

Assessing Handler-Dog team welfare in Animal-Assisted Education through endocrine parameters

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INTRODUCTION

In recent years, Animal-Assisted Interventions (AAI) have received considerable attention due to the potential benefits they provide to different categories of people. [1-2]. Concurrently there has been a growing interest in the welfare of animals involved in these activities [3]. However, data on the welfare of handler-dog teams during (AAI) sessions are lacking. This study aims to examine the welfare of dogs and their handlers engaged in Animal-Assisted Education activities at two nursing homes in Lucca (Italy). The research was funded by the IN-HABIT project H2020 (grant number 869227). IN-HABIT is a Horizon 2020 project, that aims at implementing visionary and integrated solutions to foster inclusive health and wellbeing in small and medium size cities with a focus on gender and diversity.

Lucca's case study looks at the human-animal relationship as a resource to improve the well-being and the quality of life of both parties in the urban environment. Among other goals, IN-HABIT implemented solutions specifically aimed at elders and vulnerable people, like projects of AAI in nursing homes or specifically designed services to help people take care of their pets in periods of needs.



Figure 1: Some photos of the Animal Assisted Education carried out in the nursing homes.

RESULTS

Dogs and handlers showed different trends for oxytocin and cortisol concentrations before and after sessions.

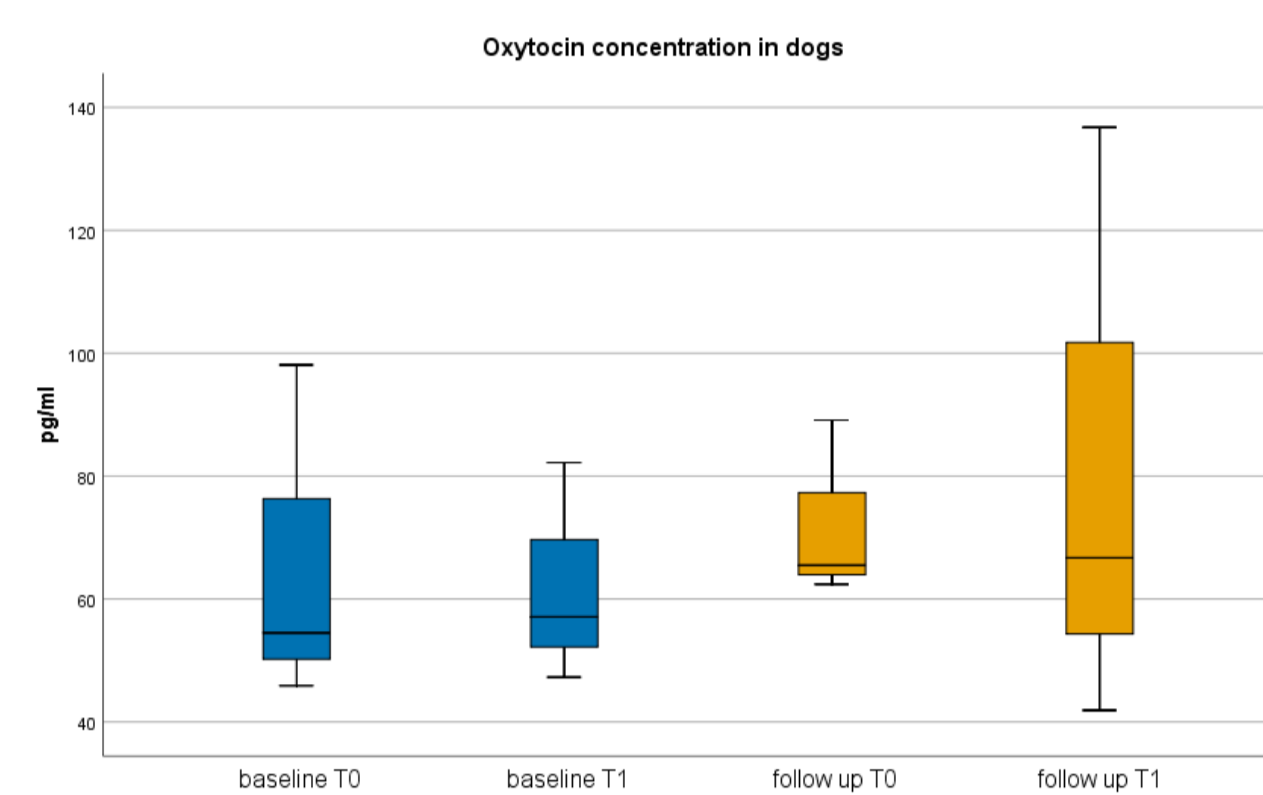


Figure 3: Boxplot for oxytocin concentrations; comparison between baseline and follow up collection, before and after intervention (T0 and T1)

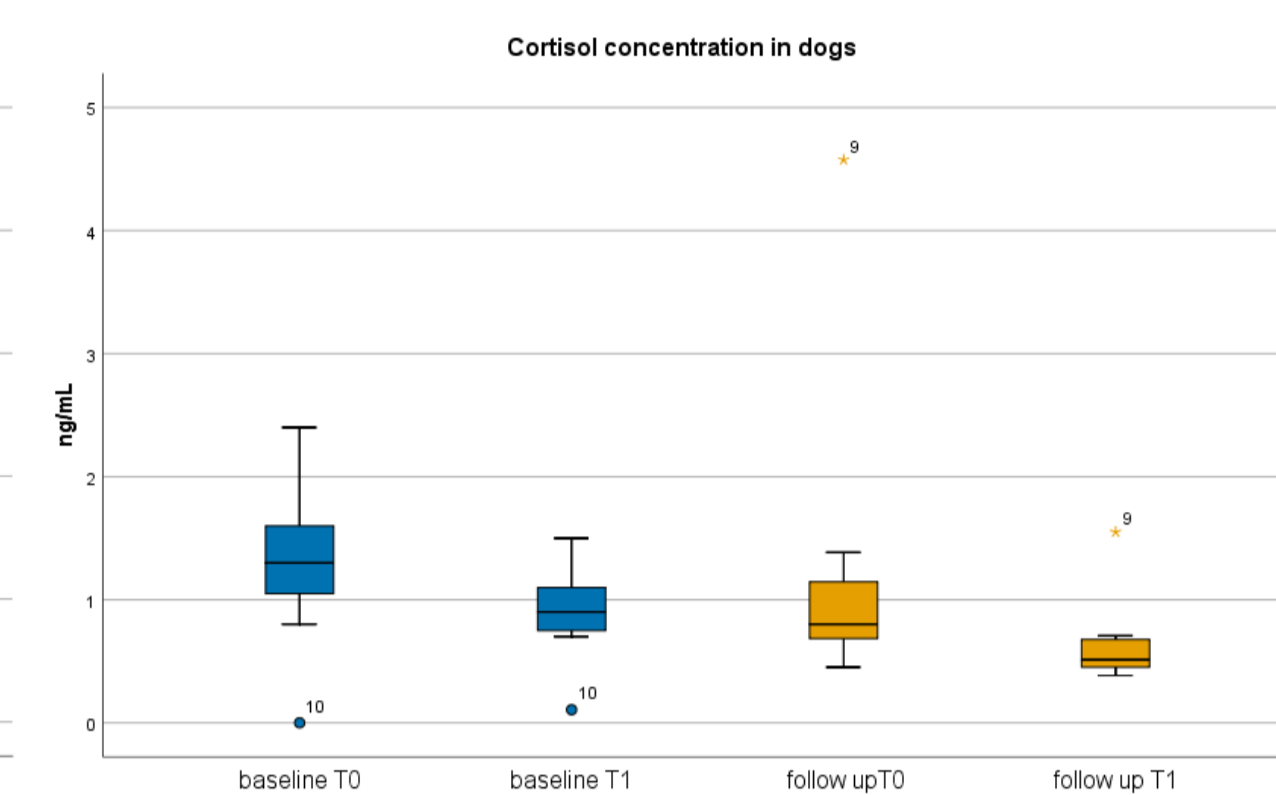


Figure 4: Boxplot for cortisol concentrations; comparison between baseline and follow up collection, before and after intervention (T0 and T1)

Dogs' oxytocin concentrations (pg/ml) tended to slightly increase after sessions both at baseline ($p=0.46$ median T0 = 54.5; T1= 57.1) and at follow up ($p=0.46$ T0 =65.5; T1 = 66.7). Figure 3

Dogs' cortisol concentrations (ng/ml) slightly decreased after session at baseline ($p=0.39$ median T0 = 1.30; T1= 0.90) and significantly decreased at follow up ($p=0.028$; median T0 = 0.80; T1 = 0.51). Figure 4

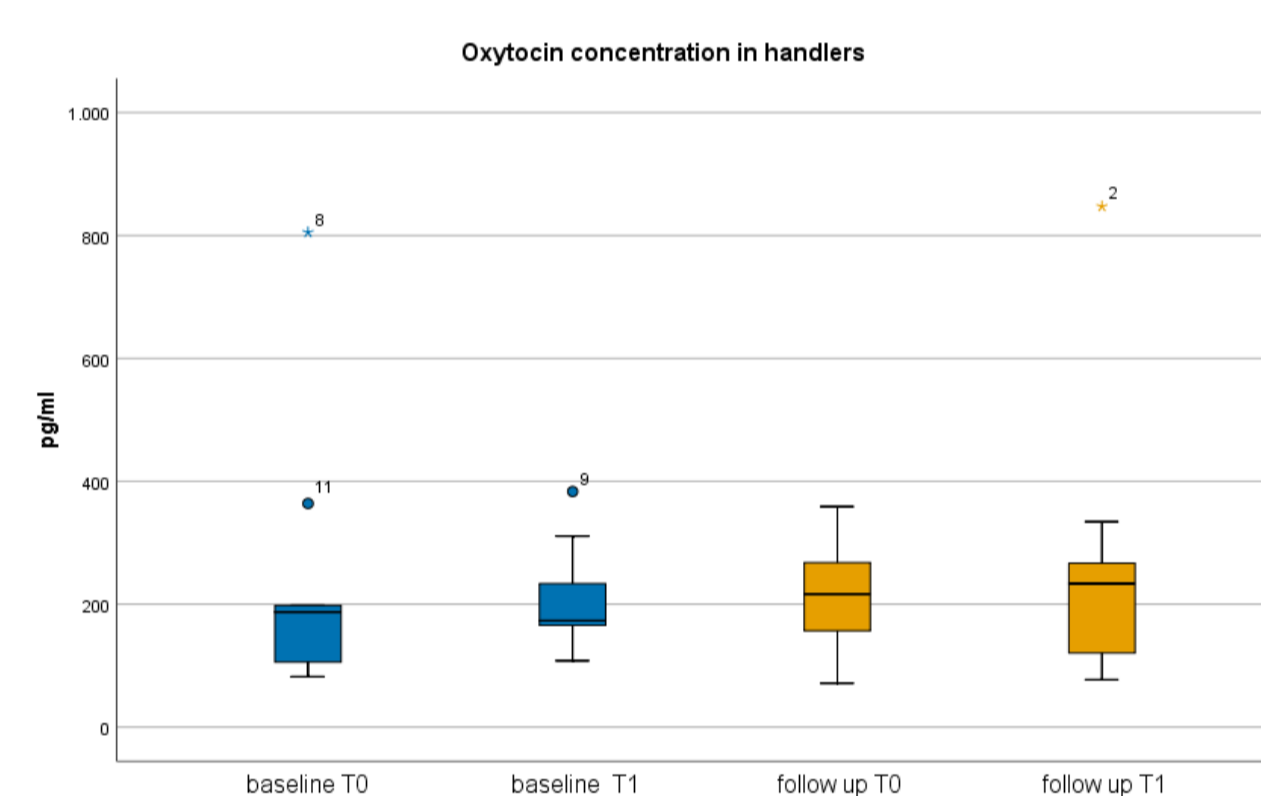


Figure 5: Boxplot for oxytocin concentrations; comparison between baseline and follow up collection, before and after intervention (T0 and T1)

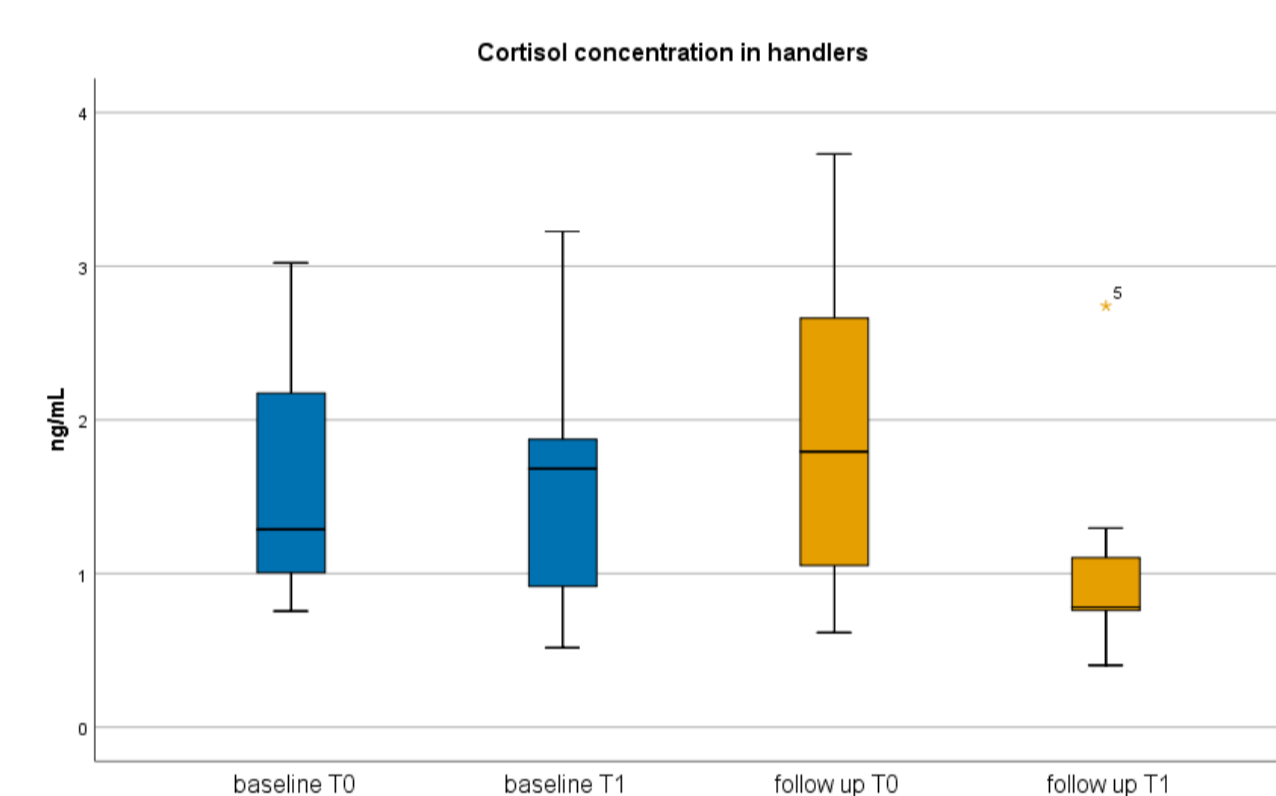


Figure 6: Boxplot for cortisol concentrations; comparison between baseline and follow up collection, before and after intervention (T0 and T1)

Handlers' oxytocin concentrations (pg/ml) showed a slight decrease at baseline ($p=0.88$ median T0= 187.1; T1= 173.4) and a slight increase at follow up ($p=0.86$ median T0 = 216.4; T1= 233.4). Figure 5

Handlers' cortisol concentrations (ng/ml) showed an increase between T0 and T1 samples at baseline ($p=0.39$ median T0 = 1.3; T1 = 1.7) and a significant decrease at follow up ($p=0.01$ median T0 = 1.8; T1 = 0.78). Figure 6

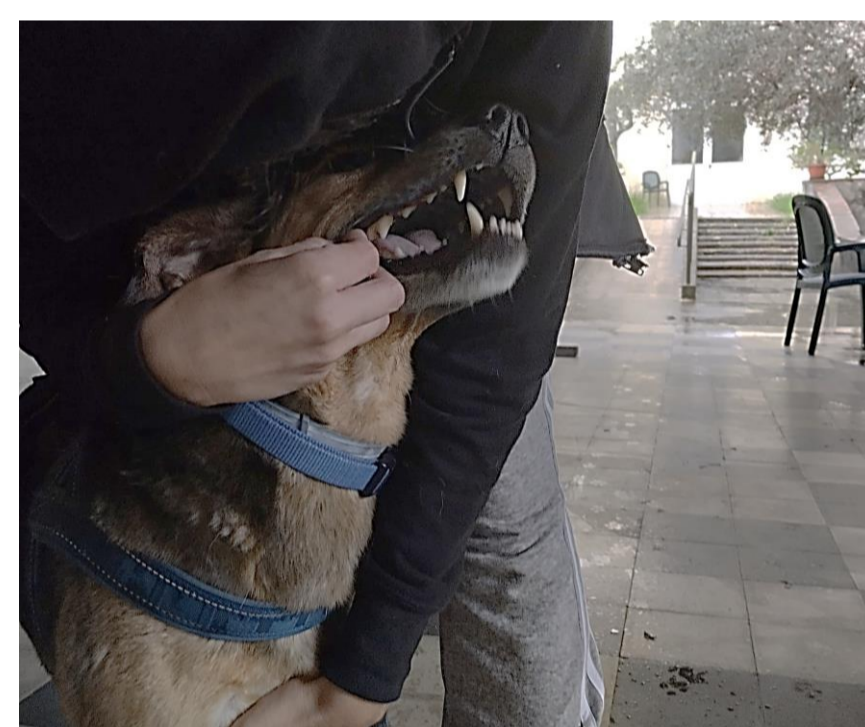


Figure 2: Saliva collection with swab in dogs

SUBJECTS, MATERIALS AND METHODS

Ten dyads consisting of 7 handlers and 10 dogs were evaluated for salivary concentrations of oxytocin and cortisol. In each dyad, the handler was consistently the same individual and was also the dog's owner.

Samples were collected at the beginning of the project (baseline) and at follow up (after 7-8 sessions), before and after activities (T0 and T1).

Statistical analyses comprise descriptive (percentiles and normality test) and non-parametric (Wilcoxon rank test; $p < 0.05$) analysis.

DISCUSSION

The results highlight interesting aspects regarding the welfare of dogs and their handlers during AAI.

In dogs, the slight increase in oxytocin concentrations after sessions, both at baseline and follow-up, indicates interactions perceived positively. This is consistent with findings by Handlin et al. [4], who suggest that oxytocin is released during positive social interactions between dogs and humans. Furthermore, the significant decrease in cortisol concentrations at follow-up suggests a reduction in stress levels in dogs as the sessions progressed, supporting the hypothesis that dogs adapt positively to AAI. This aligns with McCullough et al. [5], that reported similar reductions in cortisol levels in dogs involved in animal-assisted interventions.

Interestingly, some studies [6,7] indicate that oxytocin release can reduce cortisol levels, highlighting a potential mechanism for the observed stress reduction. However, in our study, the differences in oxytocin concentration before and after sessions are not statistically significant for neither dogs nor handlers, and the smallness of the sample does not allow us to confirm this hypothesis.

Regarding the handlers, the results for oxytocin and cortisol concentrations show a possible stress situation at the beginning of the activities, likely due to the perceived responsibility for the dogs' welfare as well as the novelty of the environment and patients. However, initial stress markers decreased over time, as the handlers became more confident with the activities and experienced positive sessions over time. These findings are consistent with Glenk et al. [8], who reported improvements in handlers' welfare with increased experience in AAIs.

CONCLUSIONS

In conclusion, our study underscore the importance of monitoring both stress indicators and positive welfare indicators in animal-assisted interventions. The welfare of the animals and their handlers is essential not only to ensure ethical and respectful practices, but for its direct impact on the effectiveness of the interventions themselves. Ensuring that all participants in AAIs, including animals, live a positive and stress-free experience is crucial to optimizing therapy outcomes and promoting a sustainable and respectful approach

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