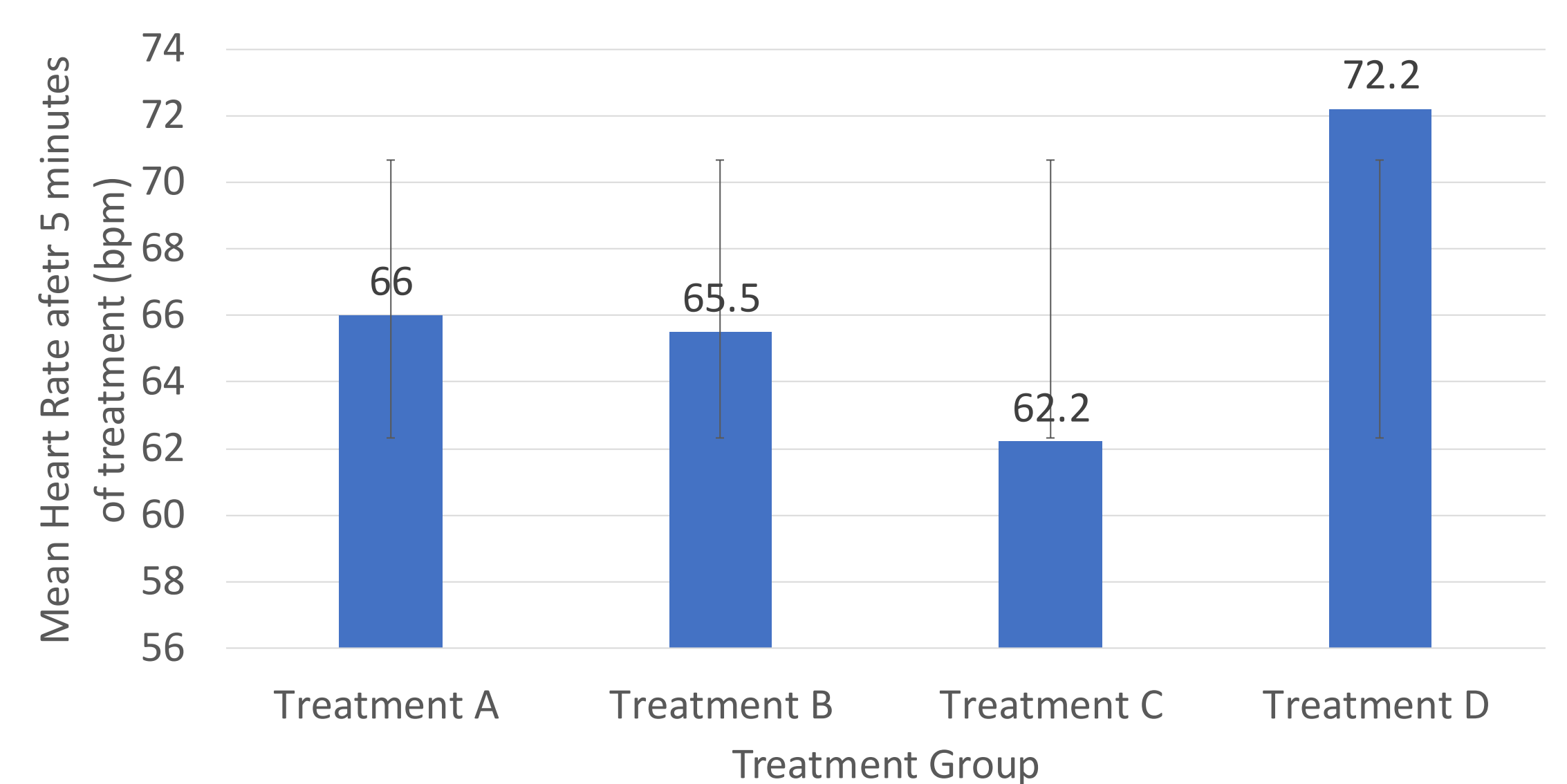


Figure 2: Mean heart rate after 5 minutes of treatment in each treatment group. Error bars represent standard deviation.

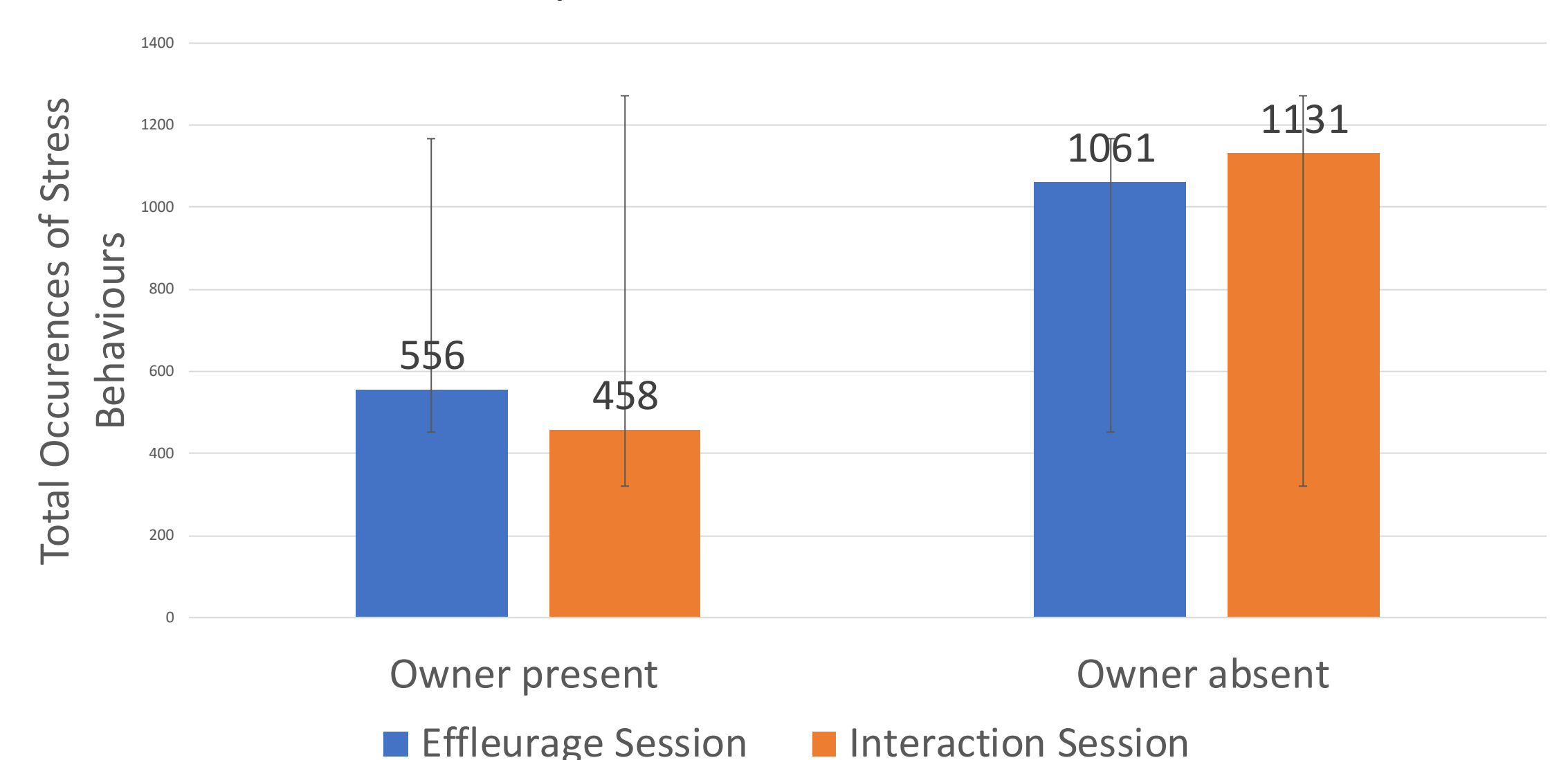


Figure 3: The total occurrences of stress behaviours in the different treatment scenarios. Error bars represent standard deviation.

Discussion/Conclusion

During treatments when owners were present, after the first five minutes of treatment both the heart rate and occurrence of stress behaviours in the dogs were significantly lower than during those treatments where owners were not present. Effleurage massage alone did not significantly reduce canine stress behaviours. A limitation of this study was the lack of blinding of the researcher during the behavioural analysis. This was unavoidable, as it was evident which treatment was being performed in each video recording. Furthermore, there was a lack of control over each dog's daily routine, which could have influenced the results, as increased enrichment can decrease the occurrence of canine stress behaviours¹². Owners should therefore be encouraged to stay with their dogs during veterinary physiotherapy consultations to minimise stress and improve patient compliance with treatment. However, further research is required on the effect of effleurage massage and owner presence on other biomarkers of stress such as cortisol. This could also be investigated in dogs with a diagnosed condition requiring treatment and using other massage techniques.

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