"My Companion Through The Pandemic": The Importance of the Human-Animal Bond During COVID-19

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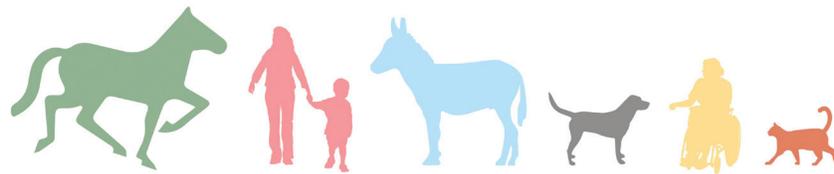
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Abstract   The COVID-19 pandemic, due to its global biopsychosocial effects, encourages research regarding the promotion of health. Studies in this area concentrate on the human–animal bond as a source of physical and psychological well-being (Shoesmith et al., 2021). In this context, contradictory results have been reported, which on the one hand underline the positive influences of animal companionship on humans' well-being (Ratschen et al., 2020), and on the other hand demonstrate contrary effects (Mueller et al., 2021). Based on inconsistent findings, the present study aimed to investigate to what extent the human–animal bond influences different psychosocial parameters (including symptoms of depression, quality of life, loneliness, and social support) on a quantitative level as well as on a qualitative level. For this purpose, animal caregivers and non–animal caregivers were surveyed online and statistically compared based on quantitative data. Additionally, the personal opinion of animal caregivers regarding the animals' role during the pandemic was investigated using qualitative content analysis. The results show big differences between personal opinion regarding the meaning of caring for animals during the pandemic (= qualitative data) and the results of standardized measurements (= quantitative data). In this context, statistical evaluation shows no evidence that individuals benefit from the human–animal bond, and moreover, indicates that caring for an animal creates an additional burden. Nevertheless, qualitative evaluation of the personal opinion regarding the meaning of animals during the pandemic shows that most caregivers experience their animals as a positive influence on a biopsychosocial level. Looking into explanations for these results, it might be assumed that according to the "pet effect"—a term that refers to certain benefits individuals experience due to the relationship with their animals (Allen, 2003)—caregivers want to believe that their animals make life better, which is why the personal estimation of the animals' role is positive.

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Introduction

The outbreak of the coronavirus SARS-CoV-2 (COVID-19) in December 2019 is still having a global impact on the general physical and mental health of individuals (Usher et al., 2020). Besides the unpredictable spreading of the virus and a high number of deaths causing uncertainty within societies (Atchison et al., 2020), prevention and control measures are challenging the psychological well-being of the population (Amerio et al., 2020). In particular, strategies including social distancing and isolation, which aim to reduce increasing numbers of COVID-19 cases and fatalities, are linked with symptoms of mental distress in individuals (Holmes et al., 2020). Studies in this context report that extended social isolation may lead to significant decrease in quality of life, high levels of stress, and a higher chance of suffering from depression (Morgan et al., 2020; Zhao et al., 2020). Since these side effects currently impact individuals worldwide, an important area of research is the investigation of health-promoting aspects during the pandemic. One topic that has found intense resonance in this regard is the exploration of animals as a source of physical and psychological well-being (Shoesmith et al., 2021).

Even before the pandemic, studies in the field of anthrozoology already focused on various effects of the human–animal bond. These effects are mostly evaluated on the theoretical basis of the biopsychosocial model, which refers to the interconnection between biological, psychological, and social-environmental factors in the context of human health (Engel, 1977). Research in this regard often highlights the positive influence of animals on humans' well-being (Beck & Katcher, 2003) and demonstrates the benefits of animal companionship, such as stress reduction (Virués-Ortega & Buela-Casal, 2006), improvement of quality of life (Brooks et al., 2018), and being able to cope with challenging situations (Ratschen et al., 2020). These reported effects and the fact that many people spent significantly more time with their animals during lockdowns (and had significantly less interpersonal contact) (Holland et al., 2021) most likely led to an increased interest in the human–animal bond during the pandemic, leading to an increased number of studies within this field.

Despite an increasingly popular belief that living with companion animals positively influences humans' well-being (Ratschen et .al., 2020), studies also report contrary effects of animal companionship including a higher probability of developing depression and anxiety (Mueller et al., 2021). Even though these results exist, public media focuses on stories of animals supporting individuals in their well-being (Herzog, 2021). In this context, Harold Herzog (2011) emphasized the so-called "generalized pet effect," which explains the paradox that, despite the mentioned "negative" effects of the human–animal bond on specific psychosocial parameters, caregivers of animals especially want to believe that their animals make their lives better instead of believing empirical results (Herzog, 2021).

According to the "pet effect paradox" (Herzog, 2021), one of our previous studies indicates a negative influence of the human–animal bond on the subjective perception of stress due to various responsibilities related to animal companionship (Krouzecky et al., 2019). Nevertheless, qualitative data regarding the animals' role in relation to stressful situations differed from quantitative findings, and individuals overall experience their animals as helpful when coping with stressors (Krouzecky et al., 2019).

Based on these contradictory findings regarding animal companionship and humans' mental health, the current COVID-19 pandemic presents an opportunity to explore quantitative and qualitative effects of the human–animal bond on various psychosocial aspects in humans (including quality of life, depression, and additional effects of social isolation). The present study therefore aims to investigate the research question regarding to what extent the bond with an animal influences symptoms of depression, quality of life, and the effects of social isolation (e.g., loneliness and social support) during a period of the COVID-19 pandemic. In addition to quantitative measurements, qualitative data gathered with open questions in the context of animal companionship

gives insight regarding personal opinion of the meaning of animals during the pandemic. Therefore, animal caregivers and non–animal caregivers were surveyed online and compared regarding these constructs using a mixed-methods design. Additionally, the attachment to the animal was assessed to provide evidence of the direct impact of the bond with an animal.

Material and Methods

Study Design and Participants

An online survey in both German and English was conducted, using a cross-sectional design. It included open and closed questions about animal companionship, collected demographic data, and included standardized questionnaires regarding loneliness and social support (Loneliness Scale and Enrichd Social Support Inventory), emotional attachment to the companion animal (Lexington Attachment to Pet Scale), quality of life (Quality of Life Questionnaire), and depression (Beck's Depression Inventory). Using snowball sampling, animal caregivers and non–animal caregivers were recruited via different internet platforms and surveyed online. A total of 287 fully completed data sets were included in the statistical and qualitative analysis (n = 285). The sample consists of 81.9% women, 16.7% men, and 1.4% others with an average age of 38 years (M = 38.15; SD = 14.47). Regarding marital status, the sample was mainly married (32.4%), single (30.6%), or stated they lived in a relationship (28.5%); several participants were divorced at the time of the survey (7%) or widowed (1.4%). About half of the surveyed population stated they had finished undergraduate or graduate school (bachelor's or master's degree, 47.9%). A total of 21.3% stated they had graduated from high school, and another 18.5 % stated that they had graduated from college; 12.3% of the participants indicated another level of education.

Regarding animal companionship, 70.8% of the participants claimed to care for at least one animal at the time of the data receipt. In order to evaluate the current situation with regard to COVID-19, additional questions were asked about lockdown, quarantine, and infection. In this context, a total of 87% of the sample stated having straight lockdown and 97.9% of the participants claimed not to be in quarantine at the time of the survey; 30.5% of the sampling stated that they were infected with COVID-19 at any time up to the survey.

Instruments

Demographic Data   Collected data include age, sex, highest educational attainment, place of work, current place of residence, nationality, marital status, number of children, animal companionship, and details about animal companionship (e.g., animal species, duration of animal husbandry). Additionally, questions regarding current lockdown, current quarantine, and COVID-19 infection were asked. These data seemed relevant for characterizing the sample and for analyzing as possible influencing factors in connection with quantitative parameters. Due to the specific research question regarding to what extent the human–animal bond influences mentioned biopsychosocial aspects, these data, however, were not included in the analyses of the present study.

Loneliness Scale   The Loneliness Scale (Russell, 1996), a 20-item scale, was used to measure subjective feelings of loneliness as well as feelings of isolation. Items can be rated on a scale from 1 (never) to 4 (often). For evaluation, a mean value of the answers was calculated, whereby positively formulated items were recoded so that higher scores represent greater loneliness (Russell, 1996). The internal consistency amounts to a = .94.

> Example statement: "I find myself waiting for people to call or write."

Enrichd Social Support Inventory (ESSI)   The ESSI (Mitchell et al., 2003), a 6-item self-report inventory, was used for measuring the subjective experienced feeling of social support. The questionnaire

assesses four defining attributes of social support: emotional, instrumental, informational, and appraisal, which are calculated by mean values. The response alternatives range between 1 (never) to 5 (always), and the inventory commands a good internal consistency (Cronbach alpha of a = .89).

> Example statement: "Is there someone available to you whom you can count on to listen when you need to talk?"

Lexington Attachment to Pets Scale (LAPS) The Lexington Attachment to Pets Scale (Johnson et al., 1992) was used to measure the strength of the bond with the companion animal subjectively experienced by animal caregivers. The questionnaire contains 23 items that can be answered on a four-level scale (from totally disagree to totally agree). The LAPS has a good internal consistency (Cronbach alpha of a = .93), and a mean value of all answers represents the strength of the emotional attachment to companion animals.

> Example statement: "I feel that my pet is part of my family."

Quality of Life Questionnaire (WHOQOL-BREF) The WHOQOL-BREF (Whoqol-Group, 1998) was used for measuring the subjective experienced quality of life. The questionnaire consists of 26 items, including the subcategories/domains "Physical health," "Psychological health," "Social relationships," and "Environment," which can be evaluated individually by mean values. The mean value within each domain is then multiplied by 4 in order to make domain scores comparable with the scores used in the long version, WHOQOL-100. Response alternatives range between 1 point to 7 points and scores are scaled in a positive direction (i.e., higher scores denote a higher quality of life within each domain). The internal consistency amounts to a = .88.

> Example question: "How satisfied are you with your ability to perform your activities of daily living?"

Beck`s Depression Inventory (BDI-II) The BDI-II (Beck et al., 1996), a self-report rating inventory, was used to measure characteristic attitudes and symptoms of depression. It contains 21 items, which can be answered on a 4-point rating scale ranging from the absence of a symptom to an intense level, during the past week. For evaluation, a sum score of the answers was calculated whereby higher scores indicate more severe depressive symptoms. The BDI-II commands a good internal consistency (Cronbach alpha of a = .92).

> Example item "Sadness": "I do not feel sad" to "I am so sad and unhappy that I can't stand it."

Personal Opinion Regarding the Animals' Role during the COVID-19 Pandemic Animal caregivers were asked to indicate their agreement with seven preformulated statements (Ratschen et al., 2020) regarding their animals' role during the pandemic. These statements can be rated on a four-level scale from "totally agree" to "totally disagree." In addition, caregivers were openly questioned about their individual opinion of the human–animal bond during COVID-19 ("Please briefly describe what your pet(s) mean(s) to you during the COVID-19 pandemic").

Animal-Related Stressors/Concerns Besides personal reports of animal caregivers including their personal opinions of how the bond to their animals affected them during the COVID-19 crisis, specific animal-related stressors based on preliminary investigations (Ratschen et al, 2020) were analyzed (e.g., concerns regarding the care of the companion animal) on the basis of a listing. Applicable stressors that tend to have an influence on the human–animal bond could be selected from the list (multiple selection was possible).

Statistical and Qualitative Analysis

Statistical analysis was computed with SPSS 24.0. Univariate procedures in the form of paired *t*-tests were chosen to gain insight into possible differences between animal caregivers and non–animal

caregivers. Cohen's *d* was calculated as an effect size measurement. To test the required conditions for *t*-tests, Kolmogorov–Smirnov tests of normal distribution and Levene's test of equality of variances were conducted prior to the examination. For every analysis, the significance level was set at $p \leq 0.05$. Moreover, correlations were conducted for measuring the mutual relations between the strength of the human–animal bond, assessed by animal caregivers, and symptoms of depression (BDI-II), the subjective experienced quality of life (WHOQOL-BREF), loneliness (Loneliness Scale), and social support (ESSI), as well as animal-related stressors.

In addition to statistical analysis, open questions with regard to the personal opinion of animal caregivers in the context of the animals' role during the COVID-19 pandemic were analyzed using qualitative content analysis according to Philipp A. E. Mayring (Mayring, 2015). This method made it possible to interpret the content of the answers to the open questions of animal caregivers by a systematic classification process of coding and identifying most common themes (Hsieh & Shannon, 2005). In this context, deductive categories were developed based on the theoretical basis of the before-mentioned biopsychosocial model. Using Microsoft Excel, the answers of animal caregivers were individually coded by breaking down the relevant text into short strings of words capturing the meaning of participants' expressions and then were assigned to defined categories. Statements not referring to the research question were excluded from analysis. To ensure reliability, the coding process was carried out by two experts independently and analyses were subjected to a reliability test (Cohen's Kappa > .60).

Results

Animal Companionship during COVID-19 in Relation to Symptoms of Depression, the Subjective Experienced Quality of Life, Loneliness, and Social Support

In order to verify whether animal companionship during the COVID-19 pandemic influences psycho-

social parameters like symptoms of depression (BDI-II), the subjective experienced quality of life (WHOQOL-BREF), loneliness (Loneliness Scale), and social support (ESSI), animal caregivers and non–animal caregivers were compared regarding these constructs. Table 1 represents the most important results of these calculations.

The data shows that there are significant differences between animal caregivers and non–animal caregivers regarding symptoms of depression, the general experienced quality of life, as well as the subdomains "physical health" and "psychological health." In this context results demonstrate that animal caregivers report more depressive symptoms or a stronger expression of these symptoms and a significantly lower experienced quality of life, specifically concerning physical and psychological health. Moreover, the data shows no significant differences between animal caregivers and non–animal caregivers regarding the quality of life within the subdomains "social relationships" and "environment" as well as regarding a feeling of loneliness or social support.

Impact of the Strength of the Human–Animal Bond on Symptoms of Depression, the Subjective Experienced Quality of Life, Loneliness, and Social Support

For determining the actual impact of the human–animal bond on the mentioned psychosocial parameters (symptoms of depression, quality of life, loneliness, and social support), Pearson correlations were conducted between the variables "human–animal bond" (LAPS) on the one hand and "symptoms of depression" (BDI-II), quality of life (WHOQOL-BREF), "loneliness" (Loneliness Scale), and subjective experienced social support (ESSI) on the other hand. Table 2 represents the results of these calculations.

The results show no significant correlations between the variables "human–animal bond" and the quality of life subdomain "WHOQOL-Social Relationships." Moreover, no significant correlations between the variables "human–animal bond" and "social support" were found. Concerning the calculations between the human–animal bond and

Table 1. Mean differences of the groups "animal caregivers" and "non–animal caregivers"

Mean differences of the groups "animal caregivers" and "non–animal caregivers" regarding symptoms of depression

BDI-II	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(221)	*p*	LL	UL
	10.15	9.39	6.97	6.79	−.369	2.6	.010	.776	5.58

Mean differences of the groups "animal caregivers" and "non–animal caregivers" regarding the subjective experienced quality of life

WHOQOL-BREF Overall Score	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(115)	*p*	LL	UL
	53.40	10.80	58.57	8.32	.050	−2.38	.019	−9.45	−.872

WHOQOL-BREF Physical Health	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	d	t(114)	*p*	LL	UL
	12.31	3.83	15.09	2.86	.769	−3.57	.001	−4.31	−1.23

WHOQOL-BREF Psychological Health	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	d	t(114)	*p*	LL	UL
	12.60	3.01	13.86	2.51	.436	−2.05	.042	−2.47	−0.46

WHOQOL-BREF Social Realtionships	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(114)	*p*	LL	UL
	13.75	3.90	14.00	3.20	.067	−.313	.755	−1.81	1.32

WHOQOL-BREF Environment	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(114)	*p*	LL	UL
	15.39	2.35	16.11	2.58	.299	−1.40	.162	−1.73	.294

Mean differences of the groups "animal caregivers" and "non–animal caregivers" regarding loneliness

Loneliness Scale	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(226)	*p*	LL	UL
	17.56	12.88	14.35	11.07	−.261	1.86	.063	−.176	6.61

Mean differences of the groups "animal caregivers" and "non–animal caregivers" regarding the subjectiv evaluated social support

ESSI	animal caregivers (*n* = 201)		non–animal caregivers (*n* = 84)					95% CI	
	M	SD	M	SD	*d*	t(230)	*p*	LL	UL
	21.17	3.78	21.41	3.44	.065	−.474	.636	−1.24	.762

Note: CI = Confidence Interval. LL = Lower Limit. UL = Upper Limit

Table 2. Correlations between the human–animal relationship and symptoms of depression, the subjective experienced quality of life, loneliness, and social support

Human–animal relationship (LAPS, *n* = 201)	*r*	*p*
BDI-II	.254	.003
WHOQOL-BREF Overall Score	−.295	.008
WHOQOL-BREF Physical Health	−.292	.009
WHOQOL-BREF Psychological Health	−.335	.003
WHOQOL-BREF Social Relationships	−.135	.235
WHOQOL-BREF Environment	−.260	.022
Loneliness Scale	.179	.036
ESSI	−.157	.064

the variables "symptoms of depression" and "loneliness," significant positive correlations were found to the effect that the stronger the bond with an animal was rated, the more or the stronger depressive symptoms were assessed and the stronger feelings of loneliness were evaluated. Furthermore, significant negative correlations between the human–animal bond and the general experienced quality of life as well as the subdomains "physical health," "psychological health," and "environment" were found. These correlations demonstrate that the stronger the bond with an animal was rated, the less the experienced quality of life was assessed.

Stressors in the Context of the Human–Animal Bond and the COVID-19 Pandemic

To investigate the impact of specific stressors on the human–animal bond during the pandemic, additional calculations were made within the subsample of animal caregivers (*n* = 201). In addition to a descriptive evaluation of the most frequently perceived stressors, correlations between these concerns and the strength of the human–animal bond were made. Figure 1 shows the descriptive evaluations (percentages) and Table 3 demonstrates the results of the correlations.
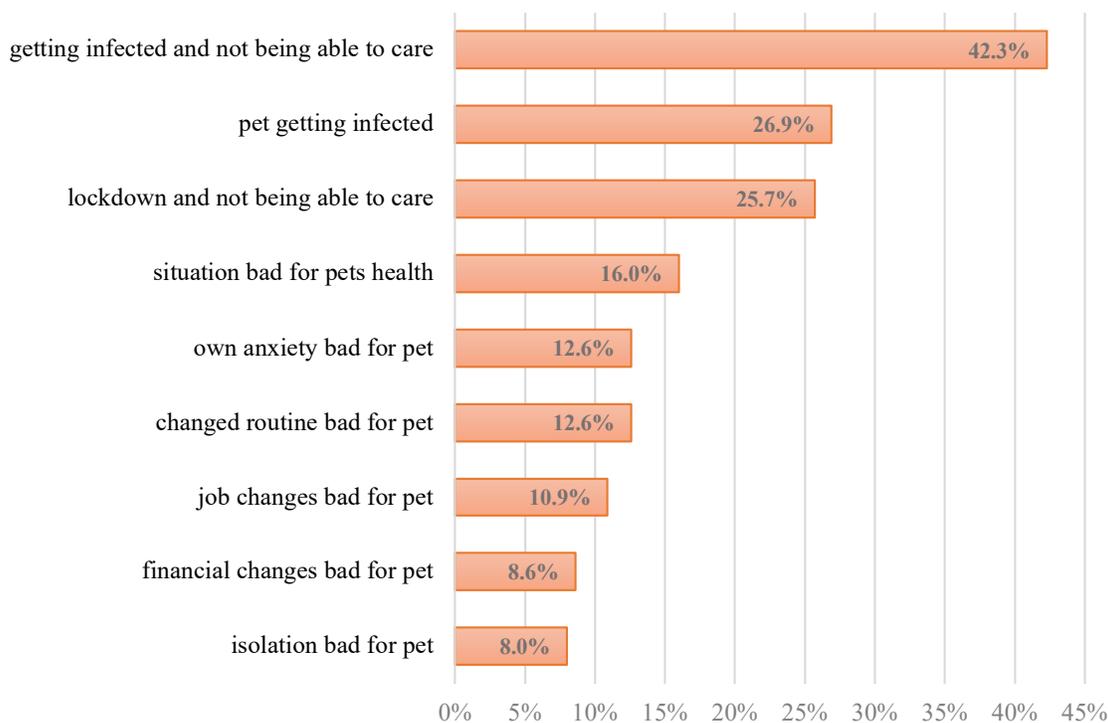

Figure 1. Percentages of animal-related stressors and associated concerns during the COVID-19 pandemic.

Table 3. Correlations between the human–animal relationship and pet-related stressors/concerns

Human–animal relationship (LAPS, n = 201)	r	p
getting infected and not being able to care	.317	.001
pet getting infected	.170	.033
lockdown and not being able to care	.367	.001
situation bad for pet's health	.273	.001
own anxiety bad for pet	.124	.123
changed routine bad for pet	.127	.112
job changes bad for pet	.100	.211
financial changes bad for pet	.204	.010
isolation bad for pet	.167	.037

The descriptive evaluation of stressors shows that the most frequently assessed stressor is "getting affected and not being able to care" (42.3%). This result is followed by the stressor "pet getting infected" (26.9%) and "lockdown and not being able to care" (25.7%).

The data shows significant positive correlations between the strength of the human–animal bond and the variables "getting infected and not being able to care," "pet getting affected," "lockdown and not being able to care," "situation bad for pet's health," as well as "financial changes bad for pet" and "isolation bad for pet." These results demonstrate that the stronger the bond to an animal was rated, the more stressful mentioned animal-related stressors were assessed. No significant correlations were found between the strength of the human–animal bond and the variables "own anxiety bad for pet," "changed routine bad for pet," and "job changes bad for pet."

Personal Opinion of the Human–Animal Bond during the COVID-19 Pandemic

To investigate personal opinion of the animals' role during the pandemic, the subgroup of animal caregivers (n = 201) was asked to assess this topic both with the help of open questions and by rating seven statements. Figure 2 represents mean values for the rated statements.

Mean values of the assessed statements regarding the animals' role during the pandemic demonstrate
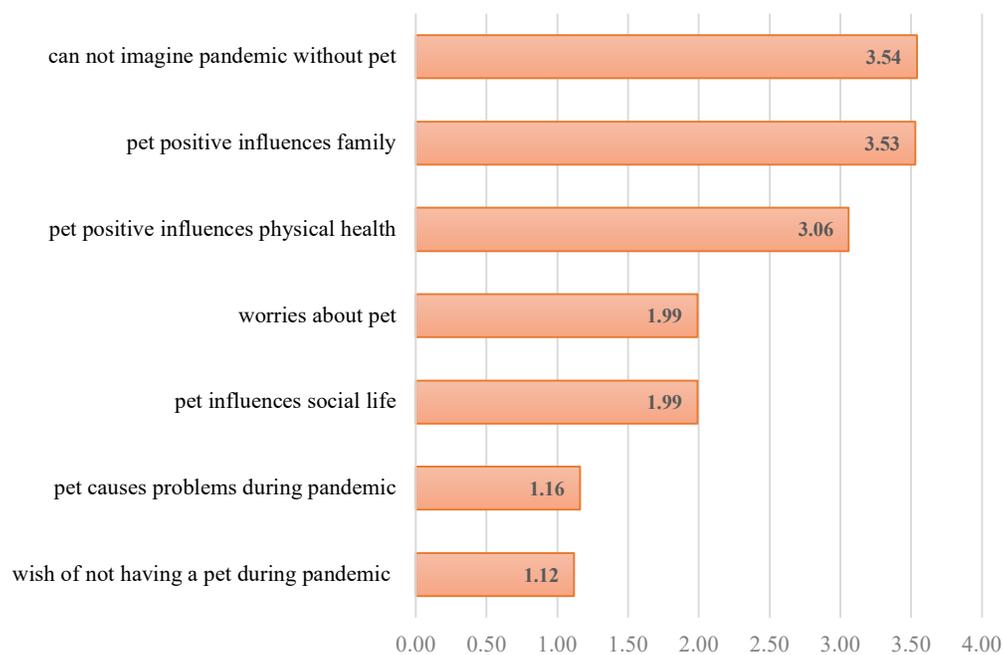

Figure 2. Mean values of statements regarding the animals' role during the COVID-19 pandemic.

that the statement "can not imagine pandemic without pet" was the most strongly rated ($M = 3.54$), followed by the statement "pet positive influences family" ($M = 3.53$). The third highest rated statement is "pet positively influences physical health" with a mean of 3.06.

Open questions were analyzed using deductive categorization in accordance with qualitative content analysis (Mayring, 2015) on the basis of the biopsychosocial model. Table 4 represents the developed categories.

The deductive development of categories according to the qualitative content analysis results in a three-part categorization referring to effects of the human–animal bond on a biological, psychological, and social level. These categories proved to be the most appropriate to encompass the content of the animals' caregivers' statements regarding the animals' role during the COVID-19 pandemic. In a second step the frequencies of the associated contents were analyzed. Figure 3 represents the frequency analysis in percentages.

The results of the frequency analysis show that personal statements of animal caregivers in relation to their animals' role during the COVID-19 pandemic are most frequently assigned to the category "Social effects" (65.8%). In this context the data shows the highest frequency regarding the category with positive characteristics (42.8%). Two percent of the analyzed data included negative characters within the statements. These results are followed by the category "Psychological effects" where 10.8% neutral characterized and 27.8% positive characterized statements were analyzed. Moreover, the category "Biological effects" shows the lowest least content allocation and demonstrates 6.1% neutral characterized and 14.9% positive characterized statements.

Discussion

Using a combination of qualitative and quantitative methods, our findings show big differences between the personal meaning of caring for animals during the pandemic and the results of standardized measurements. In this context, quantitative data demonstrate that animal caregivers stated a significant stronger expression of depressive symptoms as well as a significantly lower experienced quality of life, especially concerning physical and psychological health. Regarding feelings of loneliness or social support, the data shows no evidence of an influence through the human–animal bond. Nevertheless, findings of the qualitative content analysis indicate that animal caregivers personally experience their animals as a positive influence on a biopsychosocial level during the pandemic.

Taking a look into the data with regard to depression, quality of life, and loneliness/social support, the data differ from the often-reported positive influence of animal companionship on these parameters. These results on the one hand are consistent with results of previous studies, which report negative effects of animal companionship including a higher probability of developing depression during the pandemic (Mueller et al., 2021). On the other hand, they do not reflect the general reported picture that the human–animal bond positively influences humans' well-being. In this context it has to be stated that the motivation of animal companionship was not examined in the present study, which is why these findings might also indicate that individuals with a higher probability of depression and a less pronounced quality of life are generally more likely to care for animals. Nevertheless, significant positive correlations between the strength of the human–animal bond and symptoms of depression as well as loneliness indicate that the stronger the bond between an animal and its caregiver is perceived, the more or the stronger symptoms of depression are rated and the lonelier or more isolated animal caregivers experience themselves to be. In addition, significant negative correlations between the strength of the human–animal bond and the experienced quality of life show that the stronger the human–animal bond is rated, the lower animal caregivers experience their quality of life (especially within the subdomains "physical health," "psychological health," and "environment").

With regard to the presented correlations, it has to be pointed out that results can also be interpreted the

Table 4. Qualitative deductive categorization of open question regarding pet's role during COVID-19 pandemic

Category	Definition	Characteristics	Examples	Coding rules
Biological Effect	statements relating to biological effects of the human-animal bond during the pandemic **C1 positive:** statements which contain positive emotional content and/or positive inner convictions regarding the biological influence of the animal during the pandemic **C2 neutral:** descriptive statements without emotional content	positive	• "my dog motivates me to go for a walk and keeps me fit" • "they calmed me down and strengthened me to get well again"	all statements referring to physical health effects (positive, neutral, or negative)
		neutral	• "dog is a fitness trainer" • "reason to get some fresh air" • "relaxation helper"	
Psychological Effect	statements relating to psychological effects of the human-animal bond during the pandemic **C1 positive:** statements which contain positive emotional content and/or positive inner convictions regarding the psychological influence of the animal during the pandemic **C2 neutral:** descriptive statements without emotional content	positive	• "my pet gives me security and emotional support" • "they make me forget my worries" • "dog has been helping us cope psychologically with Long-Covid since a year now"	all statements referring to psychological and emotional effects (positive, neutral, or negative)
		neutral	• "familiarity, routine, diversion" • "stable support" • "provides structure"	
Social Effect	statements relating to social effects of the human-animal bond during the pandemic **C1 positive:** statements which contain positive emotional content and/or positive inner convictions regarding the social influence of the animal during the pandemic **C2 neutral:** descriptive statements without emotional content **C3 negative:** statements which contain negative/critical emotional content and/or negative/critical inner convictions regarding the social influence of the animal during the pandemic	positive	• "my pet shows me affection and is the partner at my side" • "my cat accompanied me in quarantine; without her I would be much lonelier. In this context, she is actually the only good thing that happened to me in the last year"	all statements referring to social effects, isolation, and relationship (positive, neutral, or negative)
		neutral	• "family member" • "not alone despite contact restrictions" • "closeness"	
		negative	• "Constantly seeks my closeness, which is [. . .] also very exhausting" • "my dog needs more attention during the pandemic which is also stressfull"	

other way around, as causal interpretation based on correlations is not possible. In this context, the data therefore might imply that higher levels of depression or loneliness or a lower experienced quality of life lead to a subjectively stronger human–animal bond.

Despite this limited possibility to interpret the results of our correlations (which is also mentioned in the limitations section), the data as a whole indicate that caring for an animal causes an additional burden during the pandemic. One possible explanation
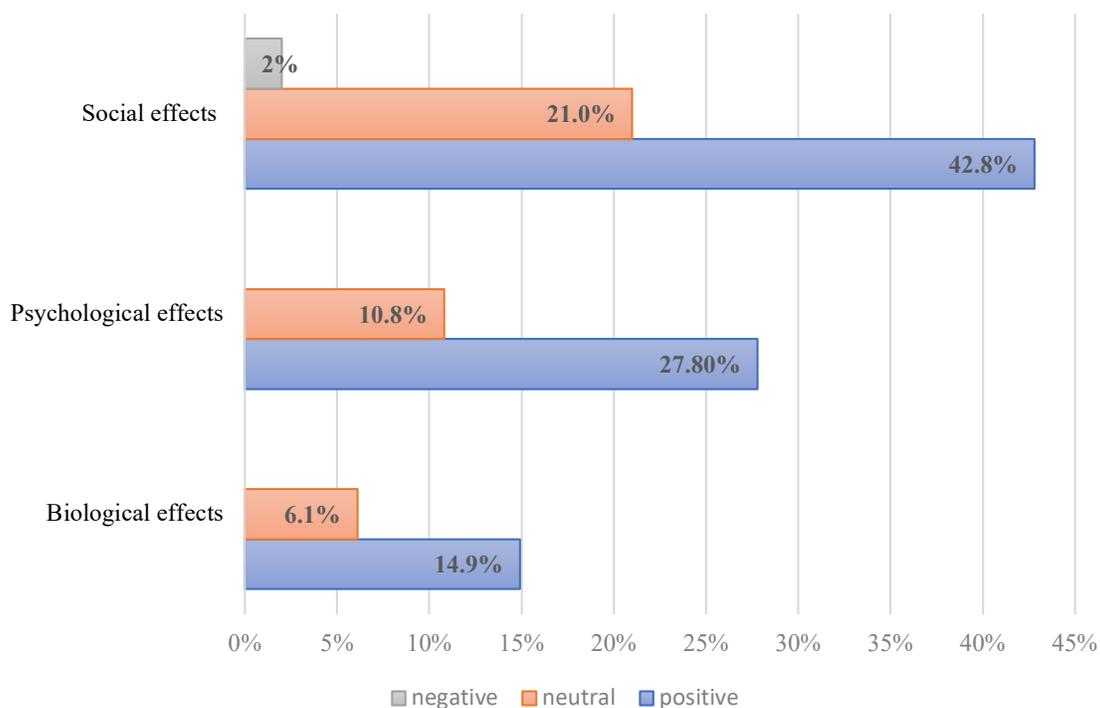
Figure 3. Frequencies in percentages related to the deductive categories of the qualitative content analysis.

for these findings is the responsibility caregivers assume for their animals, which might modify the relevance of the COVID-19 crisis. Animals convey a feeling of being needed and caregivers often develop an increased sense of responsibility toward them. Especially when already confronted with stressors like a pandemic, this aspect seems to have an impact on subjective well-being, which has already been shown in preliminary studies (Krouzecky et al., 2019; Veevers, 2016). This interpretation is also supported by further results of the present study, which indicate that the biggest concern regarding one's animal is not being able to take care of it any more. In this context, significant positive correlations additionally show evidence that the stronger the bond with an animal is perceived, the stronger concerns regarding the ability of taking care of it are rated (e.g., caused by an infection, caused by lockdowns, or caused by financial changes).

The factor of "responsibility" when caring for an animal might also explain why there is no evidence of a supporting social effect of the human–animal bond

in the present study. In this context, missing correlations between the strength of the human–animal bond and social parameters like feeling socially supported or the subdomain "social relationships" of the Quality of Life Questionnaire emphasize the results of group comparisons (animal caregivers versus non–animal caregivers), which might indicate that the human–animal bond has no direct influence on humans' social well-being during the pandemic. These findings, again, are contradictory to the common belief that closeness to animals counteracts social stressors (Mubanga et al., 2017). It therefore might be assumed that the mentioned increasing concern of not being able to care for an animal any more in combination with the restriction of social isolation caused by COVID-19 (and thus an actual lower possibility of being supported with regard to the care of the animal) leads to additional stress and no measurable support of the animal on a social level.

The personal opinion regarding taking care of companion animals during the pandemic nevertheless shows completely different results. In this

context, findings regarding the animals' role during the pandemic show that animal caregivers rated the preformulated statements "cannot imagine the pandemic without pet," "pet positive influences the family," and "pet positive influences physical health" most frequently. Moreover, the deductive analysis of the invitation, to briefly describe what one's animal(s) mean(s) to them, during the COVID-19 pandemic indicates that most caregivers experience their animals as a positive influence on a social, psychological, and physical level. In this context results interestingly show no negative characteristics of the statements within the categories "biological effects" and "psychological effects," and only 2% of statements indicate negative characteristics regarding "social effects."

One hypothesis regarding these contradictory results is that the quantitative data may relate to personal opinions regarding animal companionship during the COVID-19 pandemic (= qualitative data) in ways that are congruent with the pet effect paradox (Herzog, 2021). In order to understand this paradox better, we draw on a distinction developed in qualitative research (e.g., Bohnsack, 2014) that differentiates between reflexive, communicable knowledge, which in our study was conveyed in the animal caregivers' personal opinions regarding animal companionship, and implicit knowledge that cannot be uttered directly, which we associate with the results of the quantitative data. Reflexive knowledge is always bound to the limits of what can be said in a given society at a specific time. We propose that since public media in the context of animal companionship mostly report positive effects on humans' well-being and stressful aspects of the human–animal bond are often not discussed (Herzog, 2021), directly uttering burdening experiences might be more difficult for animal caregivers. Nevertheless, results of the present study indicate that these stressful aspects (e.g., animal-related concerns, sense of responsibility) show their effect at least within the quantitative data collected via standardized scales that may address layers of knowledge not accessible to direct questioning. In this context, previous studies also imply that individuals living in roles that are supposed to

bring fulfilment, but do not, are often burdened due to this discrepancy (Fraterrigo, 2015). Sara Ahmed has elaborated in depth about the paradoxical effects of this "promise of happiness" (Ahmed, 2010), drawing on what American feminist writer Betty Friedan had called "the problem without a name" (Friedan, 1974 p. 11). Friedan had argued that American suburban housewives, who in public discourse were portrayed as exorbitantly happy, suffered from deep discontent exactly because of the unfulfilled belief that housework, marriage, sexual lives, and children would bring happiness (Friedan, 1963). As Ahmed has put it, "The happy housewife is a fantasy figure that erases the signs of labour under the signs of happiness" (Ahmed, 2010, p. 50). Since a comparable positive figure of happiness is often postulated in the context of the human–animal bond (e.g., positive influence on humans' well-being; Beck & Katcher, 2003), it might be assumed that the present results indicate a similar discrepancy. This would mean that humans enter relationships with animals with the expectation of only positive effects. If these expectations are not met due to stressors coming along with caregiving (= caregiver stress) (Gwyther & Strulowitz, 1998), inner conflicts may arise, which lead to measurable findings such as in the present study. Another explanation for this phenomenon is the theory of cognitive dissonance, which describes mental stress due to conflicting beliefs, values, or attitudes. Since individuals tend to seek consistency regarding their perceptions, this conflict causes feelings of discomfort (Festinger, 1957). Based on the presented results it therefore might be assumed that the cognitive belief that animals positively influence humans' well-being and possible experienced animal–related stressors lead to a dissonance that can cause additional stress.

Limitations

One limiting factor of the present study, as mentioned before, is the fact that the motivation of animal companionship was not examined, which limits the interpretation of the results. In this context, the present

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findings might also indicate that individuals with a higher probability of depression and a less pronounced quality of life are generally more likely to care for animals. Nevertheless, this does not explain the effects found for the strength of the human–animal bond, which is why at least an indirect influence of the human–animal bond on the researched psychosocial parameters can be assumed. Another critical aspect is the timing of the questionnaire. The included standardized measurements have never been used during a pandemic, which may lead to a distortion of the results. In this context, it is possible that the validity of clinical-psychological measurements like the ones used in the present study is reduced due to their application in exceptional situations. This is why mixed-methods approaches, in particular, facilitate the generation of hypotheses. In addition, it has to be mentioned that the sampling approach of voluntary participants leads to a self-selected sample, which might lead to biased results. Nevertheless, our present findings again underline the need for further studies, which should examine the aspect of the contradiction between assumptions regarding the benefits of animals and actual quantitative findings.

Conclusion

Overall results of the present study indicate that the human–animal bond plays an important role during life events that are considered stressful (e.g., global crises like the COVID-19 pandemic). However, contrary to the often-reported influence of animals reducing humans' stress level, these findings demonstrate a statistical tendency that animal companionship leads to additional experienced stress. Nevertheless, personal subjective viewpoints differ from quantitative findings, which leads to the assumption that the positive influence of animals on humans' well-being, which is emphasized in public media and research, plays a role that should not be underestimated. Based on our findings, we therefore assume that positive empirical results regarding the human–animal bond that are not compatible with reality cause additional stress in caregivers.

We thus propose that widening the limits of what can be publicly stated about animal care, that is, making it possible to talk about efforts, stress, and the burden involved in caring for an animal, and to begin a discussion about what large-scale political and social measures might be needed for animal caregivers to be able to provide the best care for their companion animals, not only but especially during a pandemic, might alleviate the depression, animal-related concerns, and related stress we have seen in our results. Especially within the practical field of clinical psychology, extended knowledge regarding the importance of animals in the context of experiencing stress seems to be highly relevant as more and more households live with animals and the bond with them gains importance (Krouzecky et al., 2019). Biopsychosocial effects of this special relationship, like the ones shown in the present study, must be taken into account in psychological treatment in order to support animal caregivers to learn how to deal with related stressors adequately.

Summary for Practitioners

The present study aimed to investigate the research question regarding to what extent the bond with an animal influences symptoms of depression, the quality of life, and the effects of social isolation during a period of the COVID-19 pandemic. Therefore, animal caregivers and non–animal caregivers were surveyed online using quantitative measurements as well as open questions. Using a mixed-methods design, a total of 287 participants were included in statistical analyses (conducted with SPSS 24.0) and qualitative content analyses. Results demonstrate big differences between personal opinion regarding the meaning of caring for companion animals during the pandemic and the results of quantitative data. In this context, statistical evaluation shows no evidence that individuals benefit from the bond with their animals and, moreover, indicate that caring for an animal creates an additional burden. Nevertheless, the qualitative evaluation shows that most caregivers experience their animals as a positive influence on

a biopsychosocial level. Looking into possible explanations for these results, it might be assumed that, according to the Herzog "pet effect paradox" (2021), caregivers want to believe that their animals make life better, which is why personal opinion regarding the animals' role is positive. Additionally, findings suggest that the positive influence of animals on human well-being, which is emphasized in public media and research, plays a role that should not be underestimated.

Ethical Statement

Since this study includes the collection of personal data, an ethical approval was needed and granted by the Ethics Commission of the Faculty of Psychotherapy Science and Faculty of Psychology of the Sigmund Freud University Vienna (SBHVGD9 RAGUFC887564).

Conflict of Interest

The authors declare no conflict of interest.

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