

RESEARCH ARTICLE

Dog ownership and psychosocial outcomes during collective trauma: Perceived social support, coping, and meaning in life

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Abstract

Background: War and prolonged collective trauma highlight the need to identify relational factors associated with well-being under sustained threat.

Objectives: This study examined whether dog ownership was associated with perceived social support, coping strategies, and meaning in life, and whether therapists who integrated dogs into professional practice differed from non-therapist dog owners in human-dog relationship characteristics.

Methods: This cross-sectional study included 493 adults. Participants completed questionnaires assessing perceived social support, coping strategies, and meaning in life. The sample comprised 343 dog owners and 150 non-dog owners; 84 owners were therapists who integrated dogs into professional practice. Dog owners completed the Monash Dog-Owner Relationship Scale.

Results: After adjustment for age, gender, and military service history, dog owners had a higher adjusted mean on the significant-other social-support subscale than non-dog owners (adjusted mean difference, 0.25; 95% CI, 0.03–0.46; $p = 0.023$), but the association did not remain significant after Holm correction across nine outcomes (adjusted $p = 0.207$). This subscale assesses perceived human support from a special person, not support from the dog. No robust ownership-group differences were found in meaning in life, coping, or other social-support outcomes. Among dog owners, therapists reported greater interaction and emotional closeness with their dogs than non-therapists. They reported higher presence of meaning in an exploratory comparison; because therapist status and professional dog integration were inseparable, this difference cannot be attributed to dog integration.

Conclusion: The findings support a cautious, exploratory interpretation of associations between dog ownership, professional dog integration, and the psychosocial outcomes measured.

Keywords: Collective trauma; Dog ownership; Human-dog relationship; Meaning in life; Perceived social support; Coping strategies; Cross-sectional study

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1. Introduction

Exposure to war and prolonged collective trauma poses substantial challenges to psychological well-being, social functioning, and health-related quality of life. A

central concern in health psychology is the identification of psychosocial factors associated with functioning and well-being during chronic stress, uncertainty, and threat.¹ Research conducted in disasters, armed conflicts, and large-scale crises has consistently linked traumatic exposure with anxiety, depression, post-traumatic stress symptoms, and disruption of everyday functioning.²⁻⁴ At the same time, individuals vary substantially in their responses to adversity, highlighting the importance of examining potentially relevant psychosocial resources.

Meaning in life, perceived social support, and coping strategies are psychosocial constructs that have been associated with distress, mental health, and quality of life across stressful circumstances.^{1,5,6} In the present study, these constructs are treated as measured psychosocial outcomes relevant to experiences during prolonged collective trauma; they are not treated as direct measures of mental health, functioning, resilience, or longitudinal psychological adaptation.

Meaning in life has long been recognized as an important psychological factor in coping with adversity. Frankl's existential perspective emphasizes that the search for meaning can help individuals endure suffering and maintain a sense of purpose under challenging circumstances.⁷ Contemporary meaning-making theories similarly suggest that individuals seek coherence, purpose, and significance when confronted with stressful or traumatic life events.⁵ Research conducted during ongoing conflict indicates that traumatic exposure, psychological symptoms, and coping processes are associated with meaning in life under wartime conditions.⁸

Meaning may emerge through social relationships, caregiving roles, occupational responsibilities, and participation in activities that provide a sense of purpose and contribution to others. Consequently, identifying factors that support meaning-making during prolonged collective trauma represents an important objective within health psychology research.

The biopsychosocial model emphasizes the interrelationships among biological, psychological, and social processes in relation to health outcomes.¹ Within this framework, social support and coping strategies are considered important psychosocial factors associated with responses to stress and adversity. Social support has been associated with more favorable mental and physical health outcomes, whereas social isolation and loneliness have been linked to altered endocrine and immune functioning.^{9,10}

Similarly, adaptive coping strategies, including problem-focused and emotion-focused coping, have been linked to greater psychological adjustment and resilience,

whereas avoidant or dysfunctional coping strategies are often associated with poorer mental health outcomes.⁶ During prolonged collective stress, such as ongoing military conflict, social support and coping resources may become particularly important in helping individuals maintain well-being and navigate uncertainty.

Within health psychology, increasing attention has been directed toward the ways everyday relationships and routines are associated with experiences during stress and adversity. Companion animals, particularly dogs, may represent one such relational context. Previous studies involving dog and companion-animal owners have reported associations with physical activity, emotional well-being, and life satisfaction, although findings are mixed.¹¹⁻¹⁴ Dogs may be embedded in daily routines and provide companionship, nonjudgmental presence, and opportunities for social interaction.^{15,16} These relational and routine-based forms of support may be particularly relevant during periods of stress and crisis.¹⁶ However, the present cross-sectional design can identify associations only and cannot establish that dog ownership produces psychological benefits.

Research conducted during the COVID-19 pandemic found that pet ownership was associated with greater mild-intensity physical activity and higher emotional well-being, energy, and social functioning.¹⁴ However, evidence regarding associations between dog ownership and psychosocial outcomes during war and ongoing collective trauma remains limited. Findings across studies have also been mixed, suggesting that associations with dog ownership may vary according not only to ownership status itself but also to the quality and meaning of the human-dog relationship. Recent research has increasingly emphasized that outcomes associated with dog ownership may relate not only to the presence of a dog, but also to the nature of the relationship between the individual and the animal.¹⁵ Stronger dog-owner relationships have been associated with greater emotional support and companionship, while compatibility in activity preferences has been associated with greater subjective happiness and lower perceived stress.^{15,17} At the same time, dog ownership may involve practical demands and responsibilities, including financial costs, caregiving obligations, and concerns regarding the animal's welfare, particularly during periods of crisis and instability.¹⁸⁻²⁰ Consequently, the human-dog relationship may either function as a source of support or represent an additional source of burden, depending on contextual circumstances and individual experiences. Therapists who integrate dogs into professional practice represent an especially relevant yet understudied group. For these professionals, the relationship with the dog extends beyond

companionship and is embedded within occupational roles and therapeutic activities.

The ongoing armed conflict in Israel has created a context of collective trauma characterized by exposure to violence, displacement, and ongoing threats to personal and collective safety.^{8,21,22} Such circumstances provide an important setting in which to examine meaning in life, perceived social support, and coping during prolonged societal stress. The present study examined whether dog ownership was associated with the measured outcomes of meaning in life, perceived social support, and coping strategies under conditions of war and prolonged collective stress. It also compared therapists who integrated dogs into their professional work with non-therapist dog owners on human-dog relationship measures. From a health-psychology perspective, examining these associations may help clarify whether dog-related relational contexts merit consideration alongside established psychosocial factors when studying well-being under prolonged collective stress.

Accordingly, four hypotheses were tested: (1) Dog owners were expected to report higher levels of meaning in life than non-dog owners. (2) Dog owners were expected to report higher perceived social support than non-dog owners. (3) Dog owners were expected to report greater use of adaptive coping strategies, including problem-focused and emotion-focused coping, than non-dog owners. (4) Among dog owners, therapists who integrate dogs into their professional practice were expected to report greater emotional closeness and more frequent interaction with their dogs than dog owners who do not integrate dogs into professional practice.

2. Materials and methods

2.1. Study design and participants

A cross-sectional study was conducted using an online survey administered via the Qualtrics platform. Data were collected continuously between August 3, 2024 and May 3, 2025, a nine-month period during which the security context continued to evolve. The inclusion criterion required participants to be at least 21 years of age. Calendar time was not included in the original analytic plan or modeled in the primary analyses; the resulting temporal heterogeneity is acknowledged as a study limitation. This cross-sectional study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline.

Sample size estimation was conducted using G*Power version 3.1.9 to detect a medium effect size (Cohen's $f = 0.25$) for group differences, with a two-tailed significance

level of 0.05 and statistical power of 0.80.²³ A minimum of 159 participants was required. The final sample comprised 493 participants, exceeding this requirement and ensuring adequate statistical power.

Of the total sample, 343 participants (69.6%) were dog owners, including 84 therapists who integrated their dogs into professional practice and 259 non-therapist dog owners. The remaining 150 participants (30.4%) did not own a dog. Participants' ages ranged from 21 to 90 years ($M = 44.21$, $SD = 13.15$). Most participants were women ($n = 402$, 81.5%), were in a committed relationship ($n = 352$, 71.4%), and were born in Israel ($n = 445$, 90.3%). In addition, 370 participants (75.1%) reported having an academic education. Regarding perceived financial status, 58 participants (11.8%) reported poor or very poor financial status, 287 (58.2%) reported moderate financial status, and 148 (30.0%) reported good or excellent financial status.

2.2. Recruitment and ethics

Participants were recruited via digital platforms, including WhatsApp, Facebook, and Instagram. Recruitment posts included a brief description of the study and a link to the online questionnaire. After providing electronic informed consent, participants completed self-report questionnaires assessing demographic characteristics, dog ownership status, and, for dog owners, measures of the dog-owner relationship.

This study was reviewed and approved by the Ethics Committee of the Charlotte B. and Jack J. Spitzer Department of Social Work, Ben-Gurion University of the Negev (Approval No. OG26112023; November 26, 2023). All participants provided electronic informed consent before beginning the questionnaire. Participation was anonymous and voluntary, and participants were informed that they could discontinue participation at any time.

2.3. Measures

All study questionnaires were administered in Hebrew. Standardized self-report measures were used to assess the study constructs. The instruments are described below according to their role in the study.

2.3.1. Dependent variables

Meaning in life was assessed with the Meaning in Life Questionnaire (MLQ), which consists of ten items divided equally into two subscales: presence of meaning and search for meaning.²⁴ Items are rated on a seven-point Likert scale ranging from 1 ("absolutely untrue") to 7 ("absolutely true"). Total scores range from 5 to 35, with higher scores indicating greater meaning in life. Cronbach's alpha values

were 0.88 and 0.89 for the presence and search subscales, respectively. The MLQ is available from the scale developer for non-commercial academic research use; the authors retained documentation of the stated terms of use.

Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS).²⁵ The 12-item scale assesses perceived support from family, friends and a significant other. In the MSPSS, 'significant other' refers to a special person and does not refer to the participant's dog. Items are rated on a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). Subscale scores were computed as mean scores, with higher values indicating greater perceived human social support. Cronbach's alpha values were 0.94 for the total score, 0.94 for family, 0.93 for friends, and 0.92 for significant other. The MSPSS is freely available for research use from the scale developer; the authors retained the developer's generic permission letter.

Coping strategies were assessed using the Brief COPE,²⁶ which includes 28 items measuring three coping domains: problem-focused coping (8 items), emotion-focused coping (12 items), and dysfunctional coping (8 items). Responses are rated on a 4-point Likert scale from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). Subscale scores were calculated as the sum of relevant items, with higher scores indicating greater use of the respective coping strategy. In this study, Cronbach's alpha values were 0.81 for problem-focused, 0.67 for emotion-focused, and 0.60 for dysfunctional coping. The Brief COPE is a public-domain instrument available for research use; the authors retained documentation of its use status.

The dog-owner relationship was assessed among dog owners using the Monash Dog Owner Relationship Scale (MDORS).²⁷ For the present study, the MDORS was translated from English into Hebrew, with the translated wording reviewed by two independent judges. The original instrument comprises 28 items across three subscales: dog-owner interaction (9 items), emotional closeness (10 items), and perceived costs (9 items). Because the MDORS had not previously been formally validated in an Israeli sample, an exploratory factor analysis (EFA) was conducted among 304 dog owners with complete MDORS data.²⁸ Principal component extraction with Promax rotation was initially applied to all 28 items to examine the scree plot. The Kaiser-Meyer-Olkin (KMO) measure indicated high sampling adequacy ($KMO = 0.90$), and Bartlett's test of sphericity was significant, $\chi^2(378) = 4193.71$, $p < 0.001$. Inspection of the scree plot, together with parallel analysis based on 1,000 randomly generated datasets, supported the retention of three factors. A second EFA was therefore conducted using the same extraction

and rotation procedures, with the number of factors fixed at three. This analysis identified one dog-owner interaction item, having the dog present while relaxing, with a factor loading below the prespecified threshold of 0.40 (0.34). The item was consequently excluded, and a third and final EFA was conducted on the remaining 27 items. Sampling adequacy remained high ($KMO = 0.90$), and Bartlett's test of sphericity was significant, $\chi^2(351) = 4074.97$, $p < 0.001$. The final three-factor solution accounted for 50.2% of the total variance. Internal consistency was acceptable to excellent across the three subscales, with Cronbach's $\alpha = 0.73$ for dog-owner interaction, $\alpha = 0.90$ for emotional closeness, and $\alpha = 0.86$ for perceived costs. The MDORS is made available by the Anthrozoology Research Group for download and use; the authors retained documentation of this use status. Full verbatim item wording is not reproduced in the manuscript. The final 27-item EFA results are presented in Table 1.

2.3.2. Independent and background variables

Sociodemographic data included gender, age, marital status, country of birth, educational level, perceived financial status, military service history, dog ownership status, and whether participants were therapists who integrated their dogs into professional work.

The trauma-exposure items were administered in Hebrew; English translations of the administered Hebrew wording are provided below for reporting purposes.

Perceived immediate physical danger was assessed using three items. Two items were adapted from the physical-danger items described by Bonanno *et al.*²⁹ with wording modified to refer to the October 7, 2023 attack and the subsequent war. A third, study-specific item assessed evacuation from a dangerous area following the October 7 events. The items were: "Did you feel that you were in immediate physical danger on Saturday, October 7, 2023?", "Were you evacuated from a dangerous area following the events of October 7, 2023?", and "Did you feel that you were in immediate physical danger during the war?" Responses were coded as 1 = not at all, 2 = no, 3 = not sure, 4 = yes, and 5 = very much. The composite score was calculated as the arithmetic mean of the three responses, with higher values indicating greater reported danger-related exposure. Cronbach's α was 0.65.

Witnessing or knowing people who were seriously injured or killed was assessed using two items adapted from the trauma-exposure items described by Bonanno *et al.*²⁹ The wording was modified to refer to the October 7, 2023 attack and to include both seeing and knowing affected individuals. The items were: "Did you see or know other people who were seriously injured as a result of the

Table 1. Final 27-item exploratory factor analysis for the Monash Dog Owner Relationship Scale

Item code	Emotional closeness	Perceived costs	Interaction with the dog
EC6	0.85		
EC4	0.85		
EC5	0.84		
EC2	0.82		
EC3	0.82		
EC10	0.79		
EC9	0.77		
EC7	0.74		
EC8	0.56		
EC1	0.56		
PC2		0.86	
PC3		0.84	
PC4		0.83	
PC5		0.67	
PC6		0.64	
PC7		0.63	
PC1		0.62	
PC8		0.54	
PC9		0.42	
INT6			0.69
INT2			0.67
INT3			0.65
INT7			0.58
INT1			0.57
INT5			0.56
INT4			0.52
INT9			0.50
Eigenvalue	8.55	3.17	1.83
% of explained variance	31.7%	11.8%	6.8%

Notes: $N = 304$. Factor loadings above 0.40 are shown.

Abbreviations: EC: Emotional closeness; PC: Perceived costs; INT: Interaction with the dog.

attack on Saturday, October 7, 2023?” and “Did you see or know people who died as a result of the attack on Saturday, October 7, 2023?” Responses were coded as 1 = not at all, 2 = no, 3 = not sure, 4 = yes, and 5 = yes, a lot. The composite score was calculated as the arithmetic mean of the two responses, with higher values indicating a greater reported extent of exposure through seeing or knowing injured or deceased people. The score was not interpreted as an exact count of events or individuals. Cronbach’s α was 0.77.

2.4. Statistical analysis

The data were screened for outliers, distributional properties, and missingness.^{28,30} Extreme observations were winsorized to the nearest non-outlying value.³¹ Missing-data patterns were evaluated separately for the full sample and for the dog owners using Little’s test of missing completely at random (MCAR).³² Missing values were subsequently imputed using the expectation-maximization (EM) algorithm.³³ Differences in background characteristics between dog owners and non-dog owners were examined using independent-samples t -tests and χ^2 tests. Differences in the study outcomes by dog ownership were examined using analyses of covariance (ANCOVAs), with background characteristics that differed significantly between the groups included as covariates. Among dog owners, differences in background characteristics between therapists and non-therapists were similarly examined using independent-samples t -tests and χ^2 tests, as appropriate. Differences in dog-owner relationship outcomes between therapists and non-therapists were examined using ANCOVAs, with the single background characteristic that differed significantly between the groups included as a covariate. To account for multiple testing, Holm-adjusted p -values were calculated separately for the nine main study outcomes examined in the dog-ownership comparisons and for the three outcomes examined in the therapist versus non-therapist comparisons. For the ANCOVA comparisons, 95% confidence intervals were reported for adjusted mean differences. All analyses were conducted using IBM SPSS Statistics version 30, with a two-tailed $\alpha = 0.05$.

3. Results

The analyses examined associations between dog ownership and the measured outcomes of meaning in life, perceived social support, and coping strategies during an ongoing period of collective trauma.

3.1. Psychosocial outcomes among dog owners and non-dog owners

Outliers were identified and adjusted using winsorization, and the analyzed variables showed acceptable skewness and

kurtosis. Missing data was lower than 5.3% across variables and consistent with missing completely at random pattern, $\chi^2(37) = 40.84$, $p = 0.305$.

Table 2 shows sociodemographic characteristics by group. Significant differences emerged for age, gender, and military service: relative to non-dog owners, dog owners were younger, more likely to be female, and more likely to report military service history.

Table 3 presents adjusted group comparisons for Hypotheses 1–3. The MSPSS significant-other subscale showed a nominal between-group difference before correction (adjusted mean difference = 0.25, 95% CI [0.03, 0.46], $p = 0.023$), but it did not remain statistically significant after Holm correction (adjusted $p = 0.207$). All other variables showed differences in the expected direction, though no dog-ownership comparison met the Holm-adjusted significance criterion.

3.2. Human-dog relationship characteristics among dog owners

No outliers were detected for the dog-owner relationship measures, and all variables had acceptable skewness and kurtosis. Missing data was lower than 2.4% and consistent with missing completely at random pattern, $\chi^2(22) = 32.30$, $p = 0.072$.

Table 4 summarizes sociodemographic characteristics among dog owners. The only significant difference was residential area: relative to non-therapists, therapists were more likely to reside in northern regions and less likely to reside in central regions.

Table 5 presents adjusted comparisons of dog-owner relationship measures. Therapists who integrated dogs into professional practice reported more frequent interaction and greater emotional closeness than non-therapist dog owners. Perceived costs showed differences in the expected direction, but was not statistically significant.

In an exploratory, non-hypothesized comparison, therapists also reported higher presence of meaning (adj. $M = 26.73$, $SE = 0.68$) than non-therapists (adj. $M = 24.53$, $SE = 0.52$), adjusted mean difference = 2.20, 95% CI [0.75, 3.66], $F(1, 338) = 8.83$, $p = 0.003$, $\eta^2p = 0.026$. This result describes a difference between self-selected groups and cannot be attributed specifically to professional dog integration.

4. Discussion

This cross-sectional study examined associations of dog ownership and professional dog integration with the measured outcomes of perceived social support, coping strategies, meaning in life, and human-dog relationship

characteristics during prolonged collective trauma. It did not directly assess mental health, functional adaptation, resilience, or change over time; therefore, the findings are interpreted as associations among the measured constructs.

Contrary to the first hypothesis, dog owners did not report reliably higher presence or search for meaning than non-dog owners. This null finding indicates that ownership status alone was not robustly associated with meaning in life in this sample. Meaning during collective adversity may be shaped by how individuals interpret suffering, pursue personally significant goals, and engage in coping and helping others; the present data do not isolate any single pathway.^{5,7,8}

Within dog owners, therapists who integrated dogs into professional practice reported higher presence of meaning in an exploratory comparison. This result should not be interpreted as evidence that dog integration increased meaning. Therapist status and professional integration were confounded by design, and the groups may differ in occupational purpose, professional identity, values, training, and other unmeasured characteristics. The finding therefore identifies a hypothesis for future research rather than a mechanism demonstrated by the present study.

The second hypothesis was not supported after correction for multiple testing. Dog owners had a higher adjusted mean on the MSPSS significant-other subscale in the uncorrected analysis, but the association did not remain significant after Holm correction. Moreover, the MSPSS significant-other subscale measures perceived support from a special person, not support provided by a dog. The observed nominal association may reflect differences in participants' broader human relational context and cannot be used as evidence that dogs themselves supplied the measured support.

Contrary to the third hypothesis, dog owners and non-dog owners did not differ reliably in problem-focused, emotion-focused, or dysfunctional coping. The present measures therefore do not support an association between ownership status and these self-reported coping domains. Other routines associated with dog ownership, such as walking or daily structure, were not measured and should not be inferred from these data.³⁴

The fourth hypothesis was supported at the level of group association: therapists who integrated dogs into their professional work reported greater emotional closeness and more frequent interaction with their dogs than non-therapist dog owners. However, participation was voluntary and all study groups were self-selected; therefore, self-selection was not unique to the therapist

Table 2. Sociodemographic characteristics of dog owners and non-dog owners

Characteristic	Non-dog owners (<i>n</i> = 150)		Dog owners (<i>n</i> = 343)				
<i>Continuous variables</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
Age	46.67	15.16	43.13	12.03	2.54	0.012	0.27
Perceived financial status	3.19	0.76	3.20	0.73	−0.16	0.874	−0.02
Perceived immediate physical danger	2.47	0.91	2.46	0.78	0.14	0.887	0.01
Witnessing death and/or injury	2.94	1.22	3.08	1.12	−1.22	0.224	−0.12
<i>Categorical variables</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	χ^2	<i>p</i>	
Gender					6.77	0.009	
Female	112	74.7	290	84.5			
Male	38	25.3	53	15.5			
Marital status					1.22	0.269	
Married or in a relationship	102	68.0	250	72.9			
Other	48	32.0	93	27.1			
Country of birth					0.21	0.645	
Israel	134	89.3	311	90.7			
Other	16	10.7	32	9.3			
Education					2.21	0.137	
Academic	106	70.7	264	77.0			
Non-academic	44	29.3	79	23.0			
Residential area					0.24	0.970	
North	14	9.3	35	10.2			
Center-coast	93	62.0	216	63.0			
Center-east	8	5.3	18	5.2			
South	35	23.3	74	21.6			
Military service history					4.84	0.028	
Yes	128	85.3	315	91.8			
No	22	14.7	28	8.2			

Notes: Percentages may not total 100 due to rounding.
Abbreviations: M: Mean; SD: Standard deviation.

Table 3. ANCOVA results comparing study variables between dog owners and non-dog owners

Variable	Non-dog owners, adj. M (SE)	Dog owners, adj. M (SE)	Adjusted difference (95% CI)	F	p	Holm-adjusted p	η^2p
Social support	5.44 (0.09)	5.63 (0.06)	0.19 (−0.02, 0.41)	3.20	0.074	0.592	0.007
Family	5.32 (0.11)	5.45 (0.07)	0.13 (−0.14, 0.39)	0.88	0.350	0.920	0.002
Friends	5.34 (0.11)	5.56 (0.07)	0.22 (−0.03, 0.48)	2.96	0.086	0.602	0.006
Significant other	5.74 (0.09)	5.99 (0.06)	0.25 (0.03, 0.46)	5.18	0.023	0.207	0.011
Problem-focused coping	21.26 (0.39)	21.80 (0.25)	0.54 (−0.38, 1.46)	1.34	0.248	0.920	0.003
Emotion-focused coping	28.99 (0.41)	29.04 (0.27)	0.05 (−0.91, 1.01)	0.01	0.920	0.920	<0.001
Dysfunctional coping	15.55 (0.27)	15.50 (0.18)	−0.05 (−0.70, 0.59)	0.03	0.870	0.920	<0.001
Presence of meaning	24.85 (0.49)	25.56 (0.32)	0.70 (−0.47, 1.87)	1.39	0.239	0.920	0.003
Search for meaning	22.63 (0.55)	23.09 (0.36)	0.46 (−0.85, 1.78)	0.48	0.489	0.920	<0.001

Notes: Means were adjusted for age, gender, and military-service history. Differences are dog owners minus non-dog owners. Holm-adjusted *p*-values address the family of nine dog-ownership outcomes.

Abbreviations: Adj. M: Adjusted mean; ANCOVA: Analysis of covariance; CI: Confidence interval; SE: Standard error.

subgroup. In addition, therapist status and professional dog integration were inseparable by design. Research involving other occupational groups working with dogs also indicates that professional role and its broader psychosocial context should be considered when interpreting findings among individuals who work with dogs.³⁵ Accordingly, the observed differences may reflect occupational role, professional identity, greater opportunities for interaction, or other unmeasured characteristics and should not be interpreted as a causal effect of professional dog integration.

Taken together, the findings do not show that dog ownership is a general protective factor during collective trauma. After correction for multiple testing, ownership status was not robustly associated with the psychosocial outcomes examined. The therapist comparisons indicate associations between a self-selected professional group and human-dog relationship characteristics, but they do not establish that integrating dogs into practice produces these differences.

The study offers an exploratory description of dog ownership, human social support, coping, meaning in life, and human-dog relationship characteristics during prolonged societal stress. Future longitudinal and preregistered studies should assess mental health and functioning directly, examine temporal change, and test

whether trauma exposure moderates associations between dog-related variables and psychosocial outcomes. Within dog owners, future analyses should distinguish therapist status from professional dog integration and examine prespecified associations between MDORS dimensions and psychological outcomes while controlling multiplicity.

4.1. Limitations and future directions

Several methodological considerations should be acknowledged. First, the cross-sectional design precludes causal or directional conclusions. The measured constructs should not be treated as evidence of psychological adaptation over time. Individuals with different relational resources, routines, occupational identities, or psychological characteristics may be differentially likely to own dogs, form close relationships with them, or integrate them into professional roles.

Second, the online convenience sample was predominantly female, highly educated, and mostly born in Israel, limiting generalizability. Data were collected over nine months while the security situation evolved, which may have introduced temporal heterogeneity. Calendar time was not included in the original analytic plan and was not modeled in the primary analyses. Because the study did not prospectively define discrete security phases

Table 4. Sociodemographic characteristics of therapists and non-therapists among dog owners

Characteristic	Non-therapists (<i>n</i> = 259)		Therapists (<i>n</i> = 84)				
<i>Continuous variables</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
Age	43.59	12.23	41.70	11.35	1.25	0.212	0.16
Perceived financial status	3.21	0.73	3.17	0.76	0.45	0.651	0.06
Perceived immediate physical danger	2.44	0.77	2.52	0.82	−0.91	0.364	−0.11
Witnessing death and/or injury	3.04	1.13	3.18	1.10	−0.95	0.341	−0.12
<i>Categorical variables</i>	<i>n</i>	%	<i>n</i>	%	χ^2	<i>p</i>	
Gender					0.13	0.723	
Female	220	84.9	70	83.3			
Male	39	15.1	14	16.7			
Marital status					0.83	0.362	
Married or in a relationship	192	74.1	58	69.0			
Other	67	25.9	26	31.0			
Country of birth					0.63	0.428	
Israel	233	90.0	78	92.9			
Other	26	10.0	6	7.1			
Education					0.49	0.484	
Academic	197	76.1	67	79.8			
Non-academic	62	23.9	17	20.2			
Residential area					13.67	0.003	
North	20 _a	7.7	15 _b	17.9			
Center-coast	176 _a	68.0	40 _b	47.6			
Center-east	11	4.2	7	8.3			
South	52	20.1	22	26.2			

Notes: Cells with different subscript letters differ significantly from each other at the 0.05 level.
Abbreviations: M: Mean; SD: Standard deviation.

Table 5. ANCOVA results comparing dog-owner relationship measures between therapists and non-therapists dog owners

Variable	Non-therapists, adj. M (SE)	Therapists, adj. M (SE)	Adjusted difference (95% CI)	F	p	Holm-adjusted p	η^2p
Interaction with the dog	28.28 (0.44)	30.99 (0.57)	2.71 (1.49, 3.93)	19.08	<0.001	<0.001	0.053
Emotional closeness	38.26 (0.68)	41.94 (0.88)	3.68 (1.79, 5.57)	14.67	<0.001	<0.001	0.042
Perceived costs	21.22 (0.56)	20.40 (0.73)	-0.83 (-2.40, 0.74)	1.07	0.301	0.301	0.003

Notes: Means were adjusted for residential area. Differences are therapists minus non-therapists. Holm-adjusted p-values address the family of three outcomes.

Abbreviations: Adj. M: Adjusted mean; ANCOVA: Analysis of covariance; SE: Standard error.

or time-varying exposure conditions, we did not add an arbitrary post hoc time segmentation in response to review. Future studies should recruit more heterogeneous samples and use repeated assessments or prespecified models of calendar time and changing exposure conditions.

Third, all variables were self-reported, and the study did not include direct measures of mental health symptoms, functional status, or longitudinal adaptation. Responses may be affected by current emotional state, shared method variance, and general response tendencies. Future work should combine self-report with behavioral indicators, qualitative interviews, ecological assessment, and direct mental-health or functioning measures.

Fourth, the MDORS has not been formally validated in Israel. The exploratory principal component analyses supported a three-component solution, but one original interaction item loaded below 0.40 and was excluded from the final 27-item scoring solution. Replication using confirmatory factor analysis in an independent Israeli sample is needed. Fifth, participation in the study was entirely voluntary, and all study groups were self-selected, including therapist dog owners, non-therapist dog owners, and non-dog owners. Thus, self-selection was not unique to the therapist subgroup and may have introduced selection bias across the sample; the direction and magnitude of such bias cannot be determined from the present study. In addition, the therapist comparison has a specific structural limitation because therapist status and professional dog integration were inseparable by design. Occupational role, professional identity, training, and other unmeasured psychosocial characteristics may therefore have contributed to the observed differences between therapist and non-therapist dog owners. Finally, the initial ownership analyses involved multiple outcomes; after Holm correction, no comparison remained statistically

significant. The nominal significant-other result should therefore be interpreted cautiously.

4.2. Implications

The present study has several implications for health psychology research and practice.

The findings indicate that ownership status alone was not robustly associated with meaning in life, coping, or perceived human social support after multiplicity correction. The therapist-group differences may be useful for generating hypotheses about how professional roles and human-dog relationships coexist, but they do not establish a therapeutic or protective effect of dog integration.

The study contributes descriptive evidence from a population experiencing prolonged collective stress and highlights the importance of distinguishing dog ownership, relationship quality, human social support, and occupational role. Future research should test these constructs in longitudinal, preregistered models with direct mental-health and functioning outcomes.

Practical recommendations should remain cautious. The current data do not support prescribing dog ownership or professional dog integration as a means of improving psychological outcomes. They instead support further investigation of everyday relationships, meaningful roles, and social connectedness using designs capable of addressing selection and change over time.

5. Conclusion

Dog ownership status was not robustly associated with the measured psychosocial outcomes after correction for multiple testing. Therapists who integrated dogs into professional practice reported closer and more interactive human-dog relationships than non-therapist owners, but self-selection and occupational confounding prevent

attribution to dog integration. The findings are exploratory and support cautious, associational conclusions.

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Conflict of interest

The authors declare no conflict of interest.

Author contributions

Conceptualization: All authors

Data curation: Shlomit Lahav

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Ethics approval and consent to participate

The study was approved by the departmental Ethics Committee on November 26, 2023 (Approval No. OG26112023). All participants provided electronic informed consent before participation.

Consent for publication

Not applicable. The manuscript reports anonymized, aggregated data only and contains no identifiable individual information.

Availability of data

A deidentified participant-level dataset is available from the authors upon reasonable request. To protect participant confidentiality, participants' ages, all survey-completion timing information, and case numbers have been removed from the shared dataset.

Further disclosure

Preliminary findings from this study were presented at the departmental conference of the Spitzer Department of Social Work, Ben-Gurion University of the Negev, Beer-Sheva, Israel, in May 2025; at the Annual Doctoral Conference of the Kreitman School of Advanced Graduate Studies, Ben-Gurion University of the Negev, Beer-Sheva, Israel; and at the 18th Annual Health Policy Conference in Israel. The authors used ChatGPT (OpenAI; GPT-5.6

Sol) under their direct supervision for English-language polishing and editorial assistance, including improving clarity, readability, wording, and organization of the manuscript and the point-by-point response to the editor and reviewers. All AI-assisted text was critically reviewed, revised, and manually verified by the authors. ChatGPT was not used for study design, data collection, statistical analysis, interpretation of the findings, or drawing scientific conclusions. All statistical analyses were independently conducted and verified by the study statistician, and all scientific interpretations and conclusions were determined and approved by the authors. The authors take full responsibility for the accuracy, originality, and final content of the manuscript.

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