psychiatry international

MDPI

Article

Does Pet Attachment Affect Men's Psychological Well-Being, Loneliness, and Perceived Social Support? A Cross-Sectional Analysis During the COVID-19 Crisis

Sophia Zachariadou [1] and Panagiota Tragantzopoulou [2,*]

[1] Department of Applied Psychology, University of Derby, Kedleston Rd, Derby DE22 1GB, UK; s.zachariadou1@mc-class.gr
[2] School of Social Sciences, University of Westminster, 115 New Cavendish St., London W1B 2HW, UK
* Correspondence: g.tragantzopoulou@westminster.ac.uk

Abstract: The COVID-19 pandemic has presented significant challenges, including financial strains and mental health issues like depression and loneliness. Human–animal interaction (HAI) offers a potential buffer, as pet ownership has been linked to benefits such as improved psychological well-being, increased perceived social support, and reduced loneliness. Furthermore, attachment to pets appears to moderate these effects, with more attached owners experiencing greater benefits. However, most research has focused on female samples, leaving a gap in understanding HAI among men. This study aimed to examine the relationship between pet attachment and psychological well-being, loneliness, and perceived social support among Greek male pet owners ages 18 to 45. Between January and March 2021, a sample of 87 participants completed a demographics form and four self-reported questionnaires: LAPS for pet attachment, WHO-5 for well-being, a three-item loneliness scale, and MSPSS-Pets for perceived social support. Hierarchical multiple regressions indicated that pet attachment predicted increased perceived social support but showed no significant association with psychological well-being or loneliness. Age emerged as a predictor of well-being, with older men reporting higher levels, but no significant predictors of loneliness were found. These findings suggest that companion animals may provide emotional support but may not alleviate the broader psychological burdens intensified during crises like the pandemic.

Keywords: mental health; men; COVID-19; human–animal interaction; pet attachment; loneliness; psychological well-being

Academic Editor: Domenico De Berardis

Received: 15 December 2024
Revised: 7 February 2025
Accepted: 10 March 2025
Published: 12 March 2025

Citation: Zachariadou, S.; Tragantzopoulou, P. Does Pet Attachment Affect Men's Psychological Well-Being, Loneliness, and Perceived Social Support? A Cross-Sectional Analysis During the COVID-19 Crisis. *Psychiatry Int.* **2025**, *6*, 32. https://doi.org/10.3390/psychiatryint6010032

1. Introduction

In 2020, the World Health Organization declared COVID-19 a pandemic, prompting prolonged quarantine measures and social distancing policies [1]. While these interventions were necessary to control the virus's spread, they resulted in a global economic recession [2] and exacerbated feelings of loneliness and social isolation globally, all of which are significant risk factors for mental health disorders [1,3]. Loneliness is defined as the subjective experience of lacking social connections, while social isolation refers to the objective absence of social interactions [4]. Both loneliness and social isolation have been associated with increased risks of all-cause mortality [5] and mental health challenges, including depression, anxiety, suicidal ideation, and substance misuse [6,7]. During the pandemic, 40% of the global population reported a decline in psychological well-being [8]. Evidence from past crises has highlighted the heightened vulnerability of men to the mental

health impacts of economic recessions [9,10], a trend that appears to persist in the current circumstances [11].

Young and midlife adults have been particularly vulnerable to the psychological effects of COVID-19, as evidenced by elevated levels of anxiety and depression observed globally [12–14]. However, while these findings suggest heightened susceptibility, they do not fully account for pre-existing differences in mental health baselines across age groups. Young adults, in particular, reported higher levels of loneliness and distress compared to older age groups [15,16]. Similarly, those living alone have been among the most negatively impacted by the pandemic, with increases in anxiety and depression [17–20].

While research broadly indicates that women are more susceptible to COVID-19-related psychological distress [18,21,22], other studies present a more nuanced reality. For example, a meta-analysis revealed that men score higher on depression and anxiety scales but are significantly less likely than women to seek professional help for mental health concerns [16]. This highlights a critical gender disparity, as traditional masculine norms often discourage emotional expression and help-seeking behaviours, reinforcing stigmas around mental health for men. Consequently, these societal expectations can exacerbate untreated mental health issues in men, potentially leading to severe outcomes such as higher suicide rates. In addition to internalized stigmas, pandemic-specific circumstances have further highlighted vulnerabilities in men's mental health. In a study of 1100 Italian adults, men reported a significant increase in loneliness compared to normative pre-pandemic samples, suggesting that social isolation measures disrupted traditional support systems relied upon by men [23]. These findings indicate that the impact of the pandemic on men's mental health is not only profound but also distinct from women's experiences. Given these trends, it is unsurprising that men had a heightened risk of severe mental health outcomes during the pandemic, as reported by several studies linking increased psychological distress to alarming rates of suicide among men [24–27].

The global challenges brought forth by the pandemic have placed society at a pivotal juncture, necessitating the exploration of alternative strategies to foster social support and connectedness [28]. Emerging research highlights the potential of human–animal interactions (HAIs) and the human–animal bond (HAB) as innovative approaches to enhance well-being during times of social disruption [29,30]. HAI encompasses any form of interaction between humans and animals, ranging from casual encounters to structured therapeutic activities [30]. In contrast, HAB specifically refers to the mutually beneficial relationship that develops through emotional, psychological, and physical exchanges, often exemplified by the deep connections between pet owners and their animals [31]. These frameworks suggest promising avenues for addressing the growing need for connection and support in contemporary society.

1.1. Psychological Benefits of Human–Animal Interaction (HAI)

Although findings regarding the psychological benefits of HAI have been mixed [32], a substantial body of research underscores the positive impact that companion animals can have on mental health. For example, interacting with animals has been shown to induce biochemical changes in the brain, such as the release of serotonin and endorphins, which are linked to improved mood and reduced anxiety [33,34]. These physiological responses suggest the presence of an oxytocin-mediated interspecies positive feedback loop, facilitated by gazing, through which oxytocin release in both humans and their pets significantly enhances their bonding and promotes emotional well-being [35]. Studies on animal-assisted interventions (AAIs) and animal-assisted therapy (AAT) further support this notion, revealing significant reductions in depression, particularly among older adults who participated in dog therapy programs [35–38]. A meta-analysis of these programs

corroborated these findings, showing significant reductions in depressive symptoms among hospitalized older adults [39]. This suggests that AAT may offer a valuable supplementary approach to traditional mental health treatments, especially for vulnerable populations such as the elderly. Moreover, reviews of AAIs targeting teenagers with mental health challenges emphasize the efficacy of canine-assisted psychotherapy in reducing symptoms of depression and anxiety while enhancing the effects of traditional therapeutic interventions [40]. This highlights the versatility of animal-assisted therapies in addressing diverse age groups and mental health conditions, reinforcing the potential for broad application in clinical settings. Furthermore, reviews of AAT programs have reported improvements in socialization among patients [32], heightened positive emotional responses [41], and enhanced emotional support [34]. These outcomes suggest that animals play an essential role in enhancing interpersonal relationships and emotional resilience in therapeutic contexts.

Additionally, pet ownership (PO) has been associated with better coping mechanisms for stress and loneliness [42,43], with pets fostering feelings of connectedness and providing consistent emotional support [44,45]. The attachment between pet owners and their animals (pet attachment, PA) is particularly influential in determining the benefits that companion animals provide to their owners' well-being. Highly attached owners report more positive feelings and a greater sense of support [46], a finding that emphasizes the importance of the quality of the HAB in maximizing the psychological benefits of PO. Research also indicates that individuals with strong PA are better able to manage stress and emotional challenges, underscoring the critical role of attachment in the therapeutic effects of companion animals [47–49]. PA is grounded in human attachment theories [50,51] and is defined as the degree of affectionate companionship and mutual physical activity between a pet and its owner, as well as the extent to which the pet is considered a part of the family [52]. Given that domesticated animals are often viewed as companions, attachment naturally forms between pets and their owners [53]. Though there are significant differences between human-to-pet and human-to-human interactions, the owner's attachment needs are partially satisfied by their animals, as research has documented pet owners to frequently perceive their attachment to their pets as comparable to the attachment they have with their children, with pets sometimes filling the roles of surrogate children or partner substitutes [53]. However, further research is necessary to explore the effects of these interventions, the mechanisms underlying their benefits, and the optimal conditions under which they can be most effectively integrated into mental health care, particularly with regard to men.

1.2. HAI, Loneliness, and PWB During the Pandemic

The benefits of HAI have become increasingly evident, particularly during the pandemic, as more than 50% of homes worldwide have companion animals [54]. Theoretical frameworks that justify the emotional benefits of pets underscore their connection with human attachment systems, with theories such as the social catalyst and social support, as well as the biophilia hypothesis, emphasizing their relatedness in the absence of sufficient social connections [55]. Pets can balance this insufficiency by offering a unique form of support to their owners during periods of reduced human interaction, like a pandemic, where the interplay between loneliness, social support, and PA is emphasized. Drawing on the aforementioned theories, pets are perceived as non-judgmental companions that are always available and affectionate, but they can also act as social catalysts, facilitating social interactions with other people [55]. Pet ownership can mitigate the negative impact of loneliness by compensating for a lack of social connections and reducing its detrimental effects on overall well-being, and PA may serve as a compensatory mechanism, enhancing the owner's psychological support and providing them with a sense of connection and

control that buffers against the adverse effects of social isolation [56]. This three-way relationship suggests that the psychological benefits derived from pets during social isolation are rooted in their capacity to simulate human-like attachment bonds while bridging the lack of human connections.

Research indicates that pet ownership is associated with higher levels of physical activity and psychological well-being (PWB) [57–59]. In a cross-sectional study involving 5061 participants, pets were found to play a crucial role in alleviating COVID-19-related anxiety, depression, loneliness, and social isolation while promoting self-compassion and helping owners maintain regular routines [60]. Pet owners also reported an enhanced ability to cope with the pandemic's challenges, including its negative effects on mental health and well-being [60,61]. What is more, the increasing trend in the attachment between pets and owners did not stop even two years after the beginning of the pandemic, indicating the resilience of the HAB against adversity once established [62].

Despite these clear benefits, there are several limitations within the current body of HAI research that warrant attention. Notably, there is a significant gender bias, with female participants being overrepresented, particularly in studies relying on voluntary online participation. This could be due to the tendency of women to engage more actively with social media platforms for communication, while men are more likely to seek information [63]. Furthermore, HAI research has predominantly focused on clinical populations, such as children and older adults [30,33,37], with young and midlife adults, particularly men, being underrepresented in the literature. This gap is concerning, as these groups are particularly vulnerable to the psychological challenges posed by the pandemic, highlighting the need for more inclusive research.

Building on existing research and addressing gaps in the literature, this study aims to examine the relationship between PA, PWB, loneliness, and perceived social support from pets (PSSP) among Greek male pet owners, specifically during the challenging period of the COVID-19 pandemic, which profoundly impacted mental health and social dynamics. This focus on male pet owners is particularly relevant, as the majority of previous studies have primarily investigated the psychological benefits of pet ownership in female populations or broader demographic groups, with limited attention given to men. The hypotheses are as follows: (1) Higher levels of PA will be associated with enhanced PWB. (2) Greater PA will lead to reduced levels of loneliness. (3) Stronger PA will correlate with increased PSSP. These hypotheses are grounded in the premise that PA fosters emotional support and mitigates social isolation. Specifically, PA is expected to reduce loneliness by providing a sense of companionship during periods of disrupted human interaction, such as the COVID-19 pandemic. Similarly, PA is hypothesized to enhance PSSP by strengthening the perceived role of pets as reliable and consistent sources of social and emotional support. By exploring these relationships, this research seeks to deepen the understanding of the HAB from a male perspective and highlight its potential therapeutic benefits for psychological well-being, particularly during the COVID-19 pandemic.

2. Materials and Methods

2.1. Design

This study employed a quantitative, cross-sectional design using an online survey approach. The design was chosen to capture a snapshot of the relationships between pet attachment and various psychological outcomes.

2.2. Participants

To determine the required sample size and avoid a Type II error, a G*Power analysis was conducted. The analysis, based on a medium effect size (0.15), $p < 0.05$, and a power of

0.80, indicated a minimum sample of 55 participants. Participants were required to meet the following inclusion criteria: male Greek citizens ages 18 to 45 years and ownership of at least one pet. Individuals were excluded if they did not meet these criteria, were unable to provide informed consent, or had a diagnosed mental health condition.

2.3. Materials

Data were collected from January 2021 to March 2021 through four self-reported standardized questionnaires. The following self-reported questionnaires were utilized in the study:

Lexington Attachment to Pets Scale (LAPS) [64]: LAPS consists of 23 statements, such as "I consider my pet to be a great companion", measuring pet attachment across three subscales—animal rights and welfare, general attachment, and people substituting. Responses are rated on a 4-point scale (1 = strongly disagree to 4 = strongly agree), with higher scores indicating stronger attachment. Items 8 and 21 were reverse-coded before calculating total scores.

World Health Organization Five Well-Being Index (WHO-5) [65]: The WHO-5 is a five-item scale that measures psychological well-being over the past two weeks. Items such as "I have felt calm and relaxed" are rated on a 6-point scale (0 = at no time to 5 = all of the time). The total score is multiplied by four, with higher scores indicating better well-being.

Three-Item Loneliness Scale (3-item LS) [66]: The 3-item LS measures loneliness using three questions, such as "How often do you feel that you lack companionship?". Responses are given on a 3-point Likert scale (1 = hardly ever, 2 = some of the time, 3 = often), with higher scores reflecting greater loneliness.

Multidimensional Scale of Perceived Social Support—Pets (MSPSS-Pets) [67]: The MSPSS-Pets is a modified version of the original MSPSS, measuring perceived social support from pets. The scale includes nine items, such as "My pet is a real source of comfort for me," rated on a 7-point Likert scale (1 = absolutely disagree to 7 = absolutely agree). Higher scores indicate greater perceived support from pets, with item 5 being reverse coded.

Cronbach's alpha was calculated to assess the internal consistency of the questionnaires. A threshold of 0.70 was employed as the minimum to consider the tools reliable [68]. The LAPS showed very high internal consistency ($\alpha = 0.90$), with the WHO-5, 3-item LS, and MSPSS-Pets also demonstrating strong reliability ($\alpha = 0.83$, $\alpha = 0.75$, and $\alpha = 0.89$).

2.4. Procedure

This study received ethical approval from the University of Derby's Psychology Department before data collection began. The survey was administered electronically, and recruitment occurred through Facebook groups dedicated to pet owners as well as the first researcher's network of pet owners. An invitation to participate was posted in these groups, including a brief description of the study's purpose, inclusion criteria, procedure, duration, and a link to the online survey. Interested participants accessed the survey link, which directed them to an information sheet outlining the study's aims, participant rights, and confidentiality. Participants were also informed that they could withdraw from the study at any time before or after submission of the data.

Participants were required to provide informed consent before proceeding with the survey. After consenting, they were provided with a unique participation code to ensure anonymity. The survey began with a demographics form followed by the four aforementioned questionnaires. Upon completion, participants were presented with a debriefing form, which thanked them for their participation and provided additional reading material

related to the topic. The survey was available from the beginning of January 2021 until the end of March 2021.

To prevent repeat participation, the survey was only available during the designated time period. Participants were assigned a unique participation code, which they were required to enter before accessing the survey. This enabled the researcher to identify and remove any duplicate entries. Furthermore, efforts were made to recruit participants from distinct groups across different regions of Greece, which further minimized the possibility of repeated participation. All data were securely stored on a password-protected computer, in compliance with the Data Protection Act.

2.5. Analytic Strategy

The data were analyzed using IBM SPSS version 27. First, the dataset was screened for errors, and skewness and kurtosis were calculated to examine data distribution. Normality of the data was assessed, and inferential and Pearson's correlation statistics were conducted to explore relationships between the variables. Reliability for each questionnaire was determined using Cronbach's alpha. The study included one predictor variable PA and three outcome variables: PWB, loneliness, and PSSP. Three multiple linear hierarchical regression analyses were conducted to assess the relationships between PA and the outcome variables. The analyses controlled for the demographic variables of age and cohabitation status. A significance level of $p < 0.05$ was set for all statistical tests.

3. Results

3.1. Sample Demographics

A total of 87 male Greek citizens participated in the study, with an average age of 33 (M = 33.36, SD = ±7.52, range 20–45). Regarding cohabitation status, most participants lived with one, two, or three individuals, representing 36.8%, 20.7%, and 20.7% of the sample, respectively. A smaller proportion lived alone (19.5%) or with four or more individuals (2.3%). In terms of pet ownership, participants reported owning between one to four pets, with the majority (60.9%) owning one pet. The types of pets owned varied, with dogs being the most common (60.9%), followed by cats (18.4%). The mean length of pet ownership was 6.20 years (SD = ±3.99), indicating a stable ownership pattern among participants (Table 1).

Table 1. Demographic characteristics of participants (*N* = 87).

Variable	*N* (%)	Mean (±SD)
Age (Years)		33.36 (±7.52)
Employment Status		
Employed	70 (80.5%)	
Unemployed	17 (19.5%)	
Cohabitation Status		
Living Alone	17 (19.5%)	
Cohabiting w/1 Person	32 (36.8%)	
Cohabiting w/2 People	18 (20.7%)	
Cohabiting w/3 People	18 (20.7%)	
Cohabiting w/4 People	2 (2.3%)	

Table 1. *Cont.*

Variable	*N* (%)	Mean (±SD)
Number of Pets Owned		1.53 (±0.79)
1 Pet	53 (60.9%)	
2 Pets	26 (29.9%)	
3 Pets	4 (4.6%)	
4 Pets	4 (4.6%)	
Type of Pets Owned		
Dogs	53 (60.9%)	
Cats	16 (18.4%)	
Birds	1 (1.1%)	
Fish	1 (1.1%)	
Dogs and Cats	14 (16.1%)	
Dogs, Cats, and Other	2 (2.3%)	
Length of Ownership (Years)		6.20 (±3.99)
Minimum	0.5 (5.7%)	
Maximum	17 (1.1%)	

3.2. Distribution Descriptives

Results indicated a problem with the statistics of skewness for the total scores of PA (Zskew = −2.86) and loneliness (Zskew = 2.05), but no outlier was identified in the boxplots. Moreover, the Shapiro–Wilk (SW) test of normality for the testing variables was significant for all variables except one, hence PWB met the assumption of normal distribution ($D(87) = 0.983$, $p = 0.295$), while PA ($D(87) = 0.929$, $p < 0.001$), loneliness ($D(87) = 0.902$, $p < 0.001$), and PSSP did not ($D(87) = 0.956$, $p = 0.005$). According to Field [69], normality tests struggle with small samples, and transformations may worsen results. Additionally, multiple regression is robust enough to withstand the violation of some of its parametric assumptions [70]; thus, no further amendments were performed (Table 2).

Table 2. Skewness and kurtosis of testing variables.

Variable	Z skewness	Z kurtosis
PA	−2.868	−0.502
PWB	0.240	−1.238
Loneliness	2.050	−1.410
PSSP	−1.666	−0.575

3.3. Descriptive Statistics

The mean score for PA was 77.21 (SD = ±10.05, range = 52–92), indicating that the majority of the owners were quite attached to their pets. The mean reported for PWB was 51.68 (SD = ±20.39, range = 4–96), suggesting that participants had experienced moderate well-being in the last two weeks prior to their participation, while the mean score for loneliness was 5.01 (SD = ±1.73, range = 3–9), indicative of feelings of loneliness in the participants "some of the time". For the PSSP, mean score was 45.06 (SD = ±11.53,

range = 13–62), suggesting that on average participants perceived their pets as a form of social support (Table 3).

Table 3. Descriptive statistics with mean (st. deviation) and minimum/maximum values of LAPS, WHO-5, three-item LS, and MSPSS-Pets.

Variable	Mean (±SD)	Minimum	Maximum
PA	77.21 (±10.05)	52	92
PWB	51.68 (±20.39)	4	96
Loneliness	5.01 (±1.73)	3	9
PSSP	45.06 (±11.53)	13	62

3.4. Pearson's Correlation

A correlational design was employed to examine if PA, controlling for age and cohabitation status, can predict PWB, loneliness, and PSSP scores. Results were indicative of no correlation between PA and PWB (r(85) = 0.099, $p = 0.361$) or PA and loneliness (r(85) = −0.036, $p = 0.740$). However, a statistically significant strong positive correlation was documented between PA and PSSP (r(85) = 0.783, $p < 0.001$) (Table 4).

Table 4. Correlation coefficients (and significance levels) for the predictor and outcome variables, age, and cohabitation status.

Variable	PA	PWB	Loneliness	PSSP	Age	Cohabitation
PA	-	0.099 ($p = 0.361$)	−0.036 ($p = 0.740$)	0.783 *** ($p < 0.001$)	−0.061 ($p = 0.576$)	−0.010 ($p = 0.924$)
PWB	0.099 ($p = 0.361$)	-	−0.487 *** ($p < 0.001$)	0.083 ($p = 0.445$)	0.242 * ($p = 0.024$)	−0.192 ($p = 0.075$)
Loneliness	−0.036 ($p = 0.740$)	−0.487 *** ($p < 0.001$)	-	−0.080 ($p = 0.460$)	−0.137 ($p = 0.207$)	0.137 ($p = 0.205$)
PSSP	0.783 *** ($p < 0.001$)	0.083 ($p = 0.445$)	−0.080 ($p = 0.460$)	-	−0.189 ($p = 0.079$)	0.047 ($p = 0.664$)
Age	−0.061 ($p = 0.576$)	0.242 * ($p = 0.024$)	−0.137 ($p = 0.207$)	−0.189 ($p = 0.079$)	-	0.012 ($p = 0.911$)
Cohabitation	−0.010 ($p = 0.924$)	−0.192 ($p = 0.075$)	0.137 ($p = 0.205$)	0.047 ($p = 0.664$)	0.012 ($p = 0.911$)	-

Note. * $p \leq 0.05$. *** $p \leq 0.001$.

3.5. Multiple Hierarchical Regressions

In accordance with Field [69], untransformed data were utilized in the analysis. Furthermore, preliminary analyses were conducted to ensure that assumptions for the regression were met. Firstly, the sample size exceeded the recommended threshold. In addition, inspection of the scatter plots revealed the predictor variable to be linearly related to PSSP, thus meeting linearity assumptions, but weakly related to PWB and loneliness. The data met the assumption of non-zero variances. Pearson's correlations did not surpass the recommended multicollinearity threshold of 0.80 [70]. Moreover, an examination of tolerance and VIF values further demonstrated the absence of collinearity, as all variables had values of (or close to) 1, and hence the data met the assumption of independent errors [69]. The Durbin–Watson statistic for PWB yielded a value of 2.28, indicative of no presence of autocorrelation. In a similar manner, loneliness (1.92) and PSSP (2.02) both had scores close to 2, suggesting that the assumption had almost certainly been met [69]. Hence, multiple

hierarchical linear regression analyses were employed to evaluate the prediction of PWB, loneliness, and PSSP scores from PA scores.

3.5.1. PWB Multiple Hierarchical Regression

PA scores, controlling for the participant's age and cohabitation status, were added as predictors in a multiple hierarchical regression model, and PWB was added as the outcome. For the first analysis model, the control variable "age" was analyzed. Results revealed a small effect size (R^2 = 0.059, R^2Adj = 0.048), accounting for a significant variance of 5.9% in PWB (F(1, 85) = 5.30, p = 0.024). For the second analysis model, the control variable "cohabitation status" was added to the analysis. Results exhibited a small effect size (R^2change = 0.038), accounting for no significant variance in PWB (Fchange(1, 84) = 3.54, p = 0.063). A similar outcome was found regarding the third analysis model, when total PA scores were added; the results displayed a small effect size (R^2change = 0.013), accounting for no significant variance in PWB (Fchange(1, 83) = 1.17, p = 0.282). In total, the three predictors had a small effect size (R^2 = 0.109, R^2Adj = 0.077), which accounted for a significant variance of 10.9% in PWB (F(3, 83) = 3.39, p = 0.022), suggesting that age, cohabitation status, and PA can weakly predict PWB in men.

Furthermore, regarding the third model, there was a significant positive relationship between age and PWB (t = 2.42, df = 86, p = 0.018), with the model predicting that with each additional unit of age, PWB will increase by 0.682 units. However, neither cohabitation status (t = −1.87, df = 86, p = 0.065) nor PA (t = 1.08, df = 86, p = 0.282) could significantly predict PWB (Table 5).

Table 5. Hierarchical regression results for psychological well-being.

Variables	B	95% CI *B*		*SE* B	β	R^2	ΔR^2
		LL	*UL*				
Model 1						0.06	0.05v *
Constant	29.76	10.37	49.16	9.75			
Age	0.66	0.09	1.22	0.29	0.24 *		
Model 2						0.10	0.08
Constant	34.96	15.08	54.85	10.00			
Age	0.66	0.10	1.22	0.28	0.24 *		
Cohabitation Status	−3.62	−7.45	0.21	1.93	−0.20		
Model 3						0.11	0.08
Constant	16.70	−22.27	55.67	19.59			
Age	0.68	0.12	1.24	0.28	0.25 *		
Cohabitation Status	−3.60	−7.43	0.22	1.92	−0.19		
Total Pet Attachment	0.23	−0.19	0.65	0.21	0.11		

Note. CI = confidence interval; LL = lower limit; UL = upper limit. * $p \leq 0.05$.

3.5.2. Loneliness Multiple Hierarchical Regression

The same multiple hierarchical regression analysis was employed examining loneliness as its outcome. Results from all three models revealed small effect sizes (Model 1L: R^2 = 0.019, R^2Adj = 0.007; Model 2L: R^2change = 0.019; Model 3L: R^2change = 0.002), accounting for no significant variance in loneliness levels. (Model 1L: F(1, 85) = 1.61, p = 0.207; Model 2L: Fchange(1, 84) = 1.68, p = 0.198; Model 3L: Fchange(1, 83) = 0.161, p = 0.689). In total, the three predictors also had a small effect size (R^2 = 0.040, R^2Adj = 0.005), which accounted for no significant variance in loneliness scores (F(3, 83) = 1.14, p = 0.335), indicating that age, cohabitation status, and PA cannot predict loneliness in Greek male pet owners (Table 6).

Table 6. Hierarchical regression results for loneliness.

Variables	B	95% CI *B*		*SE* B	β	R^2	ΔR^2
		LL	*UL*				
Model 1						0.02	0.05 *
Constant	6.06	4.38	7.75	0.85			
Age	−0.03	−0.08	0.02	0.02	−0.14		
Model 2						0.04	0.08
Constant	5.75	4.00	7.49	0.88			
Age	−0.03	−0.08	0.02	0.02	−0.14		
Cohabitation Status	0.22	−0.12	0.56	0.17	0.14		
Model 3						0.04	0.08
Constant	6.34	2.90	9.79	1.73			
Age	−0.03	−0.08	0.02	0.02	0.14		
Cohabitation Status	0.22	−0.12	0.56	0.17	−0.04		
Total Pet Attachment	−0.01	−0.04	0.03	0.02	−0.14		

Note. CI = confidence interval; LL = lower limit; UL = upper limit. * $p \leq 0.05$.

3.5.3. PSSP Multiple Hierarchical Regression

Lastly, the same multiple hierarchical regression model was applied with PSSP as its outcome. The first regression model results revealed a small effect size (R^2 = 0.036, R^2Adj = 0.025), accounting for no significant variance in PSSP (F(1, 85) = 3.16, p = 0.079). For the second analysis model, results followed a similar trend, exhibiting a small effect size (R^2change = 0.002), accounting for no significant variance in PSSP (Fchange(1, 84) = 0.215, p = 0.644). However, in the third analysis model, as PA was added to the predictors, the results revealed a large effect size (R^2change = 0.598), accounting for a significant variance of 59.8% in PSSP scores (Fchange(1, 83) = 136.44, $p < 0.001$). In total, the regression model of all three predictors produced a large effect size (R^2 = 0.636, R^2Adj = 0.623), accounting for a significant variance of 63.6% in PSSP scores, indicating that age, cohabitation status, and PA were significant predictors of the levels of social support owners perceived from their pets (F(3, 83) = 48.40, $p < 0.001$).

Furthermore, regarding the third model, there was a significant negative relationship between age and PSSP (t = −2.15, df = 86, p = 0.034), with the model predicting that with each additional unit of age, PSSP would decrease by −0.219 units. Results also revealed a significant positive relationship between PA and PSSP (t = 11.68, df = 86, $p < 0.001$), with the model predicting that one unit change in PA would result in an additional 0.88 units in PSSP. However, cohabitation status could not predict PSSP levels (t = 0.863, df = 86, p = 0.391) (Table 7).

Table 7. Hierarchical regression results for perceived social support from pets.

Variables	B	95% CI *B*		*SE* B	β	R^2	ΔR^2
		LL	*UL*				
Model 1						0.04	0.05 *
Constant	54.75	43.64	65.85	5.58			
Age	−0.29	−0.62	0.03	0.16	−0.19		
Model 2						0.04	0.08
Constant	54.00	42.39	65.60	5.84			
Age	−0.29	−0.62	0.03	0.16	−0.19		
Cohabitation Status	0.52	−1.71	2.76	1.12	0.05		
Model 3						0.64	0.08
Constant	−17.17	−31.25	−3.08	7.08			
Age	−0.22	−0.42	−0.02	0.10	−0.14 *		
Cohabitation Status	0.60	−0.78	1.98	0.70	0.06		
Total Pet Attachment	0.89	0.74	1.04	0.08	0.77 ***		

Note. CI = confidence interval; LL = lower limit; UL = upper limit. * $p \leq 0.05$. *** $p \leq 0.001$.

4. Discussion

The current study explored the impact of PA on men's PWB, loneliness, and perceived social support from their pets during the COVID-19 pandemic. Results were mixed, with the primary hypothesis, suggesting that PA would positively impact men's PWB, being rejected. The findings support the view that PA can enhance men's perceived social support from their pets, but the relationship between PA and loneliness, as well as PA and PWB, remains unclear.

4.1. Pet Attachment and Psychological Well-Being

Although the research predicted that men with higher PA levels would exhibit greater PWB, this was not confirmed. Previous literature presents inconsistent results regarding the effects of PA on well-being. On the one hand, several studies have highlighted the psychosocial benefits of pets in improving owners' mental health and well-being [58,60,71]. On the other hand, contrasting studies argue that the assumption of a "generalized pet effect" on mental health lacks solid evidence [72,73]. For younger adults, pets can be perceived as additional responsibilities rather than sources of relief, especially in times like a pandemic [73]. These conflicting findings underscore the complexity of understanding how the HAB affects different individuals.

Furthermore, while research has highlighted the positive impact pets have on vulnerable populations, such as hospitalized patients [39], these benefits may not directly translate to pet owners in home environments. For instance, some studies suggest that people who are highly attached to their pets are more likely to experience depression [74]. Given that much of the literature focuses on women, the minimal impact of PA on men's well-being could be due to gender-related differences. Women have also been found to derive more psychological benefits from the HAB [75], a factor which could explain the weaker association in men [76].

4.2. Pet Attachment and Loneliness

This study also hypothesized that higher levels of PA would be associated with reduced loneliness in men. However, this hypothesis was again unsupported. The relationship between PO and loneliness is another area where previous research is lacking, with systematic reviews throughout the last decade providing little conclusive evidence that owning a pet reduces loneliness [77]. Similar results have been documented during the pandemic, with research reporting no significant impact of PO on owners' social or emotional loneliness [62,78]. In a longitudinal study, pet owners living alone fared slightly better in terms of loneliness compared to non-owners, but overall, there was no consistent evidence that PO reduces loneliness during a pandemic [79]. In other cases, PO not only predicted higher levels of loneliness in owners [80] but also increases in their loneliness compared to pre-pandemic conditions [81]. Therefore, this further suggests that during stressful events, pet ownership may prove to be an additional strain to an already challenging time [80].

4.3. Gender Differences in Pet Attachment

Gender-related differences and pandemic-related stressors may explain the nonsignificant findings regarding PA and men's PWB and loneliness. Numerous studies suggest that women benefit more from HAIs than men [60,67]. Gender has been identified as one of the strongest predictors of attachment to pets, with women consistently showing closer attachments compared to men [82]. This difference may stem from women's greater levels of empathy and a higher willingness, particularly among older women, to replace contact with humans through interactions with pets [77]. Furthermore, the verbal aspect of communication plays a more significant role for women in the human–animal relationship.

Women are more likely to use "baby talk" when interacting with their pet, strengthening the HAB [83]. In contrast, men are typically more inhibited when talking to their pets [83] and often exhibit avoidant attachment behaviours toward them, such as minimal emotional engagement, inconsistent attention, avoidance of dependency, and reluctance to express affection, which impairs the development of the HAB [84]. One explanation for this phenomenon is that men who endorse traditional male gender roles, which emphasize power, restricted emotionality, and avoidance of actions seen as "stereotypically feminine", may underreport their psychological issues and the strength of attachment to their pet to avoid appearing unmanly [85,86]. This poses a significant challenge in the research field, as self-reports from male participants ought to be measured within the context of restrictive gender norms [85]. This goes to show why expanding the focus on men is particularly valuable due to both their vast underrepresentation in the context of HAI research and their demonstrated vulnerabilities in other domains, such as weaker resilience in the face of economic recessions. Understanding the specific motivations behind male PO adds depth to the exploration of gender differences in PA and offers a nuanced perspective on their distinct experiences regarding the HAB, while noticing PA dynamics unique to males and debunking the notion that the HAB is not as meaningful and beneficial for men [85].

The current findings might also have been negatively influenced by difficulties with pet care unique to this pandemic. Research indicates that pet owners faced added responsibilities, such as caring for pets during work-from-home periods, financial strains, and concerns about pet healthcare [60,87,88]. These stressors were further amplified as disruptions to routines caused pets to develop behavioural problems, negatively impacting the well-being of both parties [87]. These circumstances may have further prevented men from fully experiencing the psychological benefits of PA, complicating our findings.

4.4. Pet Attachment and Perceived Social Support

On a more positive note, the study confirmed its final hypothesis, as greater PA predicted increases in the social support men experienced from their pet during the pandemic. The more attached men were to their pets, the more they perceived their pets as a source of social support. This finding aligns with existing research on the social benefits of PO, which highlight how pets fulfil emotional needs by offering companionship and comfort [89,90]. HAI has been reported to provide social support through acting as a social conduit, facilitating human interactions and fostering a sense of community [44,90], as owners often consider their pets as a source of emotional support [47]. Companion animals fulfil their owners' needs by providing them with tactile comfort, unconditional affection, non-judgmental companionship, and ultimately, a recreational distraction from their daily hardships [90].

Additionally, pets provide owners with a sense of being needed, which contributes to their purpose and PWB [67,91]. Owners who care for their pets by feeding them, playing with them, and meeting their needs may experience psychological benefits similar to those that come from caregiving in human relationships, since pets act as a source of need fulfilment and relatedness in their own way [91]. It deserves mentioning that pets are non-demanding social companions that provide support without the complexities of human interaction [67], often being viewed as a "refuge from human communication" [91], mitigating the consequences of social rejection [67].

4.5. Demographic Factors

This study also examined how demographic factors, age, and cohabitation status affected men's PWB, loneliness, and PSSP. Age had a significant positive relationship with PWB, with older men reporting greater well-being. This finding is consistent with previous

research suggesting that older adults tend to experience more gratitude towards life [92], better emotional well-being [93,94], and less pandemic-related stress [94]. What is more, age has been suggested as a significant moderator of the association between PO and PWB, with owners ages 30 years and older displaying greater PWB compared to their younger counterparts [57,58].

Interestingly, age had a negative relationship with PSSP, with older men perceiving less social support from their pets. This is consistent with prior research showing that as people age, their attachment often fades [95], thus leaving room to suggest that by extension, and in line with our findings, their perceived social support from them diminishes also. Although the reasons for this decline have not been thoroughly investigated, research suggests older men score lower on perceived support from close others compared to younger age groups [96] either because young adults seek out more support or as research emphasizes their need for ongoing support compared to the elderly [97]. Additionally, gender role conflict, referring to the psychological state in which restrictive definitions of masculinity negatively influence one's well-being [98], has been suggested to limit older men's perception of the availability of social support by hindering their ability to recognize supporting relationships [99].

Lastly, while previous research has indicated that cohabitation serves as a protective factor for well-being [20], in the current study, cohabitation could not predict men's PWB. In a study by Van Hedel et al. [100], cohabiting men were reported to have fewer healthcare visits and higher alcohol-related problems compared to single men. In the case of how lonely men felt, neither age nor cohabitation status could predict changes. This finding contradicts numerous previous studies that emphasize young adults' susceptibility to loneliness [14,101] and the commonly seen U-shaped curve of age predicting higher loneliness for young and older adults [102,103].

4.6. Strengths and Limitations

This study's use of short, validated questionnaires represents a key strength, ensuring efficiency and reliability in collecting data within a limited timeframe [104]. Another notable strength lies in its focus on men, a population often underrepresented in research exploring the psychological benefits of pet ownership and attachment to animals. This focus is particularly interesting given the unique challenges men face in seeking emotional support due to societal norms and stigmas surrounding emotional expression and mental health. By targeting men specifically, this study addresses a critical gap in the literature and provides valuable insights into how attachment to pets might serve as an alternative source of social and emotional support, especially during a period of heightened isolation like the COVID-19 pandemic. However, this study was not without its challenges. A notable limitation was the small sample size, which may have introduced bias and impacted the generalizability of the findings. Similarly, the inclusion of only Greek male pet owners may not account for cultural differences regarding pet ownership in men. The non-representativeness of the sample compared to the general population limits the applicability of the results to all men. A more heterogeneous sample could have provided more robust and generalizable outcomes. Various confounding variables were not considered, including marital and parental status, educational level, socioeconomic status, and housing type. These factors have been shown to influence the benefits of PO. For instance, single individuals often derive greater benefits from their pets [75], while socioeconomic challenges may exacerbate difficulties related to pet ownership, potentially leading to pet relinquishment [88]. Similarly, housing type can affect the level of bonding between pet and owner; research has documented that owners living in apartments with their pets often report closer interactions and greater benefits [89].

This study's cross-sectional design presents another limitation, as it prevents the establishment of causal relationships. Furthermore, the self-reported nature of the study may have introduced bias, particularly given men's tendency to underreport emotional issues [88]. Self-selection bias may also have influenced the findings, as participants may share specific characteristics, such as greater interest in pet ownership or mental health, which could limit the representativeness of the sample. The study also did not differentiate between pet species, which may have impacted the results. Different animals could have varying effects on their owners' well-being, and factors such as the quality of interaction, time spent together, and the nature of the human–animal bond were not explored. Additionally, the unique social isolation caused by the COVID-19 pandemic likely influenced the findings, as this context created heightened dependence on pets for emotional and social support. Finally, the measures used in the study may not fully capture the subjective experience of participants, and the reliance on self-report tools adds another layer of potential bias.

4.7. Future Research

Future research should address the limitations identified in this study. Specifically, larger samples and more rigorous methodologies, such as longitudinal studies or randomized controlled trials, should be employed to gain a deeper understanding of the relationship between PA and men's well-being. Additionally, the development of specific scales for measuring men's attachment to their pets—sensitive to gender-related biases—could enhance research by highlighting the unique dynamics of PA in male pet owners and challenging the notion that the HAB is less beneficial for them [105]. Furthermore, traditional measures of loneliness and social support may not fully capture the ways in which men experience these relationships, particularly in the context of pet ownership. Research should also consider the influence of other demographic factors, such as marital status, socioeconomic status, and type of housing. Examining the role of pet type and the quality of the human–animal bond could provide deeper insights into the nuanced ways pets impact men's psychological well-being. Finally, given the lack of suitable measures for men's attachment and its benefits, qualitative research could offer richer insights into how men perceive their relationships with pets, helping to overcome the limitations of self-report surveys.

5. Conclusions

To summarize, this study examined the relationship between PA and Greek men's PWB, loneliness, and PSSP during the COVID-19 pandemic. The findings reveal that while PA was positively associated with PSSP, no significant relationships were found between PA and PWB or loneliness. These results suggest that while pets may provide important social support to men during times of crisis, their influence on broader psychological outcomes such as well-being and loneliness may be less substantial. This could be attributed to gender-specific factors influencing emotional attachment and coping mechanisms, indicating that the impact of pets on men's mental health may differ from that of women. These findings highlight the complexity of the human–animal bond and underscore the need for a nuanced understanding of how such relationships affect mental health outcomes in men.

Author Contributions: Conceptualization, S.Z.; methodology, S.Z.; formal analysis, S.Z.; investigation, S.Z.; Visualization: S.Z. and P.T.; writing—original draft preparation, S.Z.; writing—review and editing, S.Z. and P.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of Derby University (protocol code 100436619 and date of approval 18 December 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Acknowledgments: The authors would like to thank the participants for their contribution.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Pai, N.; Vella, S.L. COVID-19 and loneliness: A rapid systematic review. *Aust. N. Z. J. Psychiatry* **2021**, *55*, 1144–1156. [CrossRef] [PubMed]
2. Nagasu, M.; Muto, K.; Yamamoto, I. Impacts of anxiety and socioeconomic factors on mental health in the early phases of the COVID-19 pandemic in the general population in Japan: A web-based survey. *PLoS ONE* **2021**, *16*, e0247705. [CrossRef] [PubMed]
3. Leigh-Hunt, N.; Bagguley, D.; Bash, K.; Turner, V.; Turnbull, S.; Valtorta, N.; Caan, W. An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health* **2017**, *152*, 157–171. [CrossRef] [PubMed]
4. Berg, R.L.; Cassells, J.S. Social isolation among older individuals: The relationship to mortality and morbidity. In *The Second Fifty Years: Promoting Health and Preventing Disability*; National Academies Press: Washington, DC, USA, 1992.
5. Tragantzopoulou, P.; Giannouli, V. Social isolation and loneliness in old age: Exploring their role in mental and physical health. *Psychiatriki* **2021**, *32*, 59–66. [CrossRef]
6. McClelland, H.; Evans, J.J.; Nowland, R.; Ferguson, E.; O'Connor, R.C. Loneliness as a predictor of suicidal ideation and behaviour: A systematic review and meta-analysis of prospective studies. *J. Affect. Disord.* **2020**, *274*, 880–896. [CrossRef]
7. Mann, F.; Wang, J.; Pearce, E.; Ma, R.; Schlief, M.; Lloyd-Evans, B.; Johnson, S. Loneliness and the Onset of New Mental Health Problems in the General Population: A Systematic Review. *medRxiv* **2021**. Available online: https://www.medrxiv.org/content/10.1101/2021.01.26.21250587v2 (accessed on 12 March 2022).
8. Statista. Impact of COVID-19 on Mental Wellbeing Worldwide 2021. Available online: https://www.statista.com/statistics/1218053/impact-of-covid-19-on-mental-wellbeing-worldwide/ (accessed on 14 March 2022).
9. Antonakakis, N.; Collins, A. The impact of fiscal austerity on suicide: On the empirics of a modern Greek tragedy. *Soc. Sci. Med.* **2014**, *112*, 39–50. [CrossRef]
10. Coope, C.; Gunnell, D.; Hollingworth, W.; Hawton, K.; Kapur, N.; Fearn, V.; Wells, C.; Metcalfe, C. Suicide and the 2008 economic recession: Who is most at risk? Trends in suicide rates in England and Wales 2001–2011. *Soc. Sci. Med.* **2014**, *117*, 76–85. [CrossRef]
11. White, A. Men and COVID-19: The aftermath. *Postgrad. Med.* **2020**, *132*, 18–27. [CrossRef]
12. Kowal, M.; Coll-Martín, T.; Ikizer, G.; Rasmussen, J.; Eichel, K.; Studzińska, A.; Koszałkowska, K.; Karwowski, M.; Najmusaaqib, A.; Pankowski, D.; et al. Who is the most stressed during the COVID-19 pandemic? Data from 26 countries and areas. *Appl. Psychol. Health Well-Being* **2020**, *12*, 946–966. [CrossRef]
13. Nwachukwu, I.; Nkire, N.; Shalaby, R.; Hrabok, M.; Vuong, W.; Gusnowski, A.; Surood, S.; Urichuk, L.; Greenshaw, A.J.; Agyapong, V.I. COVID-19 pandemic: Age-related differences in measures of stress, anxiety and depression in Canada. *Int. J. Environ. Res. Public Health* **2020**, *17*, 6366. [CrossRef] [PubMed]
14. Birditt, K.S.; Turkelson, A.; Fingerman, K.L.; Polenick, C.A.; Oya, A. Age differences in stress, life changes, and social ties during the COVID-19 pandemic: Implications for psychological well-being. *Gerontologist* **2021**, *61*, 205–216. [CrossRef] [PubMed]
15. Horesh, D.; Kapel Lev-Ari, R.; Hasson-Ohayon, I. Risk factors for psychological distress during the COVID-19 pandemic in Israel: Loneliness, age, gender, and health status play an important role. *Br. J. Health Psychol.* **2020**, *25*, 925–933. [CrossRef] [PubMed]
16. Nursalam, N.; Sukartini, T.; Priyantini, D.; Mafula, D.; Efendi, F. Risk factors for psychological impact and social stigma among people facing COVID-19: A systematic review. *Syst. Rev. Pharm.* **2020**, *11*, 1022–1028.
17. Benke, C.; Autenrieth, L.K.; Asselmann, E.; Pané-Farré, C.A. Lockdown, quarantine measures, and social distancing: Associations with depression, anxiety and distress at the beginning of the COVID-19 pandemic among adults from Germany. *Psychiatry Res.* **2020**, *293*, 113462. [CrossRef]
18. Bu, F.; Steptoe, A.; Fancourt, D. Who is lonely in lockdown? Cross-cohort analyses of predictors of loneliness before and during the COVID-19 pandemic. *Public Health* **2020**, *186*, 31–34. [CrossRef]
19. Coppola, I.; Rania, N.; Parisi, R.; Lagomarsino, F. Spiritual well-being and mental health during the COVID-19 pandemic in Italy. *Front. Psychiatry* **2021**, *12*, 296. [CrossRef]

20. Groot, J.; Keller, A.; Joensen, A.; Nguyen, T.L.; Nybo Andersen, A.M.; Strandberg-Larsen, K. Impact of housing conditions on changes in youth's mental health following the initial national COVID-19 lockdown: A cohort study. *Sci. Rep.* **2022**, *12*, 1939. [CrossRef]
21. Forte, G.; Favieri, F.; Tambelli, R.; Casagrande, M. The enemy which sealed the world: Effects of COVID-19 diffusion on the psychological state of the Italian population. *J. Clin. Med.* **2020**, *9*, 1802. [CrossRef]
22. García-Fernández, L.; Romero-Ferreiro, V.; Padilla, S.; López-Roldán, P.D.; Monzó-García, M.; Rodriguez-Jimenez, R. Gender differences in emotional response to the COVID-19 outbreak in Spain. *Brain Behav.* **2021**, *11*, e01934. [CrossRef]
23. Rania, N.; Coppola, I. Psychological impact of the lockdown in Italy due to the COVID-19 outbreak: Are there gender differences? *Front. Psychol.* **2021**, *12*, 476. [CrossRef] [PubMed]
24. Bhuiyan, A.K.M.; Sakib, N.; Pakpour, A.H.; Griffiths, M.D.; Mamun, M.A. COVID-19-related suicides in Bangladesh due to lockdown and economic factors: Case study evidence from media reports. *Int. J. Ment. Health Addict.* **2021**, *19*, 2110–2115. [CrossRef] [PubMed]
25. Khan, A.R.; Ratele, K.; Arendse, N. Men, suicide, and COVID-19: Critical masculinity analyses and interventions. *Postdigit. Sci. Educ.* **2020**, *2*, 651–656. [CrossRef]
26. Mamun, M.A.; Ullah, I. COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty? The forthcoming economic challenges for a developing country. *Brain Behav. Immun.* **2020**, *87*, 163. [CrossRef]
27. Thakur, V.; Jain, A. COVID-19-suicides: A global psychological pandemic. *Brain Behav. Immun.* **2020**, *88*, 952. [CrossRef]
28. Bussolari, C.; Currin-McCulloch, J.; Packman, W.; Kogan, L.; Erdman, P. "I Couldn't Have Asked for a Better Quarantine Partner!": Experiences with companion dogs during COVID-19. *Animals* **2021**, *11*, 330. [CrossRef]
29. Christian, H.; Bauman, A.; Epping, J.; Levine, G.N.; McCormack, G.; Rhodes, R.E.; Richards, E.; Rock, M.; Westgarth, C. Encouraging dog walking for health promotion and disease prevention. *Am. J. Lifestyle Med.* **2018**, *12*, 233–243. [CrossRef]
30. Kirkham, A.C.; OHAIRE Group. What is Human-Animal Interaction? *Haettu* **2021**, *24*, 2021.
31. American Veterinary Medical Association. Human-Animal Bond. 2018. Available online: https://www.avma.org/one-health/human-animal-bond#:~:text=The%20human-animal%20bond%20is,,%20animals,%20and%20the%20environment (accessed on 2 January 2020).
32. Gee, N.R.; Mueller, M.K. A systematic review of research on pet ownership and animal interactions among older adults. *Anthrozoös* **2019**, *32*, 183–207. [CrossRef]
33. Chang, S.J.; Lee, J.; An, H.; Hong, W.H.; Lee, J.Y. Animal-assisted therapy as an intervention for older adults: A systematic review and meta-analysis to guide evidence-based practice. *Worldviews Evid. Based Nurs.* **2021**, *18*, 60–67. [CrossRef]
34. Koukourikos, K.; Georgopoulou, A.; Kourkouta, L.; Tsaloglidou, A. Benefits of animal-assisted therapy in mental health. *Int. J. Caring Sci.* **2019**, *12*, 1898–1905.
35. Bender, Y.; Bräuer, J.; Schweinberger, S.R. What makes a good dog-owner team?–A systematic review about compatibility in personality and attachment. *Appl. Anim. Behav. Sci.* **2023**, *260*, 105857. [CrossRef]
36. Charry-Sánchez, J.D.; Pradilla, I.; Talero-Gutiérrez, C. Animal-assisted therapy in adults: A systematic review. *Complement. Ther. Clin. Pract.* **2018**, *32*, 169–180. [CrossRef]
37. Hughes, M.J.; Verreynne, M.L.; Harpur, P.; Pachana, N.A. Companion animals and health in older populations: A systematic review. *Clin. Gerontol.* **2020**, *43*, 365–377. [CrossRef]
38. Lundqvist, M.; Carlsson, P.; Sjödahl, R.; Theodorsson, E.; Levin, L.Å. Patient benefit of dog-assisted interventions in health care: A systematic review. *BMC Complement. Altern. Med.* **2017**, *17*, 358. [CrossRef]
39. Borgi, M.; Collacchi, B.; Giuliani, A.; Cirulli, F. Dog visiting programs for managing depressive symptoms in older adults: A meta-analysis. *Gerontologist* **2020**, *60*, 66–75. [CrossRef]
40. Jones, M.G.; Rice, S.M.; Cotton, S.M. Incorporating animal-assisted therapy in mental health treatments for adolescents: A systematic review of canine-assisted psychotherapy. *PLoS ONE* **2019**, *14*, e0210761. [CrossRef]
41. Ambrosi, C.; Zaiontz, C.; Peragine, G.; Sarchi, S.; Bona, F. Randomized controlled study on the effectiveness of animal-assisted therapy on depression, anxiety, and illness perception in institutionalized elderly. *Psychogeriatrics* **2019**, *19*, 55–64. [CrossRef]
42. Purewal, R.; Christley, R.; Kordas, K.; Joinson, C.; Meints, K.; Gee, N.; Westgarth, C. Companion animals and child/adolescent development: A systematic review of the evidence. *Int. J. Environ. Res. Public Health* **2017**, *14*, 234. [CrossRef]
43. Ratschen, E.; Shoesmith, E.; Shahab, L.; Silva, K.; Kale, D.; Toner, P.; Reeve, C.; Mills, D.S. Human-animal relationships and interactions during the COVID-19 lockdown phase in the UK: Investigating links with mental health and loneliness. *PLoS ONE* **2020**, *15*, e0239397. [CrossRef]
44. Wood, L.; Martin, K.; Christian, H.; Nathan, A.; Lauritsen, C.; Houghton, S.; Kawachi, I.; McCune, S. The pet factor—Companion animals as a conduit for getting to know people, friendship formation, and social support. *PLoS ONE* **2015**, *10*, e0122085. [CrossRef] [PubMed]

45. Brooks, H.L.; Rushton, K.; Lovell, K.; Bee, P.; Walker, L.; Grant, L.; Rogers, A. The power of support from companion animals for people living with mental health problems: A systematic review and narrative synthesis of the evidence. *BMC Psychiatry* **2018**, *18*, 31. [CrossRef] [PubMed]
46. Pranschke, M.C. Pet Ownership, Attachment, and Well-Being. Ph.D. Thesis, Carleton University, Ottawa, ON, Canada, 2019. Available online: https://repository.library.carleton.ca/concern/etds/3t945r62n (accessed on 11 December 2024).
47. Meehan, M.; Massavelli, B.; Pachana, N. Using attachment theory and social support theory to examine and measure pets as sources of social support and attachment figures. *Anthrozoös* **2017**, *30*, 273–289. [CrossRef]
48. Li, K.; Tang, F.; Rauktis, M. Commitment and attachment to pet and emotional well-being among low-income pet owners. *Innov. Aging* **2020**, *4*, 114. [CrossRef]
49. Namekata, D.; Yamamoto, M. Companion animal ownership and mood states of university students majoring in animal sciences during the COVID-19 pandemic in Japan. *Animals* **2021**, *11*, 2887. [CrossRef]
50. Ainsworth, M.S.; Bell, S.M. Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Dev.* **1970**, *41*, 49–67. [CrossRef]
51. Bowlby, J. *Attachment and Loss: Volume I: Attachment*; Basic Books: New York, NY, USA, 1969.
52. El-Alayli, A.; Lystad, A.L.; Webb, S.R.; Hollingsworth, S.L.; Ciolli, J.L. Reigning cats and dogs: A pet-enhancement bias and its link to pet attachment, pet-self similarity, self-enhancement, and well-being. *Basic Appl. Soc. Psychol.* **2006**, *28*, 131–143. [CrossRef]
53. Daddow, K.A. Pets Impact on Perceived Social Support: An Attachment Perspective. Ph.D. Thesis, Alliant International University, San Diego, CA, USA, 2022.
54. Ellis, A.; Stanton, S.C.; Hawkins, R.D.; Loughnan, S. The link between the nature of the human–companion animal relationship and well-being outcomes in companion animal owners. *Animals* **2024**, *14*, 441. [CrossRef]
55. Barcelos, A.M.; Kargas, N.; Maltby, J.; Mills, D.S. Potential psychosocial explanations for the impact of pet ownership on human well-being: Evaluating and expanding current hypotheses. *Hum.-Anim. Interact* **2023**. [CrossRef]
56. Lu, J.; Ren, E.; Guo, X.; Zhou, Z.; Wang, Y.; Zhang, N. The role of pet attachment in alleviating the negative effects of loneliness on a health-promoting lifestyle: An empirical study based on threshold effects for pet owners. *Int. J. Older People Nurs.* **2023**, *18*, e12554. [CrossRef]
57. Goh, Y.X.; Tan, J.S.Q.; Syn, N.L.; Tan, B.S.W.; Low, J.Y.; Foo, Y.H.; Fung, W.; Hoong, B.Y.D.; Pang, J. Association between pet ownership and physical activity levels, atopic conditions, and mental health in Singapore: A propensity score-matched analysis. *Sci. Rep.* **2020**, *10*, 19898. [CrossRef] [PubMed]
58. Tan, J.S.Q.; Fung, W.; Tan, B.S.W.; Low, J.Y.; Syn, N.L.; Goh, Y.X.; Pang, J. Association between pet ownership and physical activity and mental health during the COVID-19 "circuit breaker" in Singapore. *One Health* **2021**, *13*, 100343. [CrossRef] [PubMed]
59. Matijczak, A.; Yates, M.S.; Ruiz, M.C.; Santos, L.R.; Kazdin, A.E.; Raila, H. The influence of interactions with pet dogs on psychological distress. *Emotion* **2024**, *24*, 384. [CrossRef] [PubMed]
60. Kogan, L.R.; Currin-McCulloch, J.; Bussolari, C.; Packman, W.; Erdman, P. The psychosocial influence of companion animals on positive and negative affect during the COVID-19 pandemic. *Animals* **2021**, *11*, 2084. [CrossRef]
61. Grajfoner, D.; Ke, G.N.; Wong, R.M.M. The effect of pets on human mental health and well-being during COVID-19 lockdown in Malaysia. *Animals* **2021**, *11*, 2689. [CrossRef]
62. Ogata, N.; Weng, H.Y.; McV Messam, L.L. Temporal patterns of owner-pet relationship, stress, and loneliness during the COVID-19 pandemic, and the effect of pet ownership on mental health: A longitudinal survey. *PLoS ONE* **2023**, *18*, e0284101. [CrossRef]
63. Duggan, M.; Brenner, J. The Demographics of Social Media Users—2012. Pew Research Center's Internet & American Life Project. Available online: https://www.pewresearch.org/internet/2013/02/14/the-demographics-of-social-media-users-2012-2/ (accessed on 11 December 2024).
64. Johnson, T.P.; Garrity, T.F.; Stallones, L. Psychometric evaluation of the Lexington attachment to pets scale (LAPS). *Anthrozoös* **1992**, *5*, 160–175. [CrossRef]
65. World Health Organization. *Wellbeing Measures in Primary Health Care/The DepCare Project: Report on a WHO Meeting: Stockholm, Sweden, 12–13 February 1998*; World Health Organization, Regional Office for Europe: Copenhagen, Denmark, 1998.
66. Hughes, M.E.; Waite, L.J.; Hawkley, L.C.; Cacioppo, J.T. A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Res. Aging* **2004**, *26*, 655–672. [CrossRef]
67. Bekker, O.A.; Mallavarapu, S. Pet attachment and the social support that pets provide to college students. *Kennesaw J. Undergrad. Res.* **2019**, *6*, 4.
68. Lance, C.E.; Butts, M.M.; Michels, L.C. The sources of four commonly reported cutoff criteria: What did they really say? *Organ. Res. Methods* **2006**, *9*, 202–220. [CrossRef]
69. Field, A.P. *Discovering Statistics Using SPSS*, 3rd ed.; Sage Publications Ltd.: London, UK, 2009.
70. Field, A.P. *Discovering Statistics Using SPSS*, 4th ed.; Sage Publications Ltd.: London, UK, 2013.

71. Ikeuchi, T.; Taniguchi, Y.; Abe, T.; Seino, S.; Shimada, C.; Kitamura, A.; Shinkai, S. Association between experience of pet ownership and psychological health among socially isolated and non-isolated older adults. *Animals* **2021**, *11*, 595. [CrossRef] [PubMed]
72. Herzog, H. The impact of pets on human health and psychological well-being: Fact, fiction, or hypothesis? *Curr. Dir. Psychol. Sci.* **2011**, *20*, 236–239. [CrossRef]
73. Phillipou, A.; Tan, E.J.; Toh, W.L.; Van Rheenen, T.E.; Meyer, D.; Neill, E.; Sumner, P.J.; Rossell, S.L. Pet ownership and mental health during COVID-19 lockdown. *Aust. Vet. J.* **2021**, *99*, 423–426. [CrossRef]
74. Miltiades, H.; Shearer, J. Attachment to pet dogs and depression in rural older adults. *Anthrozoös* **2011**, *24*, 147–154. [CrossRef]
75. Cline, K.M.C. Psychological effects of dog ownership: Role strain, role enhancement, and depression. *J. Soc. Psychol.* **2010**, *150*, 117–131. [CrossRef]
76. Pikhartova, J.; Bowling, A.; Victor, C. Does owning a pet protect older people against loneliness? *BMC Geriatr.* **2014**, *14*, 106. [CrossRef]
77. Kretzler, B.; König, H.H.; Hajek, A. Pet ownership, loneliness, and social isolation: A systematic review. *Soc. Psychiatry Psychiatr. Epidemiol.* **2022**, *57*, 1935–1957. [CrossRef]
78. Zablan, K.; Melvin, G.; Hayley, A. Dog ownership, physical activity, loneliness and mental health: A comparison of older adult and younger adult companion animal owners. *BMC Psychol.* **2024**, *12*, 618. [CrossRef]
79. Parsons, C.E.; Landberger, C.; Purves, K.L.; Young, K.S. No beneficial associations between living with a pet and mental health outcomes during the COVID-19 pandemic in a large UK longitudinal sample. *Ment. Health Prev.* **2024**, *35*, 200354. [CrossRef]
80. Amiot, C.E.; Gagné, C.; Bastian, B. Pet ownership and psychological well-being during the COVID-19 pandemic. *Sci. Rep.* **2022**, *12*, 6091. [CrossRef]
81. Mueller, M.K.; Richer, A.M.; Callina, K.S.; Charmaraman, L. Companion animal relationships and adolescent loneliness during COVID-19. *Animals* **2021**, *11*, 885. [CrossRef] [PubMed]
82. Wells, D.L.; Treacy, K.R. Pet attachment and owner personality. *Front. Psychiatry* **2024**, *15*, 1406590. [CrossRef] [PubMed]
83. Prato-Previde, E.; Fallani, G.; Valsecchi, P. Gender Differences in Owners Interacting with Pet Dogs: An Observational Study. *Ethology* **2006**, *112*, 64–73. [CrossRef]
84. Özen, D.; Bicakci, N.; Salgirli Demibras, Y. Exploring the dynamics of Human-Pet attachment: An In-Depth analysis of socio-demographic factors and relationships. *Ank. Üniversitesi Vet. Fakültesi Derg.* **2024**, *71*, 385–393. [CrossRef]
85. Blazina, C.; Abrams, E. Working with men and their dogs: How context informs clinical practice when the bond is present in males' lives. In *Clinician's Guide to Treating Companion Animal Issues*; Academic Press: London, UK, 2019; pp. 223–252.
86. Blazina, C.; Kogan, L. Do men underreport and mask their emotional attachment to animal companions? The influence of precarious masculinity on men's bonds with their dogs. *Anthrozoös* **2019**, *32*, 51–64. [CrossRef]
87. Applebaum, J.W.; Adams, B.L.; Eliasson, M.N.; Zsembik, B.A.; McDonald, S.E. How pets factor into healthcare decisions for COVID-19: A One Health perspective. *One Health* **2020**, *11*, 100176. [CrossRef]
88. Meier, C.; Maurer, J. Buddy or burden? Patterns, perceptions, and experiences of pet ownership among older adults in Switzerland. *Eur. J. Ageing* **2022**, *19*, 1201–1212. [CrossRef]
89. Gee, N.R.; Mueller, M.K.; Curl, A.L. Human–animal interaction and older adults: An overview. *Front. Psychol.* **2017**, *8*, 1416. [CrossRef]
90. Martin, F.; Bachert, K.E.; Snow, L.; Tu, H.W.; Belahbib, J.; Lyn, S.A. Depression, anxiety, and happiness in dog owners and potential dog owners during the COVID-19 pandemic in the United States. *PLoS ONE* **2021**, *16*, e0260676. [CrossRef]
91. Kanat-Maymon, Y.; Wolfson, S.; Cohen, R.; Roth, G. The benefits of giving as well as receiving need support in human–pet relations. *J. Happiness Stud.* **2021**, *22*, 1441–1457. [CrossRef]
92. Chopik, W.J.; Newton, N.J.; Ryan, L.H.; Kashdan, T.B.; Jarden, A.J. Gratitude across the life span: Age differences and links to subjective well-being. *J. Posit. Psychol.* **2019**, *14*, 292–302. [CrossRef] [PubMed]
93. Bruine de Bruin, W. Age differences in COVID-19 risk perceptions and mental health: Evidence from a national US survey conducted in March 2020. *J. Gerontol. Ser. B* **2021**, *76*, 24–29. [CrossRef] [PubMed]
94. Bruine de Bruin, W.; Parker, A.M.; Strough, J. Age differences in reported social networks and well-being. *Psychol. Aging* **2020**, *35*, 159. [CrossRef]
95. Bagley, D.K.; Gonsman, V.L. Pet attachment and personality type. *Anthrozoös* **2005**, *18*, 28–42. [CrossRef]
96. Calderón, C.; Ferrando Piera, P.J.; Lorenzo-Seva, U.; Gómez-Sánchez, D.; Fernández-Montes, A.; Palacín-Lois, M.; Antoñanzas-Basa, M.; Rogado, J.; Manzano-Fernández, A.; Ferreira, E.; et al. Multidimensional Scale of Perceived Social Support (MSPSS) in cancer patients: Psychometric properties and measurement invariance. *Psicothema* **2021**, *33*, 131–138.
97. Rutkowski, N.A.; Lebel, S.; Richardson, K.; Mutsaers, B.; Chasen, M.; Feldstain, A. A little help from my friends: Social support in palliative rehabilitation. *Curr. Oncol.* **2018**, *25*, 358–365. [CrossRef]
98. O'Neil, J.M. *Men's Gender Role Conflict: Psychological Costs, Consequences, and an Agenda for Change*; American Psychological Association: Washington, DC, USA, 2015.

99. Hill, W.G.; Donatelle, R.J. The impact of gender role conflict on multidimensional social support in older men. *Int. J. Men's Health* **2005**, *4*, 267–277. [CrossRef]
100. Van Hedel, K.; Martikainen, P.; Moustgaard, H.; Myrskylä, M. Cohabitation and mental health: Is psychotropic medication use more common in cohabitation than marriage? *SSM Popul. Health* **2018**, *4*, 244–253. [CrossRef]
101. Barreto, M.; Victor, C.; Hammond, C.; Eccles, A.; Richins, M.T.; Qualter, P. Loneliness around the world: Age, gender, and cultural differences in loneliness. *Pers. Individ. Differ.* **2021**, *169*, 110066. [CrossRef]
102. MacDonald, K.J.; Willemsen, G.; Boomsma, D.I.; Schermer, J.A. Predicting loneliness from where and what people do. *Soc. Sci.* **2020**, *9*, 51. [CrossRef]
103. Von Soest, T.; Luhmann, M.; Hansen, T.; Gerstorf, D. Development of loneliness in midlife and old age: Its nature and correlates. *J. Pers. Soc. Psychol.* **2020**, *118*, 388. [CrossRef] [PubMed]
104. Sahlqvist, S.; Song, Y.; Bull, F.; Adams, E.; Preston, J.; Ogilvie, D. Effect of questionnaire length, personalisation and reminder type on response rate to a complex postal survey: Randomised controlled trial. *BMC Med. Res. Methodol.* **2011**, *11*, 62. [CrossRef]
105. Blazina, C.; Bartone, A.S. The roles animal companions play in middle-aged males' lives: Examining the psychometric properties of a measure assessing males' human–animal interactions. In *Men and Their Dogs*; Springer Publishing: New York, NY, USA, 2016; pp. 215–229.