

Research Article

Cow-cuddling: A Two-Way and True Way towards Wellbeing

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ABSTRACT

Human-animal interactions have been unique and pivotal forms of existence since the cradle of human civilisation. The nexus between the two is well established through domestication and friendly interactions wherever possible. This interaction modifies human and animal behaviour and illustrates the positive change in their defined behaviours through natural connections established as a consequence of mutualism and its resultant mutual benefits. The present research is aimed at shedding light on achieving overall well-being through human-animal interactions through cow-cuddling. The present research portrays positive mutual benefits for both cows and humans, obtained by positive mental benefits and relaxation. The Gopali Ashram Gaushala of Kharagpur, India, is used as our sample case study. The current research finds that the heart rate of cows declines significantly after cow cuddling and hugging by human beings. This generates a positive aura and is often considered good for the cow's health and milk production as well. The cows show definite positive mental peace and calmness, well exhibited by their ears, tail, and other body language. On the other hand, humans also obtain benefits like mental peace and calmness and a feeling of satisfaction and connection with nature through cow cuddling. Human beings also show distinct decrements in their pulse rates as more mental peace and relaxation are obtained. These characteristics were measured and analysed using statistical analysis and word cloud analysis. The findings portray positive benefits for both cows and humans through positive interactions. Therefore, cow-cuddling offers a new, diverse alternative form of cow-pathology or treatment of humans through cows in the long run. Thus, in the era of a cosmopolitan world, cow cuddling offers a unique way of establishing a natural connection through human-animal interactions, which ultimately is important for attaining sustainable development in the future.

Keywords: Cow-cuddling, human-animal interactions, benefits, relaxation, heart rate, sustainable development

1. INTRODUCTION

One of the most defining moments of the history of homo-sapiens, which has also traced the antediluvian history of life on earth, is human and animal interactions. One of the most pronounced forms of such expression is the domestication of animals by human beings. Such activity has always been an important factor in the survival of human beings to supplement their needs apart from just plant-based foods, as animals were significant sources of milk, meat, skin, and so on. The ubiquitous nonhuman animals offer a diversity of social aspects, providing food and clothing to humans, as well as leisure, entertainment, companionship, and healing (Amiot and Bastian, 2015). The domain of human-animal interactions largely focuses on human and pet relationships and their consequent health benefits, both physical and mental, to the owners and to the animal-assisted therapies (Wells, 2019; Steklis et al., 2023). Wells (2019) has studied the health benefits of human-animal companionship in older adults, like depression and associated cardiovascular diseases. They provide both social benefits and improvements in physical fitness. The hormone Oxytocin plays a vital role in this type of interaction. Compitus and Bierbower (2024) illustrate that “Koeknufflen” a Dutch word, directly means “Cow hugging” or “Cow cuddling”. In the Netherlands, there's a tendency observed among people travelling from urban areas to the countryside areas to spend quality time with non-human animals with the objective of decompressing and recalibrating of emotional setup (McGiffin, 2022). This type of planned activity or interaction is often called animal-assisted interaction (AAI) (Fine et al., 2013).

Some studies have been done on the welfare benefits of therapeutic animals (Serpell et al., 2010), where the care quality of the animal may directly impact the results on human beings (VanFleet and FaaThompson, 2017). Although equine-assisted therapy has a longstanding history as an effective treatment modality for numerous diseases, there are limited additional farm animal species, such as pigs and llamas, permitted to serve as certified therapy animals (Wesley et al., 2009; Fine, 2011; Waite et al., 2018). Thus far, minimal studies have been undertaken with farm animals as prospective therapy animals. No existing research has

investigated the cognitive consequences of therapeutic practice on farm animals. This study investigated the capacity of cows in a sample cow shelter or "Gaushala" to participate in Animal-Assisted Therapy (AAT) together with its cognitive benefits and welfare advantages stemming from animal participation. Animal-Assisted Interventions (AAI) encompass a range of structured and goal-oriented activities that leverage the human-animal bond. Due to deliberate design, these therapeutic interventions embed animals purposefully within health systems and educational institutions while social work establishments deliver therapeutic outcomes to patients (Fine et al., 2013, p. 5). Therapy dog-handler pairs work as an example of AAI through their visits to hospitals with the goal of bringing joy to sick patients. The definition of animal-assisted activity (AAA) describes it as a "planned and goal-oriented informal interaction combined with human-animal team visitation performed specifically for motivational, educational and recreational purposes" (Fine et al., 2013, p. 5).

The research conducted by Hartwig and Smelser (2018) showed that 91.7% of mental health professionals considered Animal-Assisted Therapy (AAT) to be a valid therapeutic approach, and they wanted to use a therapy animal in their practice sometime in the future. Numerous studies show that integrating animals into healthcare treatment can boost the capabilities of people suffering from autism (O'Haire, 2013) as well as pain (Silva and Osório, 2018) and depression. Peretti (1990), anxiety (Virués-Ortega et al., 2012), and substance abuse (Fine, 2011; Wesley et al., 2009; Waite et al., 2018). The research by Jones et al. (2019) showed that AAT produces substantial improvements in patient symptoms, whereas studies demonstrate that AAT participants experience considerable betterment in both self-efficacy and coping strategies and life quality (Berget et al., 2008). Medical practitioners within Animal-Assisted Interventions (AAI) state that interspecies animal interactions increase both social support networks and therapeutic motivation as well as support empathy development (Jaspersen, 2010; Fine, 2011). AAT functions within multiple therapeutic approaches which integrate psychodynamic treatment and cognitive as well as behavioural therapy and assists in the treatment of different mental health conditions. Research by Friedmann and Son (2009), O'Haire (2013) confirms that Animal-Assisted Therapy (AAT) delivers notable treatment results, yet AAT methodology receives ongoing scientific investigation to identify possible weak points (Herzog, 2014; Charry-Sanchez et al., 2018).

The measurement of animal social behaviours is crucial for assessing their suitability for therapy work. Cattle are recognised as social animals, and research by Boissy and Le Neindre (1997) indicates that social isolation leads to significant psychological stress in these animals. Indicators of stress in cattle can manifest as increased vocalisations, elevated heart rates, and heightened cortisol levels. Additionally, ears pinned to the head and more prominent sclera may be observed (Boissy and Le Neindre, 1997; VanFleet and FaaThompson, 2017). Stress signals in cattle, such as reduced vocalisations, tend to diminish when they are reintroduced to a social group. This reversal is more pronounced when the cattle can recognise the group members. Cattle exhibiting discomfort in the presence of humans will demonstrate heightened stress indicators, such as vocalisations, during therapy activities. Conversely, cattle that appreciate human interaction will display diminished stress signals. Additional significant behaviours observed in cattle during AAT may encompass lying down and engaging in licking or smelling of the individual. Cattle possess a stay apparatus like other large farm animals; however, in contrast to horses, they frequently lie down when they perceive safety, facilitating deeper sleep (Sturtz and Asprea, 2012; Temple et al., 2016). Cow licking and smelling behaviour may reflect their comfort level with humans, as cows engage in allogrooming (social grooming) (Tresoldi et al., 2015). This licking behaviour may signify familiarity or a desire to establish rapport. Dugatkin (2020) posits that socially relevant cues can facilitate quicker acclimatisation of animals to new individuals and environments, characteristics deemed advantageous for therapy animals.

Historically, across various cultures, animals have been regarded as vital contributors to human lives and survival, healing and health. Numerous spiritually characteristic traditions recognise connections between humans and animal life, viewing these relationships as integral to the interconnectedness of the natural world, including a bridge to the spiritual realm (Serpell, 2006). 'Cow snuggling' or cuddling is a type of animal-assisted therapy that involves brushing, patting, or conversing with a cow, facilitated by qualified psychological practitioners. The elevated body warmth, reduced heart rate, and substantial size of the cow can render the act of hugging them a profoundly calming experience, while providing backrub, leaning against them, and even being licked are integral components of therapeutic interaction (Sharma, 2021). Oxytocin, commonly referred to as the 'love hormone' or 'cuddle hormone', facilitates trust and fosters giving. The substance is naturally produced from the brain into the bloodstream of humans and other mammals in times of various sexual and social behaviours. It is generated by females during labour in order to facilitate bonding with the infant, to induce lactation. The molecule is released during intimate relations, earning it the moniker 'the cuddle hormone'. Additional affectionate gestures, such as embracing a teddy bear or caressing your beloved dog, can stimulate the release of the hormone (Sharma, 2021).

Moreover, it can be said that although plenty of research has focused on animal-assisted therapies and behaviours, studies are scant with regard to human-cow interactions and their mutual benefits to both cows and humans in a holistic framework. The present research aims to address this issue by addressing the uniqueness of both the human and cows' behaviour and their approach towards each other in a more comprehensive and inclusive framework. These types of interactions attain mutualism in terms of benefits of both physical and psychological in an inclusive framework. The statistical analysis, consisting of 60 cows and 120 humans as a total sample size of Gopali Ashram Gaushala (Cow shelter) of Kharagpur, India, and the word cloud analysis further validates the fact that cows have significant positive benefits for humans as well as cows themselves through cow-cuddling and cow-human interactions. This is beneficial for both dairy outputs of increased milk supply from the cows and the promotion of satisfaction and connections with the root of nature for human beings. Therefore, in the current world of megacities and cosmopolitan cultural characteristics, cow cuddling is expected to yield positive results for both cows and human beings and must be promoted as a therapy or a practice for the flow of human emotions through natural connections and worldly interventions. Therefore, medical practitioners, administrators, planners and policymakers should look into the promotion of these aspects to

achieve long-term sustainable growth with the inclusive framework and also inculcate positive vibes and mental growth to provide mental growth sustaining in relationships with our unavoidable cosmopolitan surroundings.

The objectives of the current investigation are described below: To study the basic structure of cow-human interactions and their nature; To study the significance of cow-cuddling as a method of cow-human interrelationship; and, To examine the health benefits and overall well-being of both cows and human beings through their interactions.

Sample. The sample case study of the present investigation is the cows of the Gopali Ashram Gaushala (Cow Shelter). The shelter or the ashram is located in Gopali village of Kharagpur city of West Midnapore district of the state of West Bengal in India. The ashram was built in the post-independence period in the 1970s with the objective of protecting and giving shelter to the cows. The ashram currently has a total of 60 cows. These cows are of various breeds like Ongole, Konkan Kapila, Red Sindhi, Sahiwal, Rath, Dangi, Mewati and so on. These are local species of cows. Some mixed species are also present, like Holstein, Jersey and so on, but are less in number. For the present investigation on the welfare of humans and cows through cow cuddling, all 60 cows were considered, and the number of individual respondents was 120. This sample was considered for investigation of the positive benefits of animal-human interaction through cow cuddling in a “gaushala” or cow shelter.



Figure 1: Gopali ashram gaushala (cow shelter), Kharagpur, West Bengal, India

2. MATERIALS AND METHODS

The data and its associated information regarding the examination of human-animal interaction and its positive mutual benefits were collected mainly in the form of primary data. The methods of data collection include in-depth interviews, questionnaire surveys, Focus Group Discussion (FGD), participant observation and Participatory Rural Appraisal (PRA). The data on the heart beats per minute (bpm) of the cows were measured by using stethoscopes at two different and distinct periods, one before cuddling and the other after cuddling. Their averages were computed for all 60 cows and are shown in bar graphs for illustration of pre-cuddling and post-cuddling results. The findings were further validated by a dependent samples t-test computation in the SPSS Software platform for all 60 cows in two different periods, i.e. pre and post cuddling. The positive resultant effects of cow cuddling on the 120 human individuals were further validated by word cloud analysis in the QSR NVIVO software platform. After this, the 120 individual responses were measured in Human-Animal Interaction Scale (HAIS) (Fournier et al., 2016, p. 24) consisting of a set of questions and the respondents' responses were recorded in Likert Scales ranging from 0 to 4. 0 being “not at all”, 2 being “moderate” and 4 being “A Great Deal”. These methods were chosen by keeping in mind the nature of human-cow interactions.

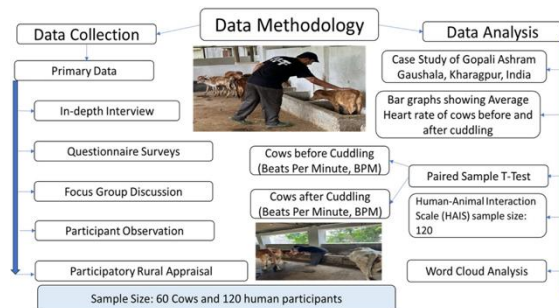


Figure 2: Methodologies observed in the current investigation

3. RESULTS AND DISCUSSION

Analysis of Heart Rate in Pre and Post-Cuddling Sessions among Cows

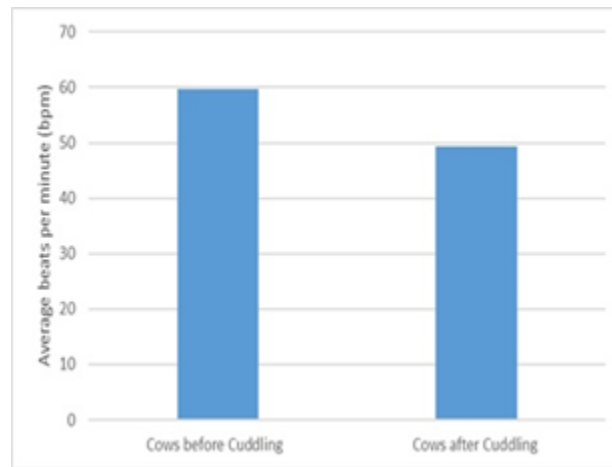


Figure 3: Heartbeats per minute of the cows before and after cuddling.

Figure 3 displays that the heartbeats per minute lowered significantly for the cows after cuddling by the human individuals. The average heart rate was close to 60 bpm before cuddling, while it dipped to almost 50 in the post-cuddling sessions.

This finding is further validated by the application of the Paired Sample T-Test. The results obtained are depicted below.

T-Test

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Cows before Cuddling (beats per minute, bpm)	59.73	60	3.517	.454
Cows after Cuddling (beats per minute, bpm)	49.42	60	1.369	.177

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Cows before Cuddling (beats per minute, bpm) & Cows after Cuddling (beats per minute, bpm)	60	.228	.080

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Cows before Cuddling (beats per minute, bpm) - Cows after Cuddling (beats per minute, bpm)	10.317	3.471	.448	9.420	11.213	23.020	59	.000

Figure 4: Dependent samples t-test results for the heartbeats analysis of cows before and after cuddling.

The paired samples t-test results are analysed by using the Null and Alternative Hypotheses. The results were analysed over the sample of 60 cows in the Gopali Ashram Gaushala.

These hypotheses are described as: Null Hypothesis (H_0): There is an insignificant or no significant difference between the average heart rate of cows before cuddling and the average heart rate of cows after cuddling; Alternate Hypothesis (H_1): There is a significant difference between the average heart rate of cows before cuddling and the average heart rate of cows after cuddling.

The findings from the above analysis through a paired sample t-test suggest or indicate that there is a statistically significant difference between the average heart rate of cows before and after cuddling. This indicates that the null hypothesis is strongly rejected in favour of our alternative hypothesis, where the value of significance is very low. In other words, the fall in the heart rates of cows after cuddling is statistically significant and is not due to random chance. This validates the fact that the cow cuddling by humans has a positive effect on cows.

Human-Animal Interaction Scale (HAIS). This analysis has been performed over 120 human respondents who physically came to the Gopali Ashram Gaushala and physically and mentally interacted with the cows. These human individuals were handed a questionnaire consisting of a set of questions designed according to the requirements of HAIS analysis. The respondents answered in Likert Scale Scores from 0 to 4 in a five-point Likert Scale. The HAIS analysis was performed on the basis of these responses and was expressed in percentages, i.e. percentage of response to points 0 to 4. This HAIS scale was previously used in some studies, like the measurement of animal response to humans by Compitus and Bierbower (2024) and Fournier et al. (2016, p. 24).

Table 1: Average scores obtained during the time of human response experience. Most participants opted to spend time near the animals, which are the cows.

	Not at all or nothing 0	1	Medium amount 2	3	A great deal or amazing 4
Watch the animals		9.16	6.66	12.5	71.66
Spend time near the animals		1.66	5	7.5	85.83
Pet the animals		3.33	2.5	12.5	81.66
Talk to the animals		1.66	6.66	26.66	65
Hug the animals		12.5	58.33	20.83	8.33
Play with the animals		18.33	50.83	15	15.83
Kiss the animals	70	16.66		5	8.33
Groom the animals	84.16	4.16	5		6.66
Offer food to the animals	6.66	8.33	21.66	30	33.33
Attempt tricks or training with the animals	75	25			
Hold the animals	54.16	25	1.66	10.83	8.33
Take pictures with the animals	6.66	4.16	10	16.66	62.5
Decline or avoid interaction with the animals	83.33	1.66	4.16	8.33	2.5
Behave aggressively toward the animals	100				

“During the session, how much did YOU...” (Fournier et al., 2016, p. 24).

As per table 1, majority of the participants choose to spent time with the cows, watch them, pet them, talk to them, take photos, but majority opined against grooming, holding the animals, or to train them, avoid interaction with the cows and so on. This clearly portrays the positive benefits of cow cuddling as the above analysis.

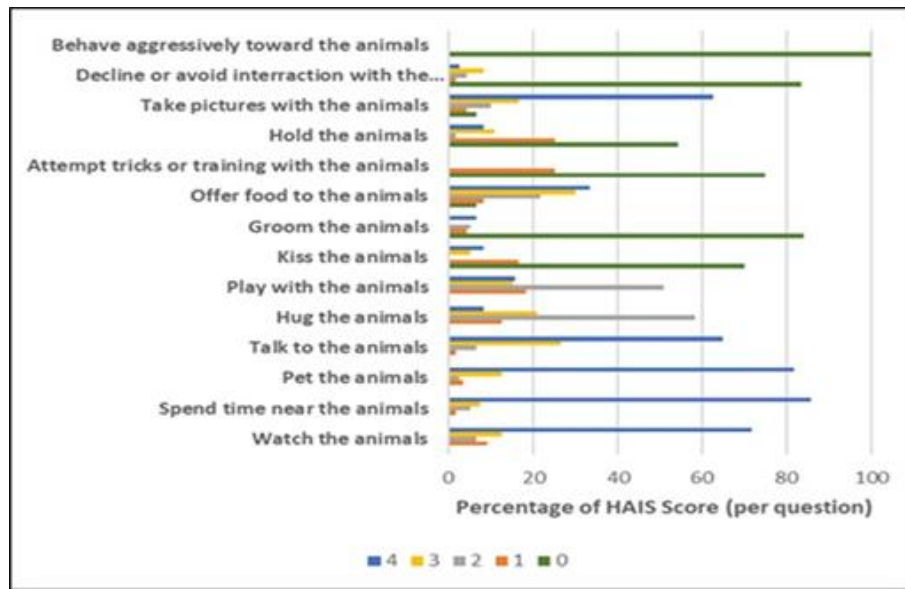


Figure 5: Response of Human Experience (overall percentage score for each question)

Now the study measures the cow responses as per opinions received from the questionnaire from the human respondents in Table 2.

Table 2: Average scores of animal response experience. The participants mostly reflected that cows were friendly, made friendly sounds, accepted food and licked.

	Not at all or nothing 0	1	Medium amount 2	3	A great deal or amazing 4
Initiate friendly interaction with you		1.66	5.83	16.66	75.83
Make friendly sounds	5	6.66	8.33	11.66	68.33
Accept food from you		3.33	8.33	1.66	86.66
Obey tricks or training	82.5	0.83	3.33	4.16	9.16
Sniff or smell you			5.83	29.16	65
Lick you	6.66	13.33	15.83	15.83	48.33
Make unfriendly sounds	95	1.66	0.83	2.5	
Behave aggressively toward you	92.5	5	2.5		
Cause a mess or inconvenience for you	77.5	10.83	10	1.66	
Decline or avoid interaction with you	66.66	12.5	15	5.83	

“During the session, how much did THE ANIMAL(S)...” (Fournier et al., 2016, p. 24).

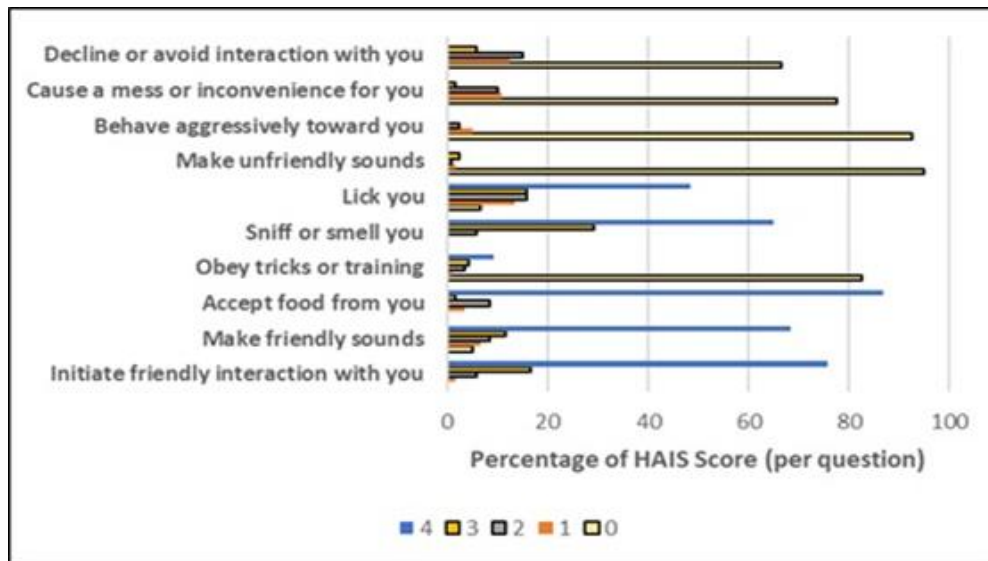


Figure 6: Response of Animal Experience (Overall percentage score for each question)

As per table 2 and figure 6, the participants mostly said that cows were friendly, made friendly sounds, accepted food and licked, and almost no one wanted to avoid interaction with the cows. The cows were not aggressive and were calm. There was also no report of unfriendly noise from the cows. These are very important and significant findings of the positive mutual benefits of human-cows interactions.

Word Cloud Analysis. The word cloud analysis illustrates the words used most frequently during an interview by respondents. These are very diagrammatic and illustrative ways of reflecting the common opinions of the public. As reflected in Figure 7, words like cows, relaxed, feel, relaxation, experience, human, pleasure, cuddling, psychological and so on were most frequently used by the respondents. This highlights a strong positive effect of human-cow interaction upon the human mind and its overall well-being.

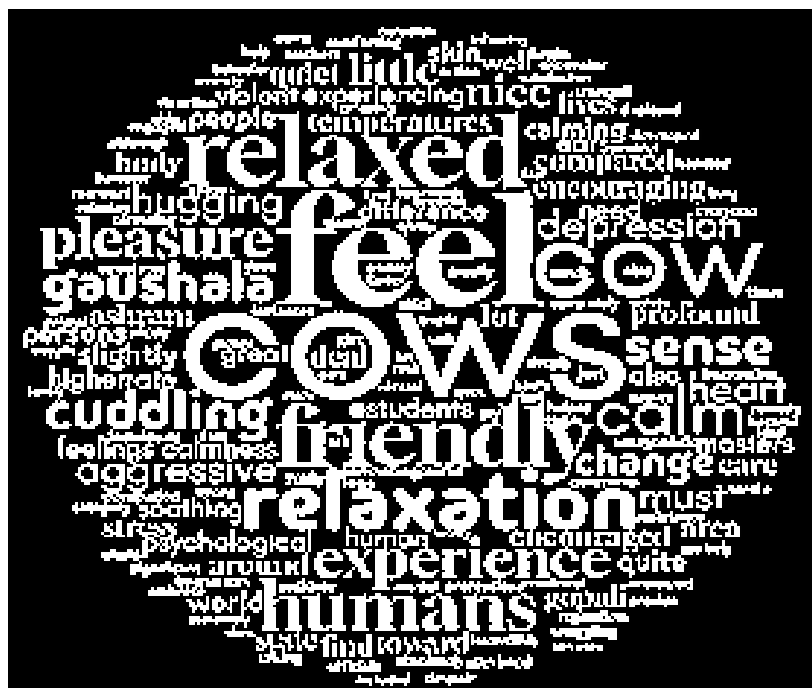


Figure 7: Word Cloud Analysis of 120 respondents.

Redefining wellbeing through human-cows interaction. The human-cow interaction is a new domain in animal-assisted therapies. There are several potential health benefits for both cows and humans through such interactions. The humans get rid of negative feelings, stress, anxiety and emotions as revealed from the word cloud analysis of figure 7. The cows also get positive benefits in the form of reduced heart rates and an increase in milk production, as reflected by the paired sample t-test in Figure 4 and bar graphs in Figure 3. Therefore, human-cow interactions help to redefine the concept of wellness by establishing a connection with nature. It must be borne in mind that there are certain stages of human-cow interactions. These are reflected in Figure 8.

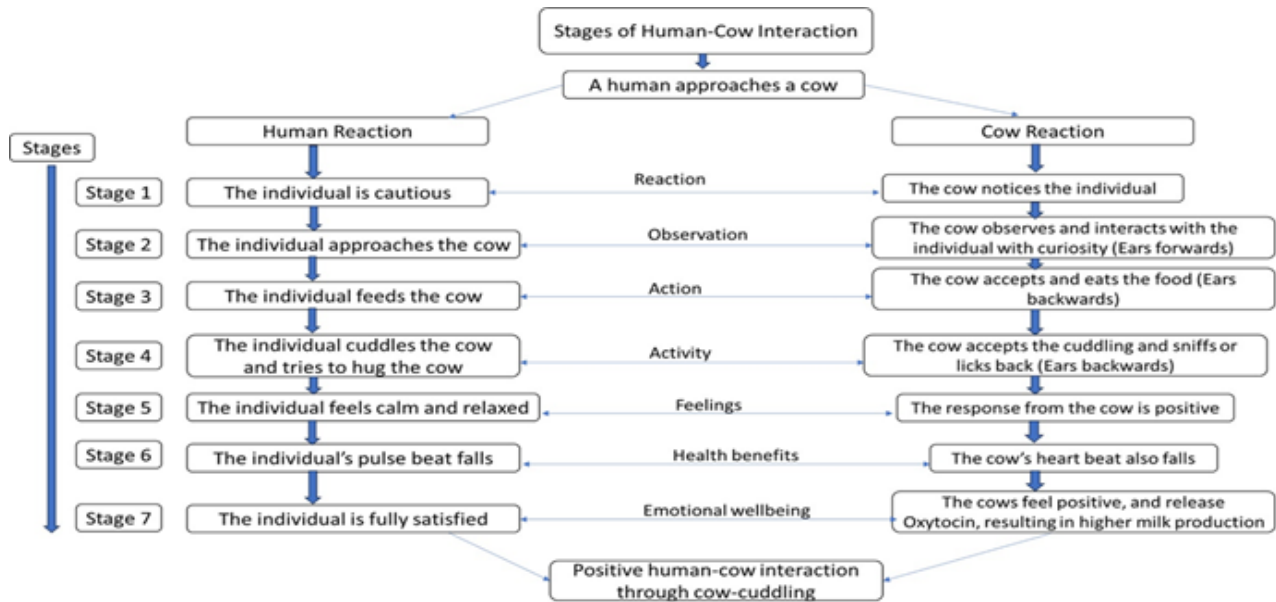


Figure 8: Stages of Human-cow interactions.

It is worth noting that during this interaction, the cow's feelings can be comprehended by studying their ear positions. Cows are intelligent bovine animals and can exhibit a wide range of emotions, feelings and personalities. The backwards-facing ears are signs of a relaxed state of cows, while the forward-facing position of the ears is a sign of potential alertness, anxiety and discomfort of the cows (figure 9).



Figure 9: Different types of feelings associated with different ear positions of cows



Figure 10: Cow cuddling by our human respondents

Mutualism: the well-being of both cows and human beings. It is noteworthy that the human-cow interaction is beneficial for both species through mutualism. The cows show reduced heart rates, which are considered good for their health. Similarly, the interactions also showed reduced pulse rates of our human respondents as well. Therefore, cow cuddling is mutually beneficial for the overall well-being of both cows and humans. This fact has been proven by the statistical analysis and analysis by the HAIS scale. The findings of the present research on cows in gaushalas also validate the findings of Compitus and Bierbower (2024). Figure 8 aptly describes the various stages of cow-human interactions. One of the most defining outcomes of such interaction is emotional well-being for both humans and cows. When the cows feel relaxed and are calm, their ear positions become backwards-facing. In contrast, if the concerned cow is in a state of stress and alertness, they have forward-facing ears (figure 9). Therefore, cows' feelings can be reckoned by their ear movements, tail movements, head movements and so on.

Cow cuddling: a redefining component of cowpathy. The existing research has focused on aspects like “panchagavya”, cow urine, and cow dung as alternate ways of medical treatment. However, cow cuddling can redefine the concept of human treatment through cows. The human participants in the current study showed reduced levels of stress, anxiety and negative thoughts after cow cuddling. Many participants come for cow cuddling at the gaushala to obtain these potential benefits for mental health and well-being. The pulse rate of many participants fell considerably after cow cuddling. Therefore, cow cuddling is a new domain of research, where more findings and observations are required to obtain and validate the existing knowledge.

Getting rid of anxiety, fear and other negative feelings. Cow cuddling sessions offer a wide range of emotional benefits to mankind. This fact has been well established by the current study. We are all surrounded by an urban set-up and mostly live and work in a cosmopolitan world. Most of the time, we end up with depression, anxiety and other negative feelings. These negative feelings encapsulate us like vicious cycles. In order to get rid of these chains of negativities, cow cuddling is mostly considered with a high value in therapeutic treatments, like in AATs (Animal Assisted Therapies). The participants of the current study have reported much improved mental health with reduced stress and anxiety after human-cow interactions through cow cuddling.

Establishment of human-nature interrelationship in affirmative ways. The cow-cuddling process is not just a therapy. It helps us to re-establish the long-lost connections of humans with nature or the environment. Cows have lower heart rates and higher body temperatures compared to humans. Due to which they inculcate positive vibes and energies through positive feelings for humans. The participants of the current research exhibited more peace and calmness when they hugged the dewlap of the cows. Moreover, as cows are peace-loving bovine animals, the human mind becomes calmer after a positive interaction with a cow. The participants of the present investigation reported much more mental satisfaction and positivity after a cow cuddling session.



Figure 11: Mutual benefits of Cows-Human Interaction

4. CONCLUSION

Lastly, it can be concluded by describing that cow cuddling is a very important form of AATs. These days, people suffer a lot from negative emotions. The cow cuddling process can help to get rid of them in many ways, which needs more exploration, research and investigation. The concept of cows is deeply enshrined in the Indian Vedas, exhibiting its value as a rich heritage of traditions and culture of the ancient world. The present research observes mutual or two-way benefits for both humans and cows through human-cow interactions. The current study has attempted to statistically establish this facet of well-being. Therefore, cow-cuddling must be encouraged as a therapeutic value and cultural value in all societies of the world. The medical practitioners, administrators, policymakers and planners must look into the fact of promotion of cow cuddling to provide the development of both mind and body in an inclusive and holistic framework.

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