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The Role of Human-Animal Interactions in Stress Reduction among Adults in Nyeri Central Sub-County, Kenya

Joy Makena Muchunku, Amissah Anthony & Waititu Pauline
Faculty of Arts and Social Sciences
Department of Counseling Psychology
Catholic University of Eastern Africa, Nairobi, Kenya
Email: jmuchunku@gmail.com

***Abstract**: Mental health challenges, particularly stress-related conditions, have been increasing in Nyeri County, Kenya, while human-animal interactions remain a routine part of daily rural and peri-urban life. This study examined the effect of human-animal interactions on stress reduction among adults in Nyeri Central Sub-County, Kenya, addressing four objectives: the extent and nature of human-animal contact, emotional attachment to animals, perceived stress levels, and the relationship between interaction frequency/quality and stress reduction. A convergent parallel mixed-methods design was used; 384 survey respondents were selected through stratified, simple random, and purposive sampling, and 15 key informants were purposively selected. Quantitative data were analysed descriptively and inferentially using SPSS, and qualitative data were analysed thematically. All respondents (100%) reported regular contact with animals, mostly livestock, dogs and cats, largely on a daily basis. Emotional attachment (M = 4.30, SD = 0.528), human-animal interaction (M = 4.27, SD = 0.484), psychological wellbeing (M = 4.19, SD = 0.493), and stress reduction outcomes (M = 4.15, SD = 0.486) were all rated highly, while perceived stress was moderate (M = 2.96, SD = 0.839). Human-animal interaction was a significant predictor of stress reduction (β = .534, p < .001), and psychological wellbeing partially mediated this relationship. The findings indicate that human-animal interaction is a culturally appropriate and effective stress-reduction strategy for adults in livestock-keeping communities in Kenya. The study recommends incorporating human-animal interaction into community mental health promotion, agricultural extension services, and counseling psychology practice.*

Keywords: *human-animal interaction; stress reduction; emotional attachment; psychological wellbeing; rural adults; Kenya*

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1. Introduction

Human-animal interaction (HAI) has long been known to be a factor when it comes to the health and wellbeing of both humans and animals. In addition to its practical agricultural and economic role, animals are also a part of emotional, social, and healing relationships that have cultural meaning (Krause-Parello et al., 2019). Throughout the world, people have continually reported mental health benefits from contact with companion animals. Gaughan (2021) found that the use of an emotional support animal was associated with a strong, positive decrease in anxiety symptoms among adults in the U.S., particularly when combined with other forms of therapeutic animal support. In the UK, Lee (2022) showed that adults with mental health issues who had been exposed to a pet and/or therapy animals experienced less emotional dysregulation, stress, and anxiety; in the USA, Thayer and Stevens (2022) showed that an animal-assisted stress-reduction intervention resulted in improvement in executive functioning among high-risk university students. Clark (2024) found that companion animals alleviate loneliness

and depression in older adults not only in clinical settings but also in their everyday lives in Australia.

Limited empirical research has been conducted in Africa, but recent studies suggest that animals are important to pastoral and farming communities socially and psychologically. The daily interaction between the farmers and the animals, the milking process, feeding, and cleaning the pens has built up a strong bond between the farmers and the animals, which Nuvey et al. (2020) identified as being of psychological importance for livestock farmers in Ghana. Stress-related disorders, depression, drug abuse and suicide have become more common locally, and in times of acute economic hardship and indebtedness, reports say that there was a report of someone committing suicide almost daily (Kenya News Agency, 2025). This is because there is a high livestock dependence in the County where approximately 80 percent of the rural households have at least one dairy animal, and their interactions with the animals are not a leisurely activity, but part of their lifestyle (Nyeri County Government, 2022; Alonso et al., 2023; Maarifa Centre, 2024). Though this bi-modal reality exists, few empirical studies have looked into the link between man-animal contact and stress reduction among adults in Nyeri Central Sub-County. The purpose of this study was to address this gap.

The general purpose of this study was to examine the effect of human-animal interaction on the reduction of stress among adults in Nyeri Central Sub-County, Kenya. Specific aims were to determine the extent and nature of human-animal contacts between adults, to examine the emotional attachment to animals among adults, to assess the perceived levels of stress among adults involved in human–animal interactions, and to examine the relationship between the frequency and quality of human–animal interactions and stress reduction among adults in Nyeri Central Sub-County. The study aimed to address four research questions about the occurrence and nature of contact between humans and animals, emotional attachment to animals, perceived stress levels, and the extent to which stress was reduced by the frequency/quality of interaction. Results are applicable for animal caretakers (adults and households), counsellors who require culturally appropriate stress management tools, Ministries of Health and Agriculture, Livestock Development and Fisheries, Community Health Workers, local NGO's and academics who wish to join the existing body of mostly Western literature on HAI with the reality of rural Africa.

2. Literature Review

2.1 Theoretical Review

The study was based on three complementary theories. First, according to Social Cognitive Theory (Bandura, as explained in Schunk & DiBenedetto, 2020), human behaviour is a continuous process that involves personal conditions, behaviours, and environment. Feeding and health monitoring of animals, boosting self-efficacy and coping confidence, and the predictable and non-judgemental interaction with animals help to create a psychologically safe environment to practice emotional regulation (Hunjan & Jayasankara Reddy, 2023; Cui, 2025). Second, building on Bowlby's and Ainsworth's work, Attachment Theory suggests that when care-giving relationships are non-judgemental and consistent, they can serve as a secure base to which the individual can return in times of distress; and that the stronger the emotional attachment to the animal, the stronger the stress buffer is believed to be (Cherniak et al., 2021; Lass-Hennemann et al., 2022). Third, according to Biophilia Theory, human beings are attracted towards living organisms and interaction with animals stimulates parasympathetic nervous system, which decreases stress hormones and brings biological balance (Barbiero & Berto, 2021; Gaekwad et al., 2022). In general, the three theories offered complementary explanations of how stress was diminished by learned coping behaviour, emotional security, and stress reduction through biologically restorative contact and informed the study's conceptual framework of how the prevalence of stress, emotional attachment to animal care, and quality and frequency of human-animal interactions were related to stress reduction outcomes, including psychological wellbeing as the mediator.

2.2 Empirical Review

Human-animal interaction has been reported in a variety of contexts and with many species worldwide. Ru et al. (2025) conducted a grey literature search in Canada, which revealed that HAIs can happen in homes, schools, hospitals, and neighbourhoods and are linked to personal wellbeing and prosocial behaviours, but were not investigated in rural settings in Africa. In a similar fashion, Capela e Silva et al. (2024), focusing on findings largely from the United States, found that HAIs promote stress reduction and emotional regulation, and foster social connection in household, community and healthcare environments. Shoesmith et al. (2021) investigated the impact of pets on loneliness and mood in the UK while the country was in lockdown due to the COVID-19 pandemic, and found that pets reduced feelings of loneliness and had a beneficial impact on mood, but also caused some concern and burden for the participants regarding veterinary and animal welfare concerns. The relation between HAI and prosociality was positive but small for both species ($d = 0.22$; Chen et al., 2024), highlighting the role of the context in which the relation occurs.

In the area of emotional attachment, higher levels of emotional attachment to pets were found to be related to higher empathy towards animals (Faner et al., 2024), while higher love, joy, and peace towards animals were found to be related to higher levels of prosocial orientation towards people (Aragunde-Kohl et al., 2020) among 1,436 adults in Puerto Rico. However, there is no agreement: Northrope et al. (2025) analysed 116 studies and found inconsistent links between pet attachment and mental health among adults; and Trautann (2024) found that adults with higher levels of pet bird attachment had higher levels of loneliness. Lass-Hennemann et al. (2022) found that in particular, human attachment security fully mediated the link between pet attachment and mental health, suggesting that in some instances, having a pet may actually serve as a substitute for feeling insecure in the human attachment or that it may not be a protective factor for mental health. The mixed outcomes suggest the importance of exploring in a context-specific manner, as was done in the present study for a livestock-dependent Kenyan population.

Moreover, higher pet attachment has been significantly associated with lower stress among medical students in Indonesia (Santosa et al., 2025), and even brief interaction with an unfamiliar dog produced measurable physiological relaxation (lower heart rate and blood pressure) among stressed adults in the United States (Bowin, 2019). Gandenberger et al. (2022) reviewed 27 studies and concluded that in humans, stress markers tended to be lower during dog-assisted interactions, but that there were methodological differences which limited agreement. However, the study conducted by Le Roux and Wright (2020) with 3329 adult South Africans found no correlation between perceived stress and pet attachment, or between life satisfaction and pet attachment, demonstrating the need for cultural and contextual effects on the relationship between attachment and stress. Both Johnson (2023) and Rodriguez et al. (2021) found the literature evaluating HAI to be wide-ranging and superficially defined, meaning the results of stress reduction and oxytocin increases from animal contact cannot be easily compared.

Locally, Lemma et al. (2025) identified adults living as pastoralists in Ethiopia-Kenya who had daily interaction with livestock and were actively involved in feeding, milking and herding, but were not necessarily aware of zoonotic risk. Furthermore, in a recent study, Clark (2024) found that emotional-regulation benefits were predicted by the quality and reciprocity of animal contact (as opposed to frequency) in a case study conducted in northern Kenya. Barnes et al (2018) also surveyed 587 peri-urban households in Kisumu, Kenya, and reported that 32 percent of households possessed animals, primarily for income, meat or milk, and 76 percent of households with animals had animals stay in the household at night. The goal of this study was to identify psychological resilience as an important domain of community health practice and its link with the daily activities of livestock care, but not attempt to quantify the link with emotional attachment to livestock as proposed by Mwangi (2022) in Nthongoni, Eastern Kenya. This study aimed to quantify the contribution of psychological resilience in key areas of community health practice in Nthongoni, Eastern Kenya: routine livestock care practices and emotional attachment to livestock, as previously identified by Mwangi (2022).

2.3 Research Gaps

The literature reviewed is mainly from Western, urban, and companion animal contexts, and there is scarce literature on livestock-based interaction, typical in African agrarian contexts (Ru et al., 2025; Capela e Silva et al., 2024). There are few studies in African, but the majority tend to focus on the negative psychological impact associated with the losses of livestock (Nuvey et al., 2020) or zoonotic risks (Lemma et al., 2025), but little attention is paid to the stress-buffering properties of a positive routine in combination with an animal. Only a few studies have included both subjective and physiological measures of stress (Bowin, 2019; Gandenberger et al., 2022), and none of them examined the prevalence, emotional attachment, and dimensions of frequency/quality of HAI as predictors of stress reduction among adults in a livestock-keeping sub-county in Kenya. The purpose of this study is to be set in a context where it can address these intertwined geographical, contextual and methodological gaps.

3. Methodology

The design of the study was a convergent parallel mixed-methods type, with quantitative and qualitative methods used, in which quantitative and qualitative data were collected simultaneously and analyzed separately, and then the results of quantitative and qualitative methods were analyzed at the interpretation phase (Queirós et al., 2017). A mix of structured questionnaires and face-to-face interviews and semi-structured in-depth interviews with key informants were used in the quantitative and the qualitative strand, respectively.

The study was conducted in Nyeri Central Sub-County (approx. 167.6 km²; population 140,338; density 837.3/km²; City Population, 2023), which was a peri-urban and urban area with high livestock density, where there has been a reported increase in stress-related mental health issues (Kenya News Agency, 2025). Adults (aged 18 years and older) who interact with animals were the target population in the study, with an estimated adult population of 88,550 (Kenya National Bureau of Statistics [KNBS], 2019).

The sampling process aimed at obtaining the samples required for the project (Kothari, 2004; Nyimbili & Nyimbili, 2024) was conducted in a multi-stage process as follows: in the first stage, the samples were obtained using stratified sampling which was divided into urban and peri-urban settlements; in the second stage, simple random sampling was used for households within each stratum; and the third stage, purposive sampling was used for 15 key informants (animal owners, community health workers, and veterinary/agricultural extension officers). A quantitative sample size of 384 was used (evenly split between urban (192) and peri-urban (192) areas) and a qualitative sample of 15 informants was sufficient for thematic saturation (Creswell & Creswell, 2018) in a large population or population of unknown size. Table 1 is the overall sample and the distribution of the sample.

Table 1: *Target Population and Sample Size Distribution*

Category	Sampling Method	Number
Urban adults (quantitative)	Simple random sampling	192
Peri-urban adults (quantitative)	Simple random sampling	192
Key informants (qualitative)	Purposive sampling	15
Total	—	399

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Six multi-item scales (emotional attachment to animals; perceived stress; psychological well-being/emotional relaxation; human-animal interaction frequency; human-animal interaction quality; stress-reduction outcomes) were created and administered using a self-developed questionnaire to collect quantitative data, while a semi-structured interview guide was used to collect qualitative data. Pre-testing of the two instruments was done in a pilot study of 10 respondents in the adjoining Mathira Sub-County (Mugenda & Mugenda, 2003). The internal consistency reliability of the items in SPSS was determined with the Cronbach alpha value (threshold: > .70), and the construct validity of the items in SPSS was determined with the Kaiser-Meyer-Olkin value, Bartlett's test of sphericity, and the principal component analysis. Table 2 shows that the reliability level of all the constructs was above the threshold.

Table 2: *Reliability Statistics for Study Constructs*

Construct	Number of Items	Cronbach's Alpha
Emotional Attachment to Animals	6	.902
Perceived Stress	6	.805
Psychological Wellbeing	6	.894
Human-Animal Interaction	6	.850
Stress Reduction Outcomes	6	.882

The quantitative data were analyzed descriptively (mean and standard deviation, frequency), Pearson correlation, and multiple linear regression, with a three-step mediation model, which was tested to determine the mediation role of psychological wellbeing. Qualitative data were transcribed, translated as needed, and analyzed thematically (McLeod, 2023). The qualitative strand was shown to be trustworthy by means of member checking, prolonged engagement (credibility), audit trail (dependability) and thick description (transferability) as well as rich, direct quotations from the participants (Ahmed, 2024). The Catholic University of Eastern Africa (CUEA) Institutional Review Board (IRB), National Commission for Science, Technology and Innovation (NACOSTI), and County Government of Nyeri were consulted for ethical approval. All participants had to provide informed written consent; confidentiality was ensured by coded identification and password protection, and this study was conducted in accordance with APA (2017) ethical guidelines.

4. Results and Discussion

The questionnaires were distributed to 384 and returned in full (100%) The age distribution was fairly even, with 32.3% aged 18-25 and 40.6% aged 26-35; a little more male than female (56.5% to 42.7%); and more highly educated than is the general population (30.7% university level, compared to 22.8%). Such a mixed economy is evident in the employment mix of the study area, with the most common being business/self-employment (22.7%),

salaried/professional work (18.2%), and farming/livestock-keeping (14.1%).

4.1 Extent and Nature of Human-Animal Contacts (Research Question 1)

Table 3**:** *Prevalence and Type of Animal Interacted With*

Item	Frequency	Percent
Do you interact with any animal? (Yes)	384	100.0
Livestock	169	44.0
Dogs	94	24.5
Cats	88	22.9
Birds	24	6.3
Other (e.g., rabbits, donkeys, fish)	9	2.3

As shown in table 3, the majority (384) of the respondents had been in contact with an animal, the most common being livestock (44.0%), dogs (24.5%) and cats (22.9%).

Table 4: *Frequency and Nature of Human-Animal Interaction*

Item	Category	Frequency	Percent
Frequency of interaction	Daily	309	80.5
	Occasionally	36	9.4
	Weekly	28	7.3
	Rarely	11	2.9
Nature of interaction/activity	Feeding	214	55.7
	Caring (e.g., health monitoring, cleaning)	83	21.6
	Playing	41	10.7
	Other (e.g., milking, herding, walking, grooming)	31	8.1
	Walking	15	3.9

As shown in Table 4, most (80.5%) were interacting with animals on a daily basis, most of which involved feeding (55.7%) or caretaking activities (21.6%), such as health monitoring and cleaning, with open-ended responses, milking, herding, grooming and egg collection all being mentioned as common activities. The information collected during the interviews substantiated this: livestock owners reported more frequent contact with their companions, such as feeding or grazing, milking or cleaning their shelters; companion-animal owners reported more frequent contact, such as walking and playing. The observation of Barnes et al. (2018) in peri-urban Kisumu that animal keeping is a part of the day-to-day life of the Kenya household is echoed in the above, and the observation of Nuvey et al. (2020) amongst the Ghanaian and Maasai livestock farmers that "routine hands-on care," not incidental contact, is the definition of human-animal relationships in African agrarian contexts. Nyeri Central Sub-County did not reveal a human-animal contact that was limited to full-time farmers' households, as is common in much of the Western literature, which focuses on companion-animal ownership.

4.2 Emotional Attachment to Animals (Research Question 2)

Table 5: *Composite Descriptive Statistics for Emotional Attachment*

Variable	N	Minimum	Maximum	Mean	SD
Emotional Attachment (composite)	384	1.00	5.00	4.30	.528

As shown from table 5, adults in the study area reported a high level of emotional attachment for the animals that they interacted with (composite M = 4.30, SD = .528, 5-point scale).

Table 6: *Item-Level Descriptive Statistics for Emotional Attachment to Animals*

Statement	N	Mean	SD
I feel happier when I am around animals	382	4.33	.604
I miss animals when I am away from them	382	4.32	.709
I feel emotionally attached to animals I interact with	377	4.31	.663
I feel relaxed when I spend time with animals	383	4.30	.619
I consider animals as part of my family	380	4.27	.659
Animals provide me with comfort	382	4.26	.619

As shown from table 6, in regard to the statement "I feel happier when I am around animals" (M = 4.33) and "I miss animals when I am away from them" (M = 4.32) received the highest scores and indicated that one has a felt relationship with animals more in the nature of an attachment than of casual liking. It was also backed up by qualitative accounts that showed the participants felt a sense of discomfort when they departed from the animals, and they felt joy when their animals came home to greet them, and that the animals were sometimes referred to as their family, rather than simply their assets. The level of attachment was similar for livestock and companion animal owners, although the level of attachment was generally higher for the former than the latter, and even livestock owners had significant attachments that they had developed over time through ongoing, day-to-day interactions. This is similar to the results obtained by Faner et al., (2024) and Aragunde-Kohl et al., (2020), both of which found attachment to animals to be correlated with positive affect, and to the Attachment Theory (Cherniak et al., 2021) which states that predictable and consistent care-giving relationships provide a secure psychological base.

4.3 Perceived Stress Levels (Research Question 3)

Table 7: *Composite Descriptive Statistics for Perceived Stress*

Variable	N	Minimum	Maximum	Mean	SD
Perceived Stress (composite)	384	1.17	5.00	2.96	.839

As shown from table 7, the adults' perceived stress in their human-animal interaction was in the moderate range (M = 2.96, SD = .839).

Table 8: *Item-Level Descriptive Statistics for Perceived Stress*

Statement	N	Mean	SD
I feel stressed in my daily life	382	3.23	1.192
I feel overwhelmed by my responsibilities	382	3.15	1.241
I struggle to cope with daily challenges	382	3.04	1.230
I feel anxious most of the time	382	2.88	1.224
I find it difficult to relax	382	2.77	1.162
I feel in control of my life (reverse-scored)	383	2.66	1.206

As evident from table 8, stressors were widely spread across the socio-economic spectrum with the most frequently mentioned stressors being general daily stress (M = 3.23) and feeling overwhelmed by responsibilities (M

= 3.15), which correlated with reports from county level on a growing number of mental health cases due to high levels of indebtedness and economic hardship in Nyeri County (Kenya News Agency, 2025) and the volatility of livestock livelihoods (Alonso et al., 2023; Maarifa Centre, 2024). Interestingly, the animal-specific items were not among the most valued, suggesting that experiences of stress were not exclusive to animal activities, but rather were more associated with livelihood issues. Interview participants reported financial stress, work stress, and family responsibilities as important stressors, and most reported that they believed that spending time with their animals (feeding, grooming, walking, and simply spending time with them) helped to ease the stress. The animals provided them with companionship and a daily routine. A small number indicated that animal duties, especially for care of sick or challenging animals, could be a stressor in and of themselves, highlighting that animals can be stressors or support, similar to what Mwangi (2022) found in Eastern Kenya.

4.4 Frequency and Quality of Interaction and Stress Reduction Outcomes (Research Question 4)

Table 9: *Composite Descriptive Statistics for Study Variables*

Variable	N	Mean	SD
Emotional Attachment	384	4.30	.528
Perceived Stress	384	2.96	.839
Psychological Wellbeing	384	4.19	.493
Human-Animal Interaction	384	4.27	.484
Stress Reduction Outcomes	384	4.15	.486

As shown in Table 9, the outcomes of human-animal interaction (M = 4.27, SD = .484), stress reduction (M = 4.15, SD = .486) and psychological wellbeing (M = 4.19, SD = .493) were all rated highly.

Table 10**:** *Pearson Correlation Matrix among Study Variables*

Variable	1	2	3	4	5
1. Emotional Attachment	1				
2. Perceived Stress	-.108*	1			
3. Psychological Wellbeing	.696**	-.153**	1		
4. Human-Animal Interaction	.682**	-.027	.715**	1	
5. Stress Reduction Outcomes	.645**	-.183**	.812**	.719**	1

*p < .05, **p < .01 (2-tailed).

As shown from table 10 above, stress outcomes were modestly and negatively correlated with perceived stress (r = –.183, p < .001), and were highly correlated with the reduction in stress outcomes by human-animal interaction (r = .719, p < .001), emotional attachment (r = .645, p < .001), and psychological wellbeing (r = .812, p < .001).

Table 11**:** *Regression Model — Human-Animal Interaction, Emotional Attachment, and Perceived Stress Predicting Stress Reduction Outcomes*

Predictor	B	SE	β	t	Sig.
(Constant)	1.047	.165	—	6.338	.000
Human-Animal Interaction	.537	.046	.534	11.721	.000
Emotional Attachment	.244	.042	.265	5.782	.000
Perceived Stress	-.081	.019	-.140	-4.165	.000

R = .762, R^2 = .580, Adjusted R^2 = .577, F (3, 380) = 175.021, p < .001. Dependent variable: Stress Reduction Outcomes.

A multiple linear regression (Table 11) showed that the combination of stress reduction from human-animal interaction, emotional attachment, and perceived stress were a significant and joint predictor of the outcomes of stress reduction, with an $R = .762$, an $R^2 = .580$, and an adjusted $R^2 = .577$, an $F (3, 380) = 175.021$, and $p < .001$ (accounting for about 58 percent of the variance). Perceived stress ($\beta = –.140$, $p < .001$) and emotional attachment ($\beta = .265$, $p < .001$) also contributed, but to a lesser extent, to the model, with the strongest predictor being human-animal interaction ($\beta = .534$, $p < .001$).

Table 12: *Coefficient Analysis*

Model	Predictor	B	Std. Error	Beta (β)	t	Sig.
Model 1: Psychological Wellbeing as Dependent Variable	Human-Animal Interaction	0.729	0.036	0.715	20.001	.001
Model 2: Stress Reduction Outcomes as Dependent Variable	Psychological Wellbeing	0.8	0.029	0.812	27.232	.001
Model 3: Stress Reduction Outcomes as Dependent Variable	Psychological Wellbeing	0.602	0.04	0.611	15.185	.001
	Human-Animal Interaction	0.283	0.04	0.282	7.005	.001

A mediation analysis, in 3 steps, was performed to determine if the relationship between human-animal interaction and stress reduction was mediated by psychological wellbeing (Table 12). Human-animal interaction ($\beta = .715$, $p < .001$) was a significant predictor of psychological wellbeing and psychological wellbeing was a strong predictor of stress reduction outcomes ($\beta = .812$, $p < .001$). The direct relationship between human-animal interaction and stress reduction outcomes remained statistically significant when both were entered at once ($\beta = .282$, $p < .001$), but psychological wellbeing was a strong predictor ($\beta = .611$, $p < .001$) and partially mediated the relationship between human-animal interaction and stress reduction outcomes.

The results are consistent with Johnson (2023), who found physiological (oxytocin) evidence that the animal contact was a stress and loneliness reducing pathway in the United States, as well as Clark (2024) who had shown that the quality of the animal contact (reciprocal, emotionally rich) was more important than the frequency. The partial mediation finding also supported the quantitative regression results of the pathways of behavior (Social Cognitive Theory), emotional (Attachment Theory) and biological (Biophilia Theory) that people doing the work regardless of their financial status because of the routine care of animals.

5. Conclusions and Recommendations

5.1 Conclusions

Interactions between human and animals are common in Nyeri Central sub-County, occurring mostly in the care of livestock, dogs and cats, and are mainly a daily occurrence in adults. Emotional attachment toward the animals interacted with is high whereas perceived stress score for generalised perceived stress is moderate (mainly livelihood-related) among adults in the study area. Most importantly, both the amount and quality of human-animal interaction and the emotional bond with animals is an important independent predictor of stress reduction, in direct and indirect ways via psychological wellbeing. The findings validate the use of human-animal interaction as a culturally acceptable, scientifically proven and cost effective method of stress reduction in rural and peri-urban Kenyan adults.

5.2 Recommendations and Suggestion for Future Studies

Based on these findings, the following recommendations were arrived at:

1. County mental health departments, in partnership with the Nyeri County Government, should implement human-animal interaction as a known, low-cost intervention within community mental health promotion programs in livestock-keeping Counties such as Nyeri.
2. The Ministry of Agriculture, Livestock Development and Fisheries, together with County

agricultural extension officers, should adopt human-animal interaction as a recognised low-cost intervention within existing farmer extension and farmer training programmes in the County of Nyeri and other Counties where livestock keeping is a major practice.

3. County agricultural extension officers and community health workers should integrate psychosocial messaging on the value of livestock keeping into farmer extension programmes and other community services, given its documented relationship with human-animal interaction and the existing bond between adults and their animals.
4. Counselling psychologists and mental health professionals, in and outside the County of Nyeri, should routinely consider human-animal interaction as a component of psychosocial history-taking in Counties where livestock keeping is a major activity.
5. Training institutions and professional bodies responsible for counsellor and mental health training programmes should integrate human-animal interaction as a distinct topic within psychosocial history-taking training for counsellors and mental health professionals in rural and peri-urban areas.
6. Researchers and academic institutions should improve future studies by incorporating physiological and self-reported indicators of stress, using longitudinal or experimental designs to infer causality, and examining additional mediators/moderators such as social support, gender, and religiosity across counties with differing concentrations and practices of livestock keeping.

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