



**A STUDY OF PET COMPANIONSHIP, SENSE OF BELONGING, AND
PSYCHOLOGICAL WELL-BEING AMONG EMERGING ADULTS IN MALAYSIA**

CHONG XIN YI

22AAB02115

UNIVERSITY TUNKU ABDUL RAHMAN (UTAR)

BACHELOR OF ART AND SOCIAL SCIENCE (HONS) GUIDANCE AND COUNSELLING

UAPC 3093 PROJECT PAPER II

**UNIVERSITI TUNKU ABDUL RAHMAN
FACULTY OF ARTS AND SOCIAL SCIENCE
DEPARTMENT OF PSYCHOLOGY AND COUNSELLING**

UAPC3093 PROJECT PAPER II

Quantitative Research Project Evaluation Form

TURNITIN: *‘In assessing this work you are agreeing that it has been submitted to the University-recognised originality checking service which is Turnitin. The report generated by Turnitin is used as evidence to show that the students’ final report contains the similarity level below 20%.’*

Project Title: A Study of Pet Companionship, Sense of Belonging, and Psychological Well-Being among Emerging Adults in Malaysia	
Supervisor: Mr. Lee Wei Rong	
Student’s Name: Chong Xin Yi	Student’s ID: 22AAB02115

INSTRUCTIONS:

Please score each descriptor based on the scale provided below:

1. Please award 0 mark for no attempt.
2. Please mark only **3(A)** or **3(B)** for **Proposed Methodology**.
3. For criteria **7**:

Please retrieve the marks from “**Oral Presentation Evaluation Form**”.

1. ABSTRACT (5%)	Max Score	Score
a. State the main hypotheses/research objectives.	5%	
b. Describe the methodology: <ul style="list-style-type: none"> • Research design • Sampling method and sample size • Location of study • Instruments/apparatus/outcome measures (if applicable) • Data gathering procedures 	5%	
c. Describe the characteristics of participants.	5%	
d. Highlight the outcomes of the study or intervention, target behaviour and outcomes.	5%	
e. Conclusions, implications, and applications.	5%	
<i>Sum</i>	25%	/25%
Subtotal (Sum/5)	5%	/5%
Remark:		
2. (A) METHODOLOGY (25%)	Max Score	Score
a. Research design/framework: <ul style="list-style-type: none"> • For experiment, report experimental manipulation, participant flow, treatment fidelity, baseline data, adverse events and side effects, assignment method and implementation, masking (if applicable). • For non-experiment, describe the design of the study and data used. 	5%	
b. Sampling procedures: <ul style="list-style-type: none"> • Justification of sampling method/technique used. • Description of location of study. • Procedures of ethical clearance approval. 	5%	
c. Sample size, power, and precision:	5%	

<ul style="list-style-type: none"> • Justification of sample size. • Achieved actual sample size and response rate. • Power analysis or other methods (if applicable). 		
d. Data collection procedures: <ul style="list-style-type: none"> • Inclusion and exclusion criteria. • Procedures of obtaining consent. • Description of data collection procedures. • Provide dates defining the periods of recruitment or repeated measures and follow-up. • Agreement and payment (if any). 	5%	
e. Instruments/questionnaire used: <ul style="list-style-type: none"> • Description of instruments • Scoring system • Meaning of scores • Reliability and validity 	5%	
Subtotal	25%	/25%
Remark:		
2. (B) METHODOLOGY – SINGLE-CASE EXPERIMENT (25%)	Max Score	Score
a. Research design/framework: <ul style="list-style-type: none"> • Identify the design, phase and phase sequence, and/or phase change criteria. • Describe procedural changes that occurred during the investigation after the start of the study (if applicable). • Describe the method of randomization and elements of study that were randomized (if applicable). • Describe binding or masking was used (if applicable). 	5%	
b. Participants AND Context AND Approval: <ul style="list-style-type: none"> • Describe the method of recruitment. • State the inclusion and exclusion criteria. • Describe the characteristics of setting and location of study. 	5%	

<ul style="list-style-type: none"> • Procedures of ethical clearance approval. • Procedures of obtaining consent. 		
c. Measures and materials used: <ul style="list-style-type: none"> • Operationally define all target behaviours and outcome measures. • Reliability and validity. • Justify the selection of measures and materials. • Describe the materials. 	5%	
d. Interventions: <ul style="list-style-type: none"> • Describe the intervention and control condition in each phase. • Describe the method of delivering the intervention. • Describe evaluation of procedural fidelity in each phase. 	5%	
e. Data analysis plan: <ul style="list-style-type: none"> • Describe and justify all methods used to analyze data. 	5%	
Subtotal	25%	/25%
Remark:		
3. RESULTS (20%)	Max Score	Score
a. Descriptive statistics/Sequence completed: <ul style="list-style-type: none"> • Demographic characteristics • Topic-specific characteristics • For single-case study, report the sequence completed by each participant, trial for each session for each case, dropout and reason if applicable, adverse events if applicable 	5%	
b. Data diagnostic and missing data (if applicable): <ul style="list-style-type: none"> • Frequency and percentages of missing data (compulsory). • Methods employed for addressing missing data. • Criteria for post data-collection exclusion of participants. • Criteria for imputation of missing data. • Defining and processing of statistical outliers. • Data transformation. 	5%	

<ul style="list-style-type: none"> Analyses of data distributions. 		
c. Appropriate data analysis for each hypothesis or research objective.	5%	
d. Accurate interpretation of statistical analyses: <ul style="list-style-type: none"> Accurate report and interpretation of confidence intervals or statistical significance. Accurate report of p values and minimally sufficient sets of statistics (e.g., dfs, MS, $MS\ error$). Accurate report and interpretation of effect sizes. Report any problems with statistical assumptions. 	5%	
Subtotal	20%	/20%
Remark:		
4. DISCUSSION AND CONCLUSION (20%)	Max Score	Score
a. Discussion of findings: <ul style="list-style-type: none"> Provide statement of support or nonsupport for all hypotheses. Analyze similar and/or dissimilar results. Justifications for statistical results in the context of study. 	5%	
b. Implication of the study: <ul style="list-style-type: none"> Theoretical implication for future research. Practical implication for programs and policies. 	5%	
c. Relevant limitations of the study.	5%	
d. Recommendations for future research.	5%	
Subtotal	20%	/20%
Remark:		
5. LANGUAGE AND ORGANIZATION (5%)	Max Score	Score
a. Language proficiency	3%	
b. Content organization	1%	

c. Complete documentation (e.g., action plan, originality report)	1%	
Subtotal	5%	/5%
Remark:		
6. APA STYLE AND REFERENCING (5%)	Max Score	Score
a. 7 th Edition APA Style	5%	/5%
Remark:		
*ORAL PRESENTATION (20%)	Score	
Subtotal		
	/20%	
Remark:		
PENALTY	Max Score	Score
Maximum of 10 marks for LATE SUBMISSION, or POOR CONSULTATION ATTENDANCE with supervisor.	10%	
**FINAL MARK/TOTAL		
	/100%	

*****Overall Comments:**

Signature: _____

Date: _____

Notes:

1. **Subtotal:** The sum of scores for each assessment criterion
2. **FINAL MARK/TOTAL:** The summation of all subtotal score
3. Plagiarism is **NOT ACCEPTABLE**. Parameters of originality required and limits approved by UTAR are as follows:
 - (i) **Overall similarity index is 20% or below**, and
 - (ii) **Matching of individual sources listed must be less than 3%** each, and
 - (iii) Matching texts in continuous block must **not exceed 8 words**

Note: Parameters (i) – (ii) shall exclude quotes, references and text matches which are less than 8 words.

Any works violate the above originality requirements will NOT be accepted. Students have to redo the report and meet the requirements in **SEVEN (7)** days.

*The marks of “Oral Presentation” are to be retrieved from “**Oral Presentation Evaluation Form**”.

**It is compulsory for the supervisor/examiner to give the overall comments for the research projects with A- and above or F grading.

**UNIVERSITI TUNKU ABDUL RAHMAN
FACULTY OF ARTS AND SOCIAL SCIENCE
DEPARTMENT OF PSYCHOLOGY AND COUNSELING**

INDIVIDUAL ORAL PRESENTATION EVALUATION FORM (FACE TO FACE/VIRTUAL PLATFORM)

UAPC3093 PROJECT PAPER II

Student's Name	ID	*Total (40%)	**Final score (20%)
Chong Xin Yi	2202115		

**Final Score: () / 40 marks ÷ 2 = () / 20 marks
*to be converted into 20%

Date: _____

Time: _____

SCORE TRAITS	SCORE	EXCELLENT 4	GOOD 3	AVERAGE 2	LACKING 1
POSTER PRESENTATION PREPARATION					
Organisation		Title/author of paper clearly displayed. Concise presentation of introduction, review of literature, methodology, findings and conclusions.	Shows title/author. Adequately presents introduction, review of literature, methodology, findings and conclusions.	Shows title/author. Presents main ideas of introduction, review of literature, methodology, findings and conclusions.	Title/author are missing. Insufficient coverage of main points of introduction, review of literature, methodology, findings and conclusions.
Competency		Student demonstrates competent knowledge of the subject by explaining the subject with details. Able to answer questions posted by the audience/examiners fluently with confidence.	Student is able to provide sufficient information to enable audience to understand main ideas. Able to answer questions posted by the audience/examiners with noticeable interval.	Student is able to provide basic information with vague and disjointed ideas. Student tried to answer the questions posted by the audience/examiner using common-sense rather than evidence-based answer.	Student is unable convey the information fluently to the audience/examiner. Student is not able to answer the questions posted by the audience/examiner.
Visual Presentation		Visually appealing poster with appropriate colours,	Overall visually appealing. Organisation of content	Visual appeal is adequate. Colours and layout	Visuals lack appeal. Colours and layout

		organization, and font sizes enhance readability. Strategically positioned graphics and text.	enhances readability. Appropriate font size enhances readability. Content arrangement easily understood. Graphics enhances text.	somewhat cluttered. Font size affects readability. Confusing content arrangement. Graphics help to highlight some content.	cluttered. Hinders readability. Inconsistent font sizes and content arrangement Mismatch of graphics and text.
Mechanics		The slides are flawless with no misspelling, punctuation, or grammatical errors. Provide essential sources and citations using 7 th edition APA style.	2 – 3 misspelling, punctuation and/ or grammatical errors in the slides. Provided excessive and cluttered sources and citations.	4 misspelling, punctuation and/ or grammatical errors detected in the slides. Inconsistent citation styles detected.	Slides are riddled with multiple spelling, punctuation and/ or grammatical errors. Does not cite sources.
SCORE TRAITS	SCORE	EXCELLENT 4	GOOD 3	AVERAGE 2	LACKING 1
VERBAL SKILLS					
Enthusiasm		Demonstrates a strong, positive feeling about topic during entire presentation.	Occasionally shows positive feelings about topic.	Shows little positive feelings toward topic presented.	Shows absolutely no interest in topic presented.
Delivery		Uses a clear voice and speaks at a good pace so audience can hear presentation. Does not read off slides.	Presenter's voice is clear. The pace is a little slow or fast at times. Audience can hear presentation.	Presenter's voice is low. The pace is much too rapid/slow. Audience has difficulty hearing presentation.	Presenter mumbles or talks very fast and speaks too softly for audience to hear and understand.
Language		Excellent and competent use of subject-related vocabulary and correct pronunciation.	Presentation shows competent use of subject-related vocabulary and correct pronunciation.	Some parts of lapse into colloquialism with inappropriate vocabulary and pronunciation.	Mostly inappropriate vocabulary and pronunciation.
NON-VERBAL SKILLS					
Eye Contact		Student maintains eye contact with audience, seldom returning to notes.	Student maintains eye contact most of the time but frequently returns to notes.	Student occasionally uses eye contact, but still reads most of report.	Student reads all of report with no eye contact.
Body Language &		Movements seem fluid. Displays relaxed, self-confident nature about self, with no-mistakes.	Made movements or gestures that enhance articulation. Makes minor mistakes, displays little or no tension.	Rigid movement or descriptive gestures. Displays mild tension; has trouble recovering from	No movement or descriptive gestures. Tension and nervousness are obvious; has trouble

Facial Expression		Appropriate facial expression without a zoned-out or confused expression.	Occasionally demonstrate either a zoned-out or confused expression during presentation.	mistakes. Occasionally demonstrate both zoned-out or confused expressions during presentation.	recovering from mistakes. Consistently zoned-out or displays confused expression during presentation.
Timing		Within 10 to 15 minutes of allotted time.	Within 17 minutes of allotted time OR too short (<10 minutes).	Within 20 minutes of allotted time OR too short (<5 minutes).	Too long (>20 minutes) or too short (<3 minutes).
*TOTAL					

Comments:

Evaluated by:

(NAME OF EVALUATOR: _____)

Department of Psychology and Counseling
Faculty of Arts and Social Science
UTAR Perak Campus

Copyright Statement

© 2025 CHONG XIN YI. All rights reserved.

This Project Paper is submitted in partial fulfilment of the requirements for the degree of Bachelor of Social Science (Honours) Guidance and Counselling at Universiti Tunku Abdul Rahman (UTAR). This Project Paper represents the work of the author, except where due acknowledgement has been made in the text. No part of this Project Paper may be reproduced, stored, or transmitted in any form or by any means, whether electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the author or UTAR, in accordance with UTAR's Intellectual Property Policy.

ACKNOWLEDGEMENT

Finally reaching the completion of my Final Year Project marks an important milestone in my academic journey. Along the way, I have been lucky to receive tremendous support and encouragement, and I would like to take this opportunity to express my heartfelt appreciation to everyone who has contributed to this achievement.

First and foremost, I would like to extend my deepest gratitude to my supervisor, Mr. Lee Wei Rong. From the very beginning — choosing my FYP title, drafting the contents, making countless amendments, and accomplishing the final work. His professional recommendations and unwavering support provided me with thoughtful insights, kept me motivated and confident to continue the paper.

I am also sincerely thankful to all my friends and my eldest sister, who were like guiding lights during times when emotions overwhelmed me. Their presence constantly reminded me that I was never alone in this journey, offering emotional support that made all the difference.

In addition, I would like to acknowledge the contributions of other parties who played a role in this paper, the GC lecturers who have educated me throughout my years of study, and the survey respondents who willingly participated and shared their time to contribute in this study.

Lastly, I want to thank myself for persevering through countless tough moments without giving up. A special thank you also goes to my beloved pet dogs, whose companionship and unconditional love have inspired me to explore and contribute to this field of research.

CHONG XIN YI

ABSTRACT

In Malaysia, growing concerns about mental health have highlighted the importance of psychological well-being among emerging adults. This developmental stage is often marked by inter and intrapersonal challenges, making it essential to explore factors that support and enhance their psychological well-being. Therefore, the present study aimed to explore the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia. A cross-sectional survey design was employed, using purposive sampling to recruit 128 Malaysian emerging adults aged between 18 and 29 years. Data was collected through an online self-administered questionnaire. The instruments used in the study were Comfort from Companion Animals Scale (CCAS), Sense of Belonging Instrument – Psychological (SOBI-P), and Brief 18-item Psychological Well-Being Scale. The findings revealed that Malaysia emerging adults reported high levels of pet companionship, sense of belonging, and psychological well-being. A statistically significant positive relationship among the three variables. Meanwhile, both pet companionship and sense of belonging were strong predictors of psychological well-being. These findings provided theoretical support for the PERMA model from Seligman’s Well-Being Theory, also offer valuable insight for future study by highlighting the need to develop inclusive and culturally appropriate mental health interventions that incorporate both human-animal bonds and social affiliation strategies to enhance the psychological well-being of emerging adults within the Malaysian context.

Keywords: Pet companionship, Sense of belonging, Psychological well-being, Malaysian emerging adults, Seligman’s Well-Being Theory

Subject Area: BF575 Affection. Feeling. Emotion

DECLARATION

I declare that the materials and contents in this paper are the end results of my own work, and that due acknowledgement has been given in the bibliography and references to ALL sources, by the printed, electronic, or personal.

Name: CHONG XIN YI

Student ID: 22AAB02115

Signature:

Date: 28th April 2025

Table of Contents

Chapter 1 Introduction.....	1
Background of Study	1
Psychological Well-Being.....	1
Sense of Belonging	3
Pet Companionship.....	4
Problem Statement.....	6
Significance of Study	10
Research Objectives	12
Research Questions	12
Research Hypotheses	13
Conceptual Definition	13
Pet Companionship.....	13
Sense of Belonging.....	14
Psychological Well-Being.....	14
Operational Definition	15
Pet Companionship.....	15
Sense of Belonging.....	15
Psychological Well-Being.....	15
Chapter 2 Literature Review.....	16
Pet Companionship	16
Sense of Belonging	18
Psychological Well-Being	20
Pet Companionship and Sense of Belonging.....	23
Pet Companionship and Psychological Well-Being.....	25
Sense of Belonging and Psychological Well-Being.....	28
Theoretical Framework.....	30
Conceptual Framework	34
Chapter 3 Methodology.....	36
Introduction.....	36
Research Design.....	36

Sampling Procedures	37
Sampling Method	37
Location of Study	39
Ethical Clearance Approval	39
Sample Size, Power and Precision	39
Data Collection Procedures	41
Inclusion and Exclusion Criteria	41
Plan of Obtaining Consent	41
Data Collection Procedures	42
Pilot Study	43
Actual Study	44
Instruments.....	44
Comfort from Companion Animals Scale (CCAS)	45
Sense of Belonging Instrument-Psychological (SOBI-P)	46
Brief 18-Item Psychological Well-Being Scale.....	46
Chapter 4 Results	50
Descriptive Statistics	50
Demographic Characteristics	50
Topic-Specific Variables Characteristics	52
Data Diagnostic and Missing Data	53
Frequency and Percentages of Missing Data	53
Method Employed for Addressing Missing Data	54
Criteria for Post-Data Collection Exclusion of Participants	54
Criteria for Imputation of Missing Data	54
Defining and Processing of Statistical Outliers	55
Data Transformation	55
Analyses of Data Distributions	55
Data Analysis	57
Chapter 5 Discussion and Conclusion.....	69
Level of Pet Companionship, Sense of Belonging, and Psychological Well-Being.....	69
Pet Companionship and Sense of Belonging.....	70
Pet Companionship and Psychological Well-Being.....	71

Sense of Belonging and Psychological Well-Being.....	72
Pet Companionship Predict Psychological Well-Being.....	73
Sense of Belonging Predict Psychological Well-Being.....	74
Implications of Study	75
Theoretical Implications	75
Practical Implications	76
Limitations of the Study	77
Recommendations for Future Research	78
Conclusion	80
References	81
Appendices	117
Appendix A : PPMC Sample Size Calculation	117
Appendix B: Boxplot	118
Appendix C: Turnitin Report	120
Appendix D: JASP Output for Reliability in Pilot Study.....	121
Appendix E: JASP Output for Reliability in Actual Study	122
Appendix F: JASP Output for Spearman Rank Correlation Coefficient	123
Appendix G: JASP Output for H_{2a} Simple Linear Regression	124
Appendix H: JASP Output for H_{2b} Simple Linear Regression	126
Appendix I: Ethical Clearance Approval.....	127

List of Table

Table 3. 1 <i>Instruments' Reliability from Pilot (N=30) and Actual (N=128) Study</i>	44
Table 3. 2 <i>Instruments Score Ranges</i>	47
Table 3. 3 <i>Analysis Method</i>	48
Table 4. 1 <i>Demographic Characteristics of Respondents (n=128)</i>	51
Table 4. 2 <i>Descriptive Statistics of Topic-Specific Variables (i.e., pet companionship, sense of belongingness, and psychological well-being</i>	53
Table 4. 3 <i>Frequency Distribution of Pet Companionship, Sense of Belonging, and Psychological Well-Being (n=128)</i>	59
Table 4. 4 <i>Shapiro-Wilk Test for Bivariate Normality</i>	60
Table 4. 5 <i>Spearman's Correlations of Pet Companionship, Sense of Belonging, and Psychological Well-Being</i>	60
Table 4.6 <i>Assumption Checks for SLR</i>	64
Table 4. 7 <i>Simple Linear Regression Coefficient</i>	64
Table 4. 8 <i>Simple Linear Regression Model</i>	65
Table 4. 9 <i>Assumption Checks for SLR</i>	66
Table 4. 10 <i>Simple Linear Regression Coefficient</i>	67
Table 4. 11 <i>Simple Linear Regression Model</i>	67
Table 4. 12 <i>Summary of Hypotheses Testing</i>	68

List of Figure

- Figure 2.1** Theoretical Framework of the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia33
- Figure 2.2** Conceptual Framework of the relationship between pet companionship, sense of belonging and psychological well-being among emerging adults in Malaysia.34

Chapter 1 Introduction

Background of Study

Emerging adulthood, defined as the period from approximately 18 to 29 years of age, represents a unique and critical phase of human development (Arnett, 2000). It is marked by significant transitions as individuals navigate their way through higher education, the early stages of their careers, and the process of establishing independence. This stage is often characterised by exploring identity, fluctuating social roles, and increased responsibilities (Wood et al., 2018). While it is a time of potential growth and self-discovery, it can also bring considerable psychological and emotional challenges due to the increase of uncertainty where the fear of failure and self-doubt can be distressing for those who feel unprepared for these demands (Martínez-García et al., 2024). Life transitions are also viewed as stressors that place individuals at risk for various mental health issues, as the pressure to adapt to rapidly changing environments can heighten feelings of anxiety, loneliness, and depression (Praherso et al., 2017). Thus, the transitional nature of this life stage along with the need to quickly adjust to new expectations, often exacerbates these mental health challenges.

Psychological Well-Being

Psychological well-being refers to an individual's emotional stability, social health, and psychological resilience contributes to overall life satisfaction and happiness, and is a critical factor influencing overall mental health (Ruggeri et al., 2020). High psychological well-being can help mitigate the effects of stress and promote a positive outlook on life, while low psychological well-being is associated with higher risks of mental health issues such as

depression and anxiety. In Malaysia, mental health issues among emerging adults have become an increasing concern. The Malaysian Youth Mental Health Index 2023 (MYMHI'23) reported a rating of 71.9%, indicating a moderate and high risk for mental health issues among this population (UNICEF, 2023). The index highlighted that the social support domain received the lowest score at 68.3%, followed by the healthy mind domain at 66.1% and the surrounding environment domain at 65.5%. These findings suggest that young people face unsupportive social environments and lack adequate assistance from family members, significant others, and mental health professionals especially in their transition of life. This deficiency can contribute to increased feelings of loneliness and depression, ultimately affecting their psychological well-being (Brandt et al., 2022).

Studies have consistently shown that depression, anxiety, and stress are strongly correlated with reduced psychological well-being, which serves as a critical indicator of an individual's overall mental health, encompassing aspects like emotional resilience, life satisfaction, and effective stress management (Hoying et al., 2020). Local research has highlighted that university and higher education students frequently experience significant psychological challenges, with reported levels of psychological distress at 68.9%, anxiety at 72.7%, and depression at 60.6% (Suhaili et al., 2023). These findings indicate moderate to high levels of mental health issues, particularly among first-semester students who are transitioning from high school to university life (Auerbach et al., 2018). The sudden shift in academic expectations, social environments, and newfound independence can make this transition period especially stressful, exacerbating these mental health concerns (Worsley et al., 2021). Furthermore, emerging adults who have recently graduated and are entering the labour market report similar levels of distress, impacting their workplace well-being. The American Physiology

Summit (2023) highlighted that nearly 50% of graduate students experience symptoms of depression, anxiety, and burnout during their training. This is often driven by societal pressures, work-life conflicts, and challenging work environments, ultimately leading to job dissatisfaction (Rony et al., 2023). The rates of these issues are reported to be six times higher among graduate students than in the general population (Gopika et al., 2023). Hence, the complex combination of these stressors can gradually weaken their psychological resilience, making emerging adults more vulnerable to emotional exhaustion thereby severely undermining their psychological well-being.

Sense of Belonging

The sense of belonging refers to a fundamental human need to feel connected, accepted, and actively involved within a community, playing a vital role in maintaining interpersonal relationships and emotional well-being (Hagerty et al., 1992). Humans possess an inherent drive to form and sustain positive relationships with significant others, and when this need is unmet, it can lead to feelings of alienation, loneliness, and dissatisfaction with life (Mellor et al., 2008). For emerging adults, the sense of belonging is especially crucial as they navigate new social environments, such as universities or workplaces. These transitions can be particularly challenging, often triggering feelings of isolation and disconnection as they seek to establish their place and feel valued in their new surroundings (Evans et al., 2022). The research underscores the importance of belonging, revealing that a strong sense of connection can significantly reduce the likelihood of student dropouts, as it helps students build the motivation and confidence needed to overcome adversities (Crawford et al., 2023). Local research has also explored the sense of belonging among university students and professionals. For instance, a

study on medical students at a public university revealed that a strong sense of belonging significantly contributed to their resilience, enabling them to navigate the challenges of a demanding academic environment (Ali et al., 2018). Similarly, in the workplace, Malaysian nurses were found to experience an enhanced sense of belonging correlated with their length of service (Mohamed et al., 2013).

Furthermore, ICD-11 defined burnout as an occupational-related syndrome resulting from chronic stress with feelings of exclusion and psychological distance from one's organisation where this sense of not belonging (SoNB) in the workplace can profoundly impact an individual's mental health (World Health Organization, 2022; Waller, 2020). Interestingly, not everyone who encounters significant stressors develops psychological issues. The stress-buffering hypothesis underscores the pivotal role of social support in safeguarding psychological well-being where a strong sense of belonging serves as a crucial protective factor, enhancing emotional and psychological resilience during difficult times by boosting self-esteem and mitigating the risks of anxiety and depression (Guo et al., 2024). Therefore, fostering a sense of belonging is essential in supporting the mental health of emerging adults as they navigate the complexities of this transitional life stage.

Pet Companionship

Pet companionship refers to the bond between humans and their pets, often extending beyond simple ownership to become a meaningful source of comfort and support (Beck & Katcher, 1996). For many, pets are viewed as more than just animals; they are trusted companions that provide unconditional love and loyalty. Research has consistently demonstrated that pets can have a positive impact on one's mental health by promoting happiness and

contentment (McConnell et al, 2011). This companionship perceived as an ideal social support similar to friends is especially significant for individuals who may lack consistent social support or are undergoing periods of high stress which can foster a sense of purpose that is non-judgmental (Allen et al., 2001). In particular, pet companionship has significant implications for the psychological well-being of emerging adults who are navigating the complexities of life transitions where this life stage is often marked by heightened levels of stress, uncertainty, and social isolation, making the supportive presence of a pet highly valuable. Studies indicate that emerging adults with pets often exhibit better psychological well-being, lower levels of anxiety and depression, and greater life satisfaction than their peers without pets (Sarkar et al., 2022). Positive interaction with pets, such as petting or playing, has been shown to increase the release of oxytocin, a hormone that fosters a sense of being loved which can create a soothing effect that enhances coping abilities during stressful times (Beetz et al., 2012). Evidence suggests that pet owners often report greater levels of psychological well-being, coping self-efficacy, and positive emotions compared to non-pet owners (Grajfoner et al., 2021).

The advantages of pet ownership are further supported by data from the Standard Insights' Consumer Report Malaysia 2023, which highlights that 51.1% of Malaysians own pets, with 26.4% owning multiple pets. Cats are the most commonly owned pet (77.7%), followed by dogs (14.9%) and tropical fish (13.2%). This statistic is expected to exceed 70% soon as societal stress levels rise. The preference for cats and dogs underscores their role in providing emotional support and interactive companionship. This growing trend reflects an increasing recognition of pets as essential contributors to emotional well-being and informal mental health support among Malaysians (Phang et al., 2023; Grajfoner et al., 2021).

In summary, this study focuses on the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults. Given the transitional challenges that this group faces, such as changes in social environments and heightened stress levels, understanding these protective factors is vital because this developmental stage is marked by rapid personal and social transformations that can have long-term effects on mental health (Kaligis et al., 2021). Thus, the study aims to explore how pet companionship and sense of belonging contribute to better emotional resilience, potentially serving as predictors of overall psychological well-being. The insights from this research could benefit mental health professionals by highlighting non-traditional support mechanisms to address the unique needs of emerging adults to create alternative support systems that enhance well-being among this population.

Problem Statement

In collectivist societies like Malaysia, where strong social bonds and interpersonal relationships are deeply embedded in cultural values, social connections are traditionally viewed as essential to fostering a sense of belonging and eventually enhancing psychological well-being (Nosheen et al., 2017). Individuals are encouraged to rely on family, friends, and communities as their primary sources of emotional support. However, with increasing socioeconomic changes and growing pressures, many emerging adults face social isolation and difficulties in maintaining traditional social connections especially in this fast-paced environment, leading to a shift towards exploring alternative ways to improve well-being (Moore et al., 2023). Emerging adults in Malaysia are increasingly facing psychological well-being challenges due to transitional life phases, such as academic, career, and social pressures. The shift from traditional social connections to alternative sources of emotional support highlights the need to explore new

pathways, such as pet companionship and fostering a sense of belonging, to enhance psychological well-being in this demographic.

This context opens the door to considering non-traditional forms of support, such as pet companionship, as potential supplements to fostering a sense of belonging. Pet companionship is chosen not only for its unique ability to provide unconditional emotional support and reduce loneliness which leads to overall positive well-being (Gilbey & Tani, 2020), but also because the rising rate of pet ownership makes it an increasingly accessible resource (Standard Insights' Consumer Report Malaysia, 2023). The growing preference for pets reflects their role as informal yet effective sources of emotional resilience and well-being. Traditional support systems, such as family, friends, and community networks, often struggle to meet the demands of modern life. In today's fast-paced and digitally-driven world, human connections are increasingly affected by time limitations and geographical distances, leading to a reliance on virtual interactions (Drucker & Gumpert, 2012). Theoretically, digital connectivity enhances the sense of belonging (Marlowe et al., 2016; Matthew, 2022), local studies among Malaysian university students reveal a negative relationship between frequent social media use and a sense of belonging, with loneliness rates remaining highest among emerging adults (Mohamed et al., 2023; Abd et al., 2024). This suggests that the superficial nature of online interactions fails to provide the depth and reliability of traditional social support, leaving individuals feeling isolated and disconnected. In contrast, pets offer consistent companionship and a tangible emotional connection that overcomes these limitations, providing a stable source of comfort and belonging in the face of modern societal challenges (Martens et al., 2016; Lin, 2022).

Although pet companionship is often associated with reduced stress and enhanced well-being, research findings are inconsistent. For instance, some researchers found no significant

difference in life satisfaction and overall well-being between pet owners and non-pet owners (Maran et al., 2022; Roux & Wright, 2022), and reported a non-significant relationship between attachment to pets and social support, suggesting that pets may not serve as a substitute for human connections in fostering emotional support (Smolkovic et al., 2012; Winefield et al., 2008). Furthermore, other studies have pointed out potential negative consequences, noting that the closer the relationship with a pet, the higher the likelihood of it leading to mental health issues (Mháistir, 2013). Conversely, several studies have found that pet owners scored significantly higher on life satisfaction and happiness compared to non-pet owners, highlighting the positive impact of pet companionship on well-being (McConnell et al., 2011; Kanat-Maymon et al., 2016; Matijczak et al., 2020). These conflicting findings underscore the complexity of the relationship between pet companionship, sense of belonging, and psychological well-being, suggesting the need for further research to better understand the conditions under which pets may influence mental health outcomes.

Moreover, much of the existing research on the psychological benefits of pet companionship has primarily focused on the elderly, vulnerable groups, or minority populations such as LGBTQ+ individuals and those with disabilities, leaving a gap in studies targeting emerging adults (Genieve et al., 2019; Schmitz et al., 2021; Carlisle & Craven, n.d.). This is a population facing a crisis in psychological well-being, with nearly half of emerging adults worldwide experiencing elevated stress and symptoms of depression, making them the age group most affected by poor mental health (King, 2023). According to Meta Gallup's Global State of Social Connections (2023), emerging adults have been identified as "the loneliest group," experiencing higher levels of loneliness compared to older adults and standing out as the most isolated demographic. While 77% of Malaysians reported feeling fair to be very connected with

others, emerging adults remain the largest contributors to feelings of loneliness. Specifically, 15% of this group reported moderate to severe loneliness, alongside sentiments of lacking companionship and exclusion from society. Given these challenges, it is essential to prioritize the unique struggles of emerging adults and explore whether pet companionship can provide significant psychological benefits during this crucial developmental stage, particularly as this group frequently faces social isolation and a diminished sense of belonging.

Furthermore, a strong sense of belonging is often linked to increased social activity and improved psychological well-being, research findings on this relationship are not universally consistent (Pardede & Kovač, 2023). For some individuals, the pursuit of belonging can lead to self-doubt, anxiety, and feelings of exclusion, particularly when they face challenges in forming or maintaining meaningful social bonds (Wirth et al., 2016). People who tend to excessive social engagement typically linked to greater connection, can sometimes result in negative outcomes such as social comparison, fear of negative evaluation, and heightened stress, which ultimately undermine psychological well-being (Leary et al., 2006). Hence, it highlights the complexity of the connection between belonging and well-being, emphasising the need for further research to understand the conditions under this relationship.

In conclusion, emerging adults in Malaysia are navigating significant life transitions, which often lead to challenges in maintaining psychological well-being. Traditional support systems such as family and community networks becoming increasingly strained which leads to many young adults experiencing isolation and a lack of emotional support. Pet companionship has emerged as a potential informal support system, offering benefits like companionship, stress relief, and emotional comfort. Despite its growing relevance, the role of pet companionship, alongside a sense of belonging, in influencing psychological well-being among Malaysian

emerging adults remains underexplored. This study seeks to address this gap by examining these relationships, and providing insights that could inform culturally relevant strategies to enhance mental health outcomes in this demographic.

Significance of Study

In the Malaysian context, where mental health challenges are becoming increasingly prevalent, it is crucial to understand the relationship between sense of belonging, pet companionship, and psychological well-being. Mental illnesses were projected to become the second most significant health concern after heart disease by 2020 in Malaysia, significantly affecting individuals' quality of life and daily functioning (Hassan et al., 2018). Despite the rise in mental health issues, emerging adults often hesitate to seek help through traditional coping mechanisms due to social stigma (Berry et al., 2019). This reluctance is further compounded by Malaysia's collectivist culture, which emphasises social harmony and can inadvertently discourage open emotional expression and help-seeking behaviours, thereby exacerbating mental health concerns (Syasya et al., 2023). Given these cultural and social dynamics, there is a growing need to explore alternative, informal sources of emotional support. Pet companionship, as a more accessible and less stigmatised form of support, may serve as an effective informal intervention to enhance emotional well-being and foster a sense of belonging (Wood et al., 2015). By investigating this potential, the study aims to contribute to a broader range of strategies for promoting psychological well-being, offering valuable insights not only for mental health practitioners but also for emerging adults themselves. This is especially relevant in a multicultural and collectivist society like Malaysia, where conventional methods of support may not be fully effective or widely embraced due to cultural and social barriers.

This study represents a foundational step toward exploring the effectiveness of pet companionship as an informal intervention, with the potential to inform the development of a holistic approach to Animal-Assisted Therapy (AAT) within Malaysia. By examining its impact on the psychological well-being of emerging adults, the findings could pave the way for broader AAT implementation in diverse contexts. While AAT has been widely adopted in Western countries, demonstrating positive outcomes in reducing stress, anxiety, and pain in various contexts such as nursing homes, prisons, and schools (Friesen, 2009; Allison & Ramaswamy, 2016). In educational environments, Therapet, a program under AAT has proven effective in providing comfort and reducing distress among university students, particularly before examinations (Quintana et al., 2019). Additionally, it has shown significant benefits for children, including enhanced self-control, improved interpersonal skills, and increased confidence through programs like READ, where children read to canine animals in a non-judgmental setting (Amanda et al., 2016; Booten, 2024; Lane & Zavada, 2013). In counselling settings, the presence of animals fosters a safe, warm, and less threatening environment, helping clients to feel more comfortable expressing their feelings and managing their emotions (Hartwig, 2017). This supportive atmosphere is especially beneficial in building rapport with reserved clients, and assisting them in overcoming anxiety related to therapy sessions (Fine, 2010).

However, AAT remains underdeveloped and relatively inactive in Malaysia, struggling to gain social acceptance since its introduction in 2007 (Dzul, 2018). This study aims to assess whether pet companionship can act as a non-traditional form of emotional support and provide insights to foster the acceptance and integration of AAT in Malaysia. These insights could guide policymakers in allocating resources for AAT programs and support its inclusion in mental health and educational services.

Research Objectives

1. To examine the level of pet companionship among emerging adults in Malaysia.
2. To examine the level of sense of belonging among emerging adults in Malaysia.
3. To examine the level of psychological well-being among emerging adults in Malaysia.
4. To identify the relationship between pet companionship and sense of belonging among emerging adults in Malaysia.
5. To identify the relationship between pet companionship and psychological well-being among emerging adults in Malaysia.
6. To identify the relationship between sense of belonging and psychological well-being among emerging adults in Malaysia.
7. To examine the role of pet companionship in predicting psychological well-being among emerging adults in Malaysia.
8. To examine the role of sense of belonging in predicting psychological well-being among emerging adults in Malaysia.

Research Questions

1. What is the level of pet companionship among emerging adults in Malaysia?
2. What is the level of sense of belonging among emerging adults in Malaysia?
3. What is the level of psychological well-being among emerging adults in Malaysia?
4. What is the relationship between pet companionship and sense of belonging among emerging adults in Malaysia?
5. What is the relationship between pet companionship and psychological well-being among emerging adults in Malaysia?

6. What is the relationship between sense of belonging and psychological well-being among emerging adults in Malaysia?
7. Does pet companionship predict psychological well-being among emerging adults in Malaysia?
8. Does sense of belonging predict psychological well-being among emerging adults in Malaysia?

Research Hypotheses

H_{1a}: There is a significant relationship between pet companionship and a sense of belonging among emerging adults in Malaysia.

H_{1b}: There is a significant relationship between pet companionship and psychological well-being among emerging adults in Malaysia.

H_{1c}: There is a significant relationship between a sense of belonging and psychological well-being among emerging adults in Malaysia.

H_{2a}: Pet companionship is able to predict psychological well-being among emerging adults in Malaysia.

H_{2b}: Sense of belonging is able to predict psychological well-being among emerging adults in Malaysia.

Conceptual Definition

Pet Companionship

The Human Animal Bond Research Institute (HABRI) defines pet companionship as the emotional bond, relationship, and enjoyment that individuals develop with their pets, which can

provide feelings of unconditional love, support, and a sense of connection (HABRI Research, n.d.). In the current study, pet companionship is viewed as a psychological factor that manifests in varying degrees, influencing an individual's psychological well-being by reducing stressors, thereby serving as a potential source of informal emotional support for individuals (Bi, 2024).

Sense of Belonging

Baumeister and Leary (1995) define a sense of belonging as an individual's perception of being accepted, valued, and included within a group or social setting. In the current study, a sense of belonging is conceptualised as a social factor that influences psychological well-being. It manifests in both high and low levels, which affect an individual's perceived support and willingness to engage in social interactions, ultimately impacting their psychology (Acoba, 2024).

Psychological Well-Being

According to Ryff (1989), psychological well-being encompasses an individual's positive mental state, characterised by life satisfaction, personal growth, and the ability to cope with life's challenges. In the current study, psychological well-being is considered a multidimensional construct that reflects both emotional and functional aspects of mental health, manifesting through factors such as the feeling of connection, purpose in life, and healthy social relationships. It serves as a critical measure of individuals' overall mental health and their capacity to lead fulfilling lives (Gautam et al., 2024).

Operational Definition

Pet Companionship

In this study, pet companionship will be measured using the Comfort from Companion Animals Scale (CCAS). This scale is designed to assess the level of comfort and emotional support individuals derive from their interactions with pets (Zasloff, 1996). The CCAS consists of 11 items that evaluate how pets provide emotional reassurance, reduce stress, and offer a sense of security to their owners. Higher scores on the CCAS indicate a greater sense of comfort and emotional well-being experienced through pet companionship.

Sense of Belonging

Sense of belonging will be measured using the Sense of Belonging Instrument - Psychological (SOBI - P), which consists of 18 items assessing individuals' perceptions of being accepted, valued, and included within a social group (Hagerty & Patusky, 1995). Scores from this scale will reflect individuals' perceived sense of belonging, with higher scores indicating a stronger sense of inclusion.

Psychological Well-Being

Psychological well-being will be measured using the Brief 18-item Psychological Well-Being Scale. This scale includes 18 items assessing key components of psychological functioning, including autonomy, self-acceptance, personal growth, and purpose in life (Ryff, 1995). There are 10 negative items on the scale including items 1,2,3,8,9,11,112,13,17,18. The total score will represent an individual's overall mental well-being, with higher scores indicating better psychological functioning and higher levels of well-being.

Chapter 2 Literature Review

This chapter reviews the literature on pet companionship, sense of belonging, and psychological well-being, focusing on their interconnections and impact on mental health among emerging adults. It explores pet companionship as emotional support, the role of belonging in fostering resilience, and dimensions of psychological well-being. Highlighting research gaps, especially within the Malaysian context, this chapter establishes the theoretical and conceptual framework guiding this study.

Pet Companionship

Pet companionship refers to the emotional and social connections humans establish with their pets, extending beyond traditional roles like protection or labor (Walsh, 2009). These relationships vary across different species, which researchers have categorized into three functional groups based on their interactions with humans. Category 1 includes animals like tropical fish and amphibians, offering emotional benefits with minimal bonding (Pongrácz & Dobos, 2023). Category 2 encompasses pets like rabbits and birds, providing companionship through entertainment and mutually rewarding interactions (Hunjan & Reddy, 2020). Category 3, "true" companion animals such as cats and dogs, are highly sociable and capable of forming strong bonds with humans, making them ideal for meaningful companionship (Sen Majumder et al., 2016).

A cross-species personality research by Cavanaugh et al. (2008) highlights that a dog's personality traits, such as openness and agreeableness, play a significant role in enhancing owners' relationship satisfaction and shaping their social connections. The closeness and companionship offered by human-pet relationships also help address unmet emotional needs,

ultimately supporting the owner's overall well-being. Despite dogs and cats differing in species and characteristics, other studies have shown that both provide comparable emotional support and interaction (Franck et al., 2022). However, key differences lie in perceived costs, with cats generally considered less expensive and requiring less responsibility than dogs (González-Ramírez & Landero-Hernández, 2021; Meyer & Forkman, 2014).

A mixed-method study by Clements et al. (2021) examined the impact of ornamental fish, small mammals, and exotic pets on young adults' loneliness during the COVID-19 pandemic. Quantitative results revealed that participants reported moderate to highly positive effects on their well-being, with fewer than 2% reporting negative effects. Qualitative findings from semi-structured interviews further supported these outcomes, with participants expressing statements such as "I have never been alone" and "It helps me maintain a normal routine." Over half of the interviewees mentioned that caring for their pets provided a sense of purpose and responsibility (Freedman et al., 2020), helping them navigate the challenges of the pandemic. Similarly, studies among older adults emphasize that being a pet guardian fosters a sense of purpose and achievement. This role contributes to feelings of happiness, social inclusion through pet-related activities, and a meaningful life purpose through the commitment involved in caring for their pets (Genieve et al., 2019).

Moreover, semi-structured interviews conducted in the UK among emerging adults who own pet dogs or cats revealed overwhelmingly positive perceptions of the mental health benefits provided by their pets. Participants described their pets as "dopamine boosters," "mood stabilizers," and sources of "consistent companionship," all of which significantly contributed to improving their mental health (Hawkins et al., 2024). Additionally, pet ownership among

emerging adults has been linked to a higher likelihood of developing empathetic behaviors and contributing positively to social welfare (Khalid & Naqvi, 2016).

In conclusion, existing literature demonstrates the significant emotional, social, and psychological benefits of pet companionship across various species, highlighting its potential to enhance well-being by addressing loneliness, fostering a sense of purpose, and providing emotional support. While much research has concentrated on specific groups, such as older adults, emerging adults in Western countries, or unique situations like the COVID-19 pandemic, studies on the role of pet companionship among local emerging adults remain limited. The only study involving this population in the context was conducted by Seah and Aini (2023), which explored pet companionship and different forms of human support. Thus, understanding the relationship and the level of pet companionship can provide valuable insights into how pet companionship contributes to mental health and inform strategies for leveraging this bond to promote overall well-being in this demographic.

Sense of Belonging

Sense of belonging refers to the emotional experience of being an accepted member of a group, community, or society (Baumeister & Leary, 1995). It encompasses feeling connected, valued, and integral to others, contributing to one's identity and self-worth. Common indicators of a sense of belonging include the quality and frequency of social interactions, perceived support, mutual respect, and shared goals or values (Ahn & Davis, 2020). Emotional warmth, comfort, and security are also key indicators, as individuals often feel safe and supported in environments where they experience a strong sense of belonging (Chowdhury & Rahman, 2022).

In educational and workplace settings, a sense of belonging enhances motivation (Cox et al., 2021), performance (Edwards et al., 2021), and satisfaction (Fan et al., 2020). Studies have shown that workplace belongingness often manifests in various dimensions, including pride, competency in providing the best performance, and obedience to rules (Dewi et al., 2020). When employees feel connected to their organization and colleagues, they are more likely to engage in behaviors that align with the company's values and objectives, leading to increased productivity and job satisfaction. Additionally, employees who experience a strong sense of belonging report lower levels of stress and burnout, as they feel supported and valued within their work environment (Shuck et al., 2017). The mixed-method study further explored the relationship between autonomy, competence, and relatedness with burnout tendencies, results revealed that students who reported lower levels of relatedness were more likely to exhibit burnout indicators (Puranitee et al., 2022). This suggests that when the environment fails to meet students' basic psychological needs, particularly relatedness and engagement, they are more likely to experience burnout and disengagement (Benlahcene et al., 2020). Similarly, Yu et al. (2018) in Malaysia found that undergraduate students who had a stronger sense of belonging reported higher levels of agentic engagement and novelty satisfaction. These factors were positively associated with greater overall motivation and a higher willingness to contribute to classroom activities.

Socially, individuals with a strong sense of belonging tend to exhibit better interpersonal relationships (Drolet et al., 2013) and higher levels of community engagement (Beckett et al., 2022), contributing to a greater overall quality of life and a healthier societal environment. This sense of connection not only strengthens personal bonds but also encourages prosocial behaviors such as cooperation, empathy, and support for others (Klein, 2016). Studies have shown that individuals with a strong sense of belonging often adopt a mindset of "I belong, therefore I give,"

which fosters a sense of responsibility and commitment to the community. This mindset leads them to act in ways that benefit both themselves and others (Drezner & Pizmony-Levy, 2020). These individuals are more likely to engage in positive community actions and contribute to social well-being. In contrast, those who do not feel involved in or part of a community are more likely to engage in criminal behavior (Twenge et al., 2007). Research has indicated that individuals with limited social ties, such as former criminals, often experience a lack of belonging throughout various stages of life—be it in childhood, school, or adulthood, leading them to form negative affiliations that contribute to antisocial behavior and the development of deviant friendships (Shirdel & Mohammadi, 2021).

In summary, previous studies emphasize the significant role a sense of belonging plays in enhancing emotional, social, and psychological well-being. A strong sense of belonging supports personal identity, and self-esteem, and provides the emotional support needed to cope with life's challenges. Understanding the level of sense of belonging among Malaysian emerging adults is crucial, as it can help identify gaps or areas where individuals may feel disconnected, thereby informing targeted mental health interventions. Similar to studies that highlight the effectiveness of dance interventions in fostering a sense of belonging among emerging adults with low connectedness (Kreutzmann et al., 2017; Ritchie & Gaulter, 2018). This knowledge is essential for developing effective strategies to foster personal growth, resilience, and community integration, ultimately contributing to improved mental health outcomes in this demographic.

Psychological Well-Being

Psychological well-being (PWB) refers to the overall mental, emotional, and social health of individuals, encompassing their ability to lead fulfilling lives (Christopher, 1999). Having a

high level of PWB is not necessarily to be happy or positive all the time, it means having the capacity to navigate life's challenges with resilience, maintain a sense of purpose and self-acceptance, and foster meaningful relationships to live authentically (Ryff, 1989). It is often studied through two primary frameworks: hedonic well-being, which focuses on pleasure, happiness, and the absence of distress, and eudaimonic well-being, which emphasizes meaning, self-realization, and personal growth (Ryan & Deci, 2001).

PWB is influenced by a range of internal and external factors. Internally, cognitive processes such as self-reflection, thinking patterns, and beliefs play a pivotal role (Neda, 2022). A study conducted among Russian students found that those with harmonic cognitive styles characterized by flexibility, reflexivity, and abstract conceptualization exhibited adaptive basic beliefs that enhanced psychological functioning. These students were better equipped to manage stress and maintain healthy perceptions of themselves and their surroundings. Conversely, students with ambivalent cognitive styles, including concrete conceptualization and intolerance to unrealistic experiences, were linked to rigid basic beliefs, reducing cognitive efficiency and diminishing PWB (Irina & Tatiana, 2020).

Externally, social factors like the quality of relationships and support networks are crucial determinants (Rubel & Bogaert, 2015). Positive and supportive relationships promote personal growth by fostering attributes such as self-forgiveness, emotional resilience, and improved self-esteem. These factors contribute to stronger intrapersonal and interpersonal connections, which are predictive of enhanced PWB (Wazid & Shahnawaz, 2017). Additionally, a study by Gigantesco et al. (2011) on Italian twins revealed that non-shared environmental factors significantly impact the development of autonomy, purpose in life, self-acceptance, and personal growth which are the key components of PWB. These environmental influences underscore the

importance of external contexts in shaping individual well-being. The Positive Youth Development (PYD) framework emphasizes that the well-being of emerging adults is shaped by five interconnected components: competence, confidence, character, connection, and caring, all of which are influenced by their social environment (Conway et al., 2015). A study conducted in Malaysia found that among these 5Cs, confidence, and connection had the most significant impact on well-being. Emerging adults who demonstrate the ability to build relationships with peers, family, neighbors, and communities tend to exhibit higher levels of confidence; meanwhile, fostering these connections not only enhances their well-being but also positively influences the well-being of those around them (Abdul Kadir & Mohd, 2021).

The dimensions of PWB can have both protective and predictive impacts on mental health conditions (Huppert, 2009). On the protective side, high levels of PWB are linked to resilience and life satisfaction, fostering greater emotional stability and improved coping mechanisms for navigating challenges (Sagone & Caroli, 2014). This promotes overall psychological resilience and reduces vulnerability to mental health issues. Conversely, PWB also serves as a predictive indicator of mental health issues whereby lower levels of PWB are associated with a heightened risk of emotional distress and maladaptive behaviors (Winefield et al., 2012). A longitudinal study by Wood and Joseph (2010) highlighted this relationship, showing that individuals with low levels of PWB are at a significantly higher risk of developing depression over 10 years. Conversely, those with high levels of PWB were less likely to experience depression, even after enduring major life tragedies, such as the loss of a loved one.

Overall, the previous studies provide an in-depth exploration of PWB, highlighting its multifaceted nature and the critical role of internal and external factors. A nuanced understanding of these dynamics emphasizes the importance of PWB in predicting and protecting against

mental health challenges which will serve to inform early interventions designed to enhance well-being and promote mental health in this pivotal stage of development.

Pet Companionship and Sense of Belonging

Pet companionship has been widely recognized as a valuable source of emotional and social support, particularly in fostering a sense of belonging. This interplay of unique dynamics has been revealed in different past studies across contexts and populations such as higher income population in the UK (McConnell et al., 2011), older adults in developed countries (Genieve et al., 2019), and disabled children (Bristol, 2023).

Companion animals, particularly pets, offer a unique form of unconditional loyalty, which enhances the emotional bond between owners and their pets. Previous studies have highlighted the role of pets as "social lubricants," facilitating social interactions among humans (Newby, 2024; Bulsara et al., 2007). Research shows that pet owners often view their dogs as conversation starters, with many owners reporting that their dogs help break the ice when meeting strangers or even with neighbours (Rogers et al., 2010; Power, 2013). Interestingly, this social facilitation is not limited to dogs; other pets like turtles and rabbits have also been found to serve a similar function, triggering conversations and fostering connections between individuals (Hunt et al., 2016). According to McNicholas & Collis (2000), animals provide a neutral and safe topic of conversation, which makes it easier for people to engage with others. By using pets as conversation starters, individuals not only initiate interactions but also build new social connections, which in turn strengthens and increases the probability of experiencing a sense of belonging and community.

During the pandemic, when human interactions were heavily restricted, pets played a crucial role in helping individuals maintain their sense of belonging (Charmaraman et al., 2022; Jalongo, 2021). As physical isolation became a common experience for many, the presence of companion animals provided a vital source of comfort and connection (Parry, 2020). Research has shown that despite being cut off from friends, family, or colleagues, having a pet meant that individuals were never truly alone and as a substitute for human talk and touch (Clements et al., 2021). Pets acted as surrogates for interpersonal contact, offering companionship when human connections were limited helped alleviate feelings of isolation, and contributed to a continued sense of belonging during the pandemic (Johnson & Volsche, 2021).

However, a study by Kogan et al., (2022) presented a different perspective on the human-pet dynamic. The study found that pet owners may experience feelings of guilt associated with the responsibility of caring for their pets, such as not feeding them on time or failing to engage with them regularly. This guilt is often accompanied by internal shame and unstable attributions about their behavior (Leach, 2017). To alleviate these uncomfortable feelings, pet owners may feel compelled to spend more time with their pets. In the study, participants who reported pet-related guilt expressed shame about leaving their dogs alone or being away from them for extended periods. This sense of guilt can significantly impact their social lives, limiting their interactions with friends, colleagues, and others, ultimately diminishing their sense of belonging and inclusion within their communities, especially among emerging adults where building and adapting to new experiences with others are important (Nelissen, 2014).

Furthermore, owning a pet can impose a financial burden on individuals, with costs related to pet food, supplements, medical care, and other necessities often becoming a priority, sometimes even surpassing personal needs. A study revealed that 71% of UK pet owners

prioritize spending on their pets over themselves (Muldoon & Williams, 2024). Similarly, in Malaysia, where there is limited awareness of pet-friendly services leading to comparatively higher veterinary costs, pet owners reportedly spend an average of RM1,000 monthly on their pets, causing significant financial strain for those in lower or moderate-income brackets (MyPF, 2021; Ravin, 2024). This prioritization can limit discretionary spending on socializing, such as dining out, attending events, or participating in group activities, especially among emerging adults. Over time, such financial constraints reduce opportunities for social engagement, leading to diminished social connections and a weakened sense of belonging. Local studies highlight poverty as a key factor in social exclusion (Hashim et al., 2012), and individuals in Malaysia's B40 income group show the lowest levels of social support and interaction, correlating with their alarming mental health challenges (Said et al., 2022). While pets can foster a sense of belonging, for most people, meaningful connections are still largely rooted in human interactions (Hale, 2013).

In summary, previous studies emphasise the significant role of pet companionship in fostering a sense of belonging and social connection across various populations and contexts. However, a contrasting viewpoint suggests that pet companionship may, in some cases, restrict human social interaction, potentially lowering the level of sense of belonging. Ultimately, this highlights the need to identify the nature of the correlation between pet companionship and a sense of belonging among emerging adults in Malaysia.

Pet Companionship and Psychological Well-Being

Pets hold a unique and cherished role in the lives of many individuals. Owners often view their pets not merely as possessions but as integral companions and partners in deep social bonds

(Sable, 1995). This multifaceted relationship underscores the emotional and psychological significance of pets in human lives. Beyond being companions, they often serve therapeutic roles, aiding in stress relief and emotional regulation in a way that fosters PWB (Zilcha-Mano et al., 2012). These dynamics highlight the evolving understanding of human-pets' connections, where pets transcend traditional roles and become integral to the emotional and well-being of their owners' lives.

A key component of the connection between pet companionship and PWB is the stress-buffering role that pets play. The "pet effect" highlights the positive impact that companion animals have on human health. Research by Allen (2003) found that pets can serve as informal substitutes for healthcare professionals by enhancing human health and significantly improving owners' responses to stress, including acute stress by a consistent emotion. A study by Janssens et al. (2021) explored the application of two models—the buffering model, which posits that social support primarily protects against stress, and the main effect model, which suggests that social support generally enhances well-being in the context of pet companionship. The findings revealed that pets align with both models, similar to the benefits observed with human social support (Herzog, 2011). Additionally, increased interaction with pets was strongly associated with higher positive emotional outcomes, further underscoring their role in mitigating stress and promoting overall well-being.

Further evidence underscores the role of companion animals in enhancing PWB through Animal-Assisted Therapy (AAT) across various populations. For instance, a study conducted on military veterans in the UK addressed a range of mental health challenges, including depression, PTSD, substance abuse, and violent behaviours, alongside psychosocial comorbidities. The AAT program involved different types of animals such as horses, dogs, cats, and parrots. A follow-up

conducted three months later revealed significant improvements in overall PWB, consistent with findings from previous research. Specifically, reductions in PTSD symptoms (Arnon et al., 2020; Johnson et al., 2018), decreased depression levels (Romaniuk et al., 2018), enhanced resilience (Burton et al., 2019), and improved well-being (Lanning & Krenek, 2013) were observed. Participants reported feeling less triggered when interacting with companion animals compared to humans, as pets provided a unique form of nonjudgmental support. Also, the compassion and kindness perceived by animals, followed by their unconditional presence, offered a sense of comfort without the complexities of human interaction. This ability of companion pets to simply “be there” for individuals, free from unsolicited advice or judgment, was particularly beneficial in fostering psychological resilience and well-being (Lanning & Krenek, 2013).

In contrast, some studies present a different perspective on the relationship between pet companionship and PWB, emphasizing the emotional challenges associated with pet loss. Pets are often viewed as more than possessions; they are considered partners in close social relationships and even family members (Cohen, 2002). As a result, the transience and eventual loss of pets can significantly impact their owners’ emotional well-being, often triggering intense grief. This grief is further compounded by societal tendencies to categorize pet loss as disenfranchised bereavement, wherein the owner's feelings are minimized or misunderstood by others (Redmalm, 2015). Research indicates that nearly half of participants in related studies reported the irreplaceability of their pets, fear of losing them, and an overwhelming sadness even when merely imagining their bereavement. Those who had experienced the loss of a pet described profound emotional and psychological impacts comparable to the symptoms of grief seen in human loss (Cordaro, 2012; Cowles, 2016; Behler et al., 2020). This highlights the deep

bond between humans and their pets and the significant emotional toll their loss can impose on owners.

Research on the relationship between pet companionship and psychological well-being reveals a blend of positive and negative perspectives. On the positive side, companion pets are known to offer stress-buffering support, boost emotional well-being, and foster resilience. However, challenges such as the emotional toll of losing a pet underscore the complexity of this bond. Despite extensive research, most studies have focused on specific populations, leaving a gap in understanding this relationship specifically among emerging adults. Therefore, this study seeks to explore the correlation between pet companionship and PWB in Malaysian emerging adults, addressing the unique cultural and contextual factors influencing this relationship.

Sense of Belonging and Psychological Well-Being

As inherently social beings, humans thrive on belonging and inclusion within various community settings, such as workplaces, schools, society, and home. A sense of belonging is recognized as a fundamental human need and a critical factor influencing PWB. It significantly impacts mental health, overall quality of life, and motivation (Warr, 1978). Research consistently demonstrates that levels of inclusion can lead to diverse outcomes: a strong sense of belonging is associated with increased happiness (Allahverdipour et al., 2019), self-esteem (Sarkova et al., 2014), and life satisfaction (Jung, 2017), while simultaneously reducing anxiety and loneliness (Lim & Kua, 2011).

Belonging functions as a protective factor against the adverse effects of stress and psychological distress. Social relationships that foster a sense of belonging provide emotional support, reduce feelings of isolation, and buffer against mental health challenges by providing

support and companionship (Arslan, 2022). Studies indicate that a lack of belonging is strongly correlated with poor mental health outcomes, including increased risk of depression (McLaren & Castillo, 2020), substance abuse (Palis et al., 2018), and even suicide (Fisher et al., 2015). Across different populations, fostering a sense of belonging proves to be a universal driver of psychological well-being.

While the sense of belonging is universally important, studies have shown that it can vary significantly across cultures. In collectivist cultures, such as those in many Asian countries, there is a stronger emphasis on belonging to a social group, with individuals often prioritizing the group's needs and exploring self-identity within the context of the collective (Chiu et al., 2015). This cultural focus on group cohesion makes individuals more vulnerable to lower PWB if their ideal sense of belonging is not met (Workman, 2001). Studies highlight that students from collectivist cultures tend to report a lower sense of belonging at school (SOBAS), which significantly affects their academic performance, intrinsic motivation, and attitudes toward school. Psychologically, these students are more susceptible to social problems, such as delinquency and school dropout, and are at a higher risk of developing mental health issues like depression and heightened sensitivity to peer rejection (Museus & Maramba, 2010).

Overall, the collective evidence highlights the role of sense of belonging in contributing to an individual's psychological well-being and cultural variations in its interpretation. Thus, the current study aims to examine the relationship between sense of belonging and psychological well-being among emerging adults in Malaysia. As Malaysia is a collectivist society, this study seeks to provide insights into how the cultural emphasis on group belonging may influence the mental well-being of young adults, particularly in terms of their social interactions, sense of identity, and emotional health.

In conclusion, the existing literature underscores the significant roles of pet companionship, sense of belonging, and psychological well-being, revealing both positive and negative perspectives. While pets have been shown to foster social connections, emotional support, and resilience, they may also introduce challenges such as guilt, financial strain, and grief. Similarly, a sense of belonging is consistently linked to improved mental health and life satisfaction, though cultural differences and unmet expectations in collectivist societies can hinder psychological well-being. Despite the wealth of research, several gaps remain. Most studies have focused on specific populations, such as older adults, veterans, or individuals with higher incomes, with limited attention to emerging adults, particularly within the unique cultural context of Malaysia. Furthermore, while the interplay between each variable has been individually explored, few studies have comprehensively examined their interconnectedness. The present study seeks to address these gaps by investigating the relationship between pet companionship, sense of belonging, and psychological well-being among Malaysian emerging adults which aims to provide valuable insights into how cultural and contextual factors influence these relationships, contributing to a more nuanced understanding of their role in shaping emerging adults' mental health and social integration.

Theoretical Framework

The PERMA model from Seligman's Well-Being Theory, developed by Martin Seligman (2011), emphasises five essential elements that contribute to a fulfilling life: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. Research showed PERMA elements are significantly associated positively with overall life satisfaction and predictor of psychological distress which in turn proved to contribute to an individual's psychological well-being (Kern et al., 2015).

Positive Emotion refers to experiencing feelings of joy, gratitude, and contentment, along with maintaining an optimistic outlook on life (Seligman, 2011). It highlights the importance of finding pleasure and fulfillment in everyday experiences, serving as a key foundation for overall well-being (Bastian et al., 2014). In the context of pet companionship, pets are a consistent source of positive emotion, offering unconditional love and companionship that can calm the owner's emotions and alleviate stress and anxiety (Dawn, 2015). Engaging in activities such as petting, playing, or observing a pet's behavior often brings happiness and fosters a sense of connection (Rault et al., 2020). These moments not only strengthen emotional resilience but also encourage a more positive and hopeful perspective on life.

Engagement involves being fully immersed in activities that are both enjoyable and challenging (Seligman, 2011). It often leads to a state of "flow," where individuals are so deeply involved in an activity that they lose track of time and self-awareness (Bakhurst, 2018). This concept underscores the value of dedicating attention to tasks that align with personal strengths and interests, fostering satisfaction and a sense of achievement. Concerning a sense of belonging, engagement plays a vital role when individuals actively participate in social or community-based activities (Masika & Jones, 2015). By contributing to group projects or communal interactions, individuals become more deeply connected to shared goals and experiences, strengthening emotional ties and fostering social capital. This active involvement cultivates feelings of trust, inclusion, and importance, reinforcing their sense of belonging within the group (Ahn & Davis, 2020).

Relationships in the PERMA model emphasize the importance of positive and supportive social connections in enhancing well-being and life satisfaction (Seligman, 2011). These connections included family, friends, romantic partners, colleagues, and even pets. A

strong and healthy relationship provides emotional support, encouragement, and positivity, enabling individuals to navigate life's challenges more effectively (Cloninger, 2013). In the context of pet companionship, the bond between owner and pet fosters loyalty, affection, and emotional comfort, significantly alleviating feelings of loneliness (Redmalm, 2020). Moreover, pets often serve as social facilitators, encouraging interactions with other pet owners or enthusiasts, thereby expanding and enriching social networks (Barcelos et al., 2023). These connections further strengthen an individual's sense of belonging and overall psychological well-being.

Accomplishment refers to the pursuit of success and personal growth, encompassing the setting and attainment of goals that evoke feelings of pride, satisfaction, and self-efficacy (Seligman, 2011). This concept extends beyond traditional achievements in career or academics to include personal development, such as mastering a new skill, overcoming obstacles, or improving oneself (Bang & Reio, 2016). The process of striving for and realizing meaningful goals strengthens resilience and self-esteem, contributing to an enhanced sense of psychological well-being (Chen et al., 2022). In the context of pet companionship, caring for a pet offers numerous opportunities for accomplishment. Meeting the needs of a pet through feeding, grooming, or training instills a sense of responsibility and pride in owners, reinforcing their sense of purpose and fostering a deeper connection to their well-being (Kim & Chun, 2021).

Meaning refers to the experience of having a sense of purpose or direction in life, which contributes significantly to psychological well-being and a deeper sense of fulfillment (Seligman, 2011). A sense of purpose motivates individuals to pursue their goals with determination and enjoyment, even when faced with challenges (Pedler et al., 2022). It allows individuals to feel that their lives matter and that they are contributing to something larger than themselves. With a

sense of belonging, meaning often emerges from being part of a group or community that shares similar values, goals, or identities (Baumgartner & Burns, 2013). This connection fosters a sense of inclusion and strengthens the perception of a meaningful existence, as individuals find fulfillment in their roles within a larger collective, whether through friendships, family relationships, or broader social networks (Pinto et al., 2024).

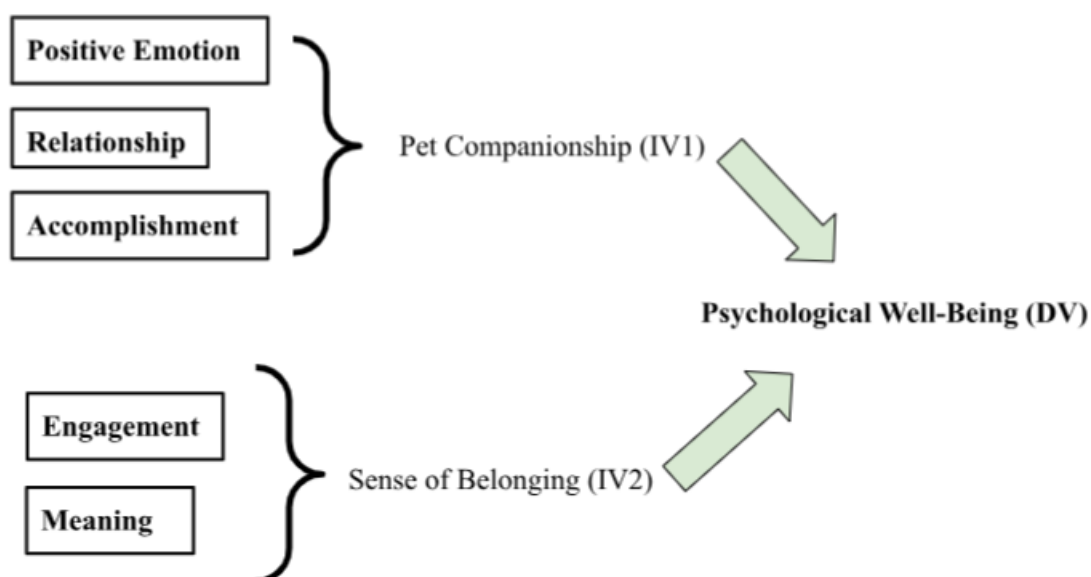


Figure 2.1 Theoretical Framework of the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia

Together, figure 2.1 presents the theoretical framework of the PERMA model, which highlights five core elements that contribute to overall well-being: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. In this model, pet companionship influences multiple elements, it contributes to positive emotion by providing joy and comfort; enhances relationships through the emotional bond between pets and their owners; and supports accomplishment by fulfilling the owner's sense of responsibility and care. On the other hand, a

sense of belonging falls under engagement and meaning, as it fosters active participation in life activities and provides individuals with a sense of purpose and connection to a larger community. This integrated framework underscores how pet companionship and sense of belonging collectively contribute to psychological well-being.

Conceptual Framework

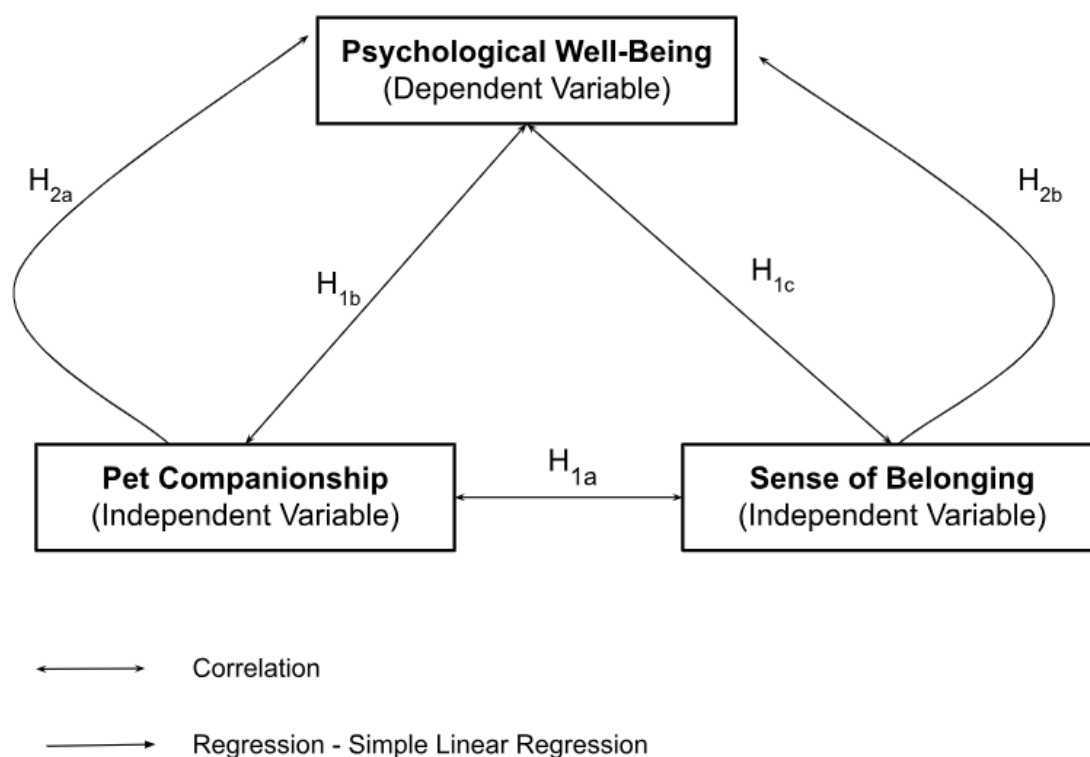


Figure 2.2 Conceptual Framework of the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia.

Figure 2.2 illustrates the conceptual framework of this study, focusing on the impact of pet companionship and sense of belonging on psychological well-being. In this framework, pet companionship and sense of belonging are identified as the independent variables (IVs), while psychological well-being serves as the dependent variable (DV). The study aims to explore the

relationships between these variables by conducting two types of analyses: correlation, which examines the strength and direction of relationships between variables (H_{1a} , H_{1b} , and H_{1c}), and regression which predicts psychological well-being based on pet companionship and sense of belonging (H_{2a} and H_{2b}).

Chapter 3 Methodology

Introduction

The present study employed a quantitative, correlational research design to explore the relationships between pet companionship, sense of belonging, and psychological well-being among Malaysian emerging adults. A self-report questionnaire methodology was utilized to collect primary data, allowing participants to respond independently. The study specifically targeted emerging adults in Malaysia aged 18 to 29, employing purposive sampling to ensure participants fulfill the inclusion and exclusion criteria of the current research. Data was collected online via Google Forms, and distributed across various social media platforms to maximise reach and engagement. G*Power 3.1.9.7 was used to calculate the sample size, addressing non-responses and incomplete data. The self-administered survey consisted of three sections: informed consent, demographic information, and three instruments—the Comfort from Companion Animals Scale (CCAS), the 18-item Sense of Belonging Instrument – Psychological (SOBI-P), and the Brief 18-item Psychological Well-Being Scale.

Research Design

Both a correlational and a quantitative design used in this research study to assist in exploring the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia. It involves analysing a large sample size from the population and emphasising quantity response (Kan & Gero, 2017).

This study adopted a correlational research design to examine the relationships between pet companionship, sense of belonging, and psychological well-being, ensuring that variables are

not manipulated by researchers (Lau, 2017). This design is particularly suitable because it facilitates understanding the strength and direction of relationships between these constructs, which aligns with the study's aim to identify potential predictive patterns rather than causal links (Asamoah, 2014). In addition, a cross-sectional design was also employed to collect data on multiple variables simultaneously from a diverse group of participants at a single point in time (Wang & Cheng, 2020). This approach is practical for optimizing time and cost efficiency, as it enables researchers to gather large amounts of data quickly and without the logistical challenges associated with longitudinal studies (Levin, 2006). These two designs were selected to achieve a balance between efficiency and the exploratory goals to achieve the objective of the study, enabling a comprehensive yet targeted examination of the variables while remaining mindful of resource constraints.

Data was gathered using an online self-report survey developed via Google Forms, which included a research description, informed consent, demographic information, and the study's questionnaires. This approach ensures participant anonymity and confidentiality, protecting their responses and identities to encourage honesty and improve the accuracy of the results (Livaniou, 2020).

Sampling Procedures

Sampling Method

The purposive sampling technique was the non-probability sampling method to be adopted for this study. It is also known as "purposeful sampling" depending on the researcher's judgment when choosing the participants (Berndt, 2020). It enables the researcher to target a specific group that meets the characteristics and requirements to better match the objectives of

the research (Campbell et al., 2020). While purposive sampling allows the study to target participants directly relevant to the research questions, it has limitations, including the potential for selection bias and limited ability to make unbiased generalization for the broader population (Campbell et al., 2020). The subjective nature of participant selection may inadvertently exclude individuals who could provide diverse perspectives, thereby affecting the representativeness of the sample. To address these limitations, clear inclusion and exclusion criteria will be implemented to minimize bias and ensure consistency; recruit participants from diverse backgrounds within the defined demographic to enhance the variability and applicability of the findings (Andrade, 2020).

This study employs purposive sampling to specifically target Malaysian emerging adults aged 18 to 29, ensuring that the sample aligns with the research objectives. Research indicates that individuals in this demographic often experience low psychological well-being due to the challenges of transitional life phases (Yamini & Pujar, 2024). These challenges can heighten their susceptibility to mental health concerns, adversely impacting their academic, career, and social development (Ruini et al., 2003; Strauser et al., 2008). Participants will be recruited based on clearly defined inclusion criteria, which include being Malaysian citizens, either employed or enrolled in tertiary education, and have current or past pet ownership experience for at least three months, aligning with the 3-3-3 rules of adoption which suggest that pets and their owners typically require three months to establish a stable and trusting bond (Longmount Humane Society, 2024; Companion Animal Community Center, n.d.). Exclusion criteria include individuals with disability or mental health disorders to maintain a homogenous sample and focus on the general population of emerging adults, those who have not lived with their pets for at least three months due to being abroad to maintain consistency in assessing the impact of

ongoing pet companionship, and those owning pets solely for professional or commercial purpose as it may not form any emotional bonds. These exclusions aim to maintain the reliability, integrity, and ethical alignment of the research.

Location of Study

Data collection targets employed emerging adults and university students within the specified age range across Malaysia's 13 states and 3 federal territories. A web-based survey using Google Forms was employed to ensure accessibility and comprehensive coverage, allowing participants with Internet access to respond conveniently. The survey link was distributed via online platforms such as Facebook, Instagram, and WhatsApp, increasing the likelihood of reaching the targeted participants effectively.

Ethical Clearance Approval

Ethical clearance for the study was approved by the Universiti Tunku Abdul Rahman (UTAR) Scientific and Ethical Review Committee (SERC) following the completion of the research proposal. Consequently, data collection commenced on 29 January 2025, after receiving official approval (Re: U/SERC/78-419/2024) from the relevant authorities on 20 December 2024.

Sample Size, Power and Precision

G*Power 3.1.9.7 had been utilised to calculate the required sample size for this study. According to Brydges (2019), a significance level of 5% is set, corresponding to a 0.05 margin of error. The power level is established at 80%, reflecting an 80% probability of achieving statistically significant results.

For this study, G*Power 3.1.9.7 was used to calculate the sample size for hypothesis H_{1a} , H_{1b} , and H_{1c} , examining the relationships between pet companionship (PC), sense of belonging (SB), and psychological well-being (PWB) through Pearson's Product-Moment Correlation (PPMC). Based on Correll (2020), a medium effect size of $r = .40$ was applied to the relationship between PC and PWB. For the relationship between PC and SB, McConnell et al. (2019) indicated an effect size of $r = .29$. Meanwhile, Haim-Litevsky et al. (2023) reported an effect size of $r = .47$ for the relationship between SB and PWB. Using these effect sizes, G*Power suggested required sample sizes of 91, 46, and 33 for the respective pairs, with actual power levels of .80, .81, and .80.

Additionally, G*Power was employed to calculate the sample size for H_{2a} and H_{2b} , which explore the predictive roles of PC and SB on PWB using Multiple Linear Regression. Prior studies reported an effect size of $f^2 = .15$ for PC predicting PWB (Gradidge et al., 2024) and $f^2 = .11$ for SB predicting PWB (Cicognani et al., 2007). Based on these effect sizes, G*Power suggested total sample sizes of 55 and 74, both achieving an actual power of .80.

In summary, G*Power determined that the required sample size for Pearson's Product-Moment Correlation (PPMC) is 91. Salkind (2012) suggests increasing the calculated sample size by 40-50% to address the possibility of missing data and non-response rates. Applying a 50% increase to the calculated sample size results in an adjusted total of 136.5 which is rounded to 137 participants.

Data Collection Procedures

Inclusion and Exclusion Criteria

The inclusion criteria for the current study included: (i) aged between 18 and 29, (ii) Malaysian citizens, (iii) employed or enrolled as university students in Malaysia, and (iv) currently own any type of pet or have had prior pet ownership experience for at least three months.

The exclusion criteria are as follows: (i) Individuals with disabilities, or diagnosed with mental disorders (ii) Malaysian citizens who have not lived with their pets for at least three months due to working or studying abroad, and (iii) Individuals who own or have owned a pet solely for professional or commercial purposes.

Plan of Obtaining Consent

Part A of the questionnaire included an informed consent section titled “Consent Form for Research Participation and Personal Data Protection”. This section provides comprehensive details about the study, including its purpose, participant inclusion criteria, potential risks, voluntary participation, privacy and confidentiality measures, and the researcher’s contact information. Participants were required to provide consent before proceeding to the questionnaire.

The consent form emphasised that participation was entirely voluntary and that participants could withdraw from the study at any time without explanation or adverse consequences. Additionally, to address potential distress during the survey, contingency plans were outlined, including providing participants with access to mental health resources such as the

University Counselling and Crisis Center (UCCC) and the Befrienders hotline. These measures ensure ethical compliance and safeguard participants' well-being throughout the study.

Data Collection Procedures

The current study was conducted using Google Forms, with links and QR codes distributed via various social media platforms for data collection. While the online data collection method is practical and efficient, it may introduce potential biases, such as repeated responses or limited accessibility for a wider range of the targeted population online. To mitigate these issues, mechanisms were implemented to prevent multiple submissions, such as disabling the "multiple submissions" feature in Google Forms settings. Additionally, participants were approached in person and provided with a QR code to scan, making the survey more convenient and accessible for a broader range of individuals.

To ensure that individuals who meet the exclusion criteria are excluded from the study, the survey included an initial screening question at the beginning of the questionnaire. If participants respond affirmatively to any of these exclusion criteria, they will be directed to the end of the survey, where they will be thanked for their time but will not proceed further. This approach ensures that only those fitting the inclusion criteria are included in the final analysis, thus maintaining the homogeneity of the sample for the study.

Upon consenting to participate, participants first provide their demographic information, including gender, age, occupational status, and ethnicity, while ensuring anonymity by excluding names. The third section of the survey presented questionnaires based on the three key instruments used in this study: The Comfort from Companion Animals Scale (CCAS), the Sense

of Belonging Instrument – Psychological (SOBI-P), and the Brief 18-Item Psychological Well-Being Scale, each with clear instructions for completion.

Pilot Study

Following the approval of ethical clearance, a pilot study was conducted prior to the main research to assess its effectiveness before proceeding with full-scale implementation. This step aimed to minimize potential issues during actual data collection (Schroder et al., 2010). A pilot study serves as a preliminary trial for a larger study, ensuring that any risks or challenges are identified and addressed beforehand. In accordance with the Sample Rule of Thumb by Browne (1995), a total of 30 participants who met the study's inclusion and exclusion criteria were selected for this initial assessment.

The pilot study results indicated that both the Comfort from Companion Animals Scale (CCAS) and the Sense of Belonging Instrument - Psychological (SOBI-P) exhibited strong internal consistency, with Cronbach's alpha values of .87 and .94 respectively. According to Tavakol and Dennick (2011), a Cronbach's alpha above .70 is considered to reflect strong reliability. However, the Brief 18-Item Psychological Well-being Scale had a Cronbach's alpha below .70, indicating questionable reliability, which could compromise measurement accuracy and impact the validity of the findings (Tavakol & Dennick, 2011). Based on JASP analysis, removing the 11th item was found to improve the scale's reliability, raising the Cronbach's alpha to .78. However, given the relatively low number of respondents in the pilot study, this may have contributed to the lower reliability (Amirrudin et al., 2020). Therefore, further observation and evaluation are necessary to determine whether dropping the item is the best approach in the actual study.

Actual Study

The actual study was conducted without any modifications, following careful consideration of the potential implications identified in the pilot test. Data collection was carried out using a QR code and a Google Form link, which were distributed both online via social media and in person. The data collection period spanned from 29 January 2025, to 28 February 2025, with data analysis beginning immediately after reaching the targeted sample size.

The current study collected 140 responses, exceeding the ideal sample size of 137. To minimize potential data errors, such as unengaged and missing data, all 143 responses will be included in the final analysis. Notably, the actual study reported acceptable reliability across all three instruments, further supporting their strong internal consistency.

Table 3. 1

Instruments' Reliability from Pilot (N=30) and Actual (N=140) Study

Instruments	Pilot Study (Cronbach's α)	Actual Study (Cronbach's α)
CCAS	.87	.94
SOBI-P	.94	.96
Brief 18-Item Psychological Well-Being Scale	.68	.85

Note: CCAS= Comfort from Companion Animals Scale, SOBI-P= Sense of Belonging

Instrument-Psychological

Instruments

The instruments for each variable included in Part C of the survey, which participants would access after providing their consent in Part A and completing the demographic information in Part B.

In this study, the Sense of Belonging Instrument-Psychological (SOBI-P) was categorized using a median split. Since this scale assesses continuous variables without established cut-off scores, the median split serves as a practical method for grouping participants, facilitating meaningful comparisons and examining variable correlations (Iacobucci et al., 2015). In contrast, both the Comfort from Companion Animals Scale (CCAS) and the Brief 18-Item Psychological Well-Being Scale include predefined cut-off scores for classification.

Comfort from Companion Animals Scale (CCAS)

The Comfort from Companion Animals Scale (CCAS), developed by Zasloff (1996), is designed to assess the level of comfort and emotional support individuals derive from their pets. The scale consists of 11 items, each rated on a 4-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). It evaluates aspects such as the emotional comfort provided by pets, their role in stress relief, and the sense of companionship they offer. Sample items include “My pet provides me with companionship” and “My pet makes me feel loved”. A score range of 18- 44, whereby higher scores on the CCAS indicate greater comfort and emotional support derived from the pet (Tomlinson et al., 2021). A score between 18-27 indicated a low level of pet comfort, 28-35 indicated a moderate level of pet comfort, and 36-44 indicated a high level of pet comfort. The scale demonstrates strong internal consistency, with reported reliability values of .91 (Zasloff, 1996) and construct validity of .90 (Tomlinson et al., 2021) with the pet attachment scale, making it a reliable measure for assessing the emotional impact of pet companionship.

Sense of Belonging Instrument-Psychological (SOBI-P)

The Sense of Belonging Instrument-Psychological (SOBI-P) was developed by Hagerty et al. (1995) to measure an individual's psychological sense of belonging and involvement in their environment. SOBI-P comprises 18 items to assess the perception of being part of a group, emotional comfort within that group, and feelings of acceptance. The participants rate each item on a four-point Likert scale, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). All items are negatively phrased, except for item 4 “I generally feel that people accept me”, and other sample items like “I feel like I observe life rather than participate in it.” The overall score is calculated by summing the responses after reverse scoring all items except item 4. The possible score ranges from 21-72, whereby higher total scores indicate a stronger sense of psychological belonging (Izuchukwu & Nwafor, 2023). Since the original author did not provide a classification of scores, percentile categorization was used to determine levels of belonging in the current study. The median (Q2) score was found to be 36, with the first quartile (Q1) at 23 and the third quartile (Q3) at 54. Based on this distribution, sense of belonging levels were categorized as follows: low (scores between 11 to 23), medium (scores between 24 to 36), and high (scores between 37 to 72). The scale has demonstrated excellent internal consistency, with reported reliability of .89 (Hagerty et al., 1992) and .85 (Izuchukwu L. G. Ndukaihe & Nwafor, 2023) with a convergent validity of .73 with perceived social support measurement (Hagerty et al., 1995).

Brief 18-Item Psychological Well-Being Scale

The Brief 18-item Psychological Well-Being Scale is a shortened version of the original Psychological Well-Being Scale developed by Ryff (1995) are the shorter version of 42-item

PWB Scale by Ryff in 1989 to measure an individual's overall well-being across six dimensions: autonomy (items 15, 17, 18), environmental mastery (items 4, 8, 9), personal growth (items 11, 12, 14), positive relations with others (items 6, 13, 16), purpose in life (items 3, 7, 10), and self-acceptance (items 1, 2). The scale consists of 18 items, each rated on a seven-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) where items 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18 are reverse-scored. Sample items include, “The demands of everyday life often get me down” and “I am good at managing the responsibilities of daily life.” The total score is within the range of 18–108 whereby a higher score on this scale indicates greater psychological well-being (Garcia et al., 2023). According to the instrument’s developer, scores ranging from 18 to 49 indicate a low level of well-being, scores between 50 and 79 reflect a moderate level of well-being, and scores of 80 and above represent a high level of well-being. Previous studies have reported a reliability coefficient of .89 (Ryff, 1995) and a high construct validity in predicting individual general health using (GHQ-28) after one year (Abbott et al., 2006).

Table 3. 2

Instruments Score Ranges

Level	CCAS	SOBI-P	Brief 18-Item Psychological Well-Being Scale
Low	18-27	11-23	18-49
Medium	28-35	24-36	50-79
High	36-44	37-72	80 and above

Table 3. 3*Analysis Method*

Hypotheses	Method Analysis
H_{1a} : There is a significant relationship between pet companionship and sense of belonging among emerging adults in Malaysia.	
H_{1b} : There is a significant relationship between pet companionship and psychological well-being among emerging adults in Malaysia.	Spearman's Rank Correlation Coefficient
H_{1c} : There is a significant relationship between sense of belonging and psychological well-being among emerging adults in Malaysia.	
H_{2a} : Pet companionship is able to predict psychological well-being among emerging adults in Malaysia.	Regression Model
H_{2b} : Sense of belonging is able to predict psychological well-being among emerging adults in Malaysia.	(Simple Linear Regression)

Note. Method analysis for hypotheses on the relationship between pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia.

Table 3.3 outlines the analysis methods to investigate the relationships between pet companionship, sense of belonging, and psychological well-being among Malaysian emerging adults. To address H_{1a}, H_{1b}, and H_{1c}, Spearman's Rank Correlation will be used to examine the strength and direction of associations between the variables using scores from the SOBI-P, CCAS, and Brief 18-Item Psychological Well-Being Scale. For H_{2a} and H_{2b}, a regression model, specifically Simple Linear Regression was conducted to assess whether pet companionship

(CCAS scores) and sense of belonging (SOBI-P scores) significantly predict psychological well-being (Brief 18-Item Psychological Well-Being scores).

Chapter 4 Results

This chapter presents the study's findings, based on data collected from 128 Malaysian emerging adults. The analysis began with preliminary data screening and diagnostics to ensure data suitability for further analysis. Following this, correlation and regression analyses were conducted to examine the relationships and predictive power between pet companionship, sense of belonging, and psychological well-being. The results are organized according to the research objectives and hypotheses, with relevant tables and figures provided to support the statistical findings.

Descriptive Statistics

Demographic Characteristics

The present study gathered data from 128 respondents, all of whom were Malaysian (n=128, 100%), with their demographic details outlined in Table 4.1. All respondents fell within the "emerging adult" category, ranging from 18 to 29 years old. Specifically, 15 respondents (11.72%) were aged 18-20, the majority 54 respondents (42.52%) fell between 21 to 23 years old, 46 respondents (36.22%) were between 24 to 26, while 13 respondents (10.48%) were aged 27-29. Regarding gender distribution, most respondents were female (n=74, 57.81%), while the remaining 54 respondents (42.52%) were male. In terms of ethnicity, Chinese respondents made up almost half of the sample (n=60, 46.88%), followed by Malay (n=45, 35.43%), Indian (n=20, 15.75%), and individuals from other ethnic backgrounds (n=3, 2.36%).

The majority of respondents were students (n=93, 72.66%), while the remaining 35 respondents (28.22%) were employed adults. Additionally, the distribution of pet ownership duration was relatively balanced across three categories: 64 respondents (51.61%) had owned a

pet for more than one year, 47 respondents (37.01%) had owned a pet for 7-12 months, and 17 respondents (13.28%) met the study's inclusion criteria by owning a pet for three to six months.

Table 4. 1

Demographic Characteristics of Respondents (n=128)

<i>Demographics</i>	<i>n</i>	<i>%</i>	<i>Min</i>	<i>Max</i>
Age			18-20	21-23
18-20	15	11.72		
21-23	54	42.52		
24-26	46	36.22		
27-29	13	10.48		
Gender				
Male	54	42.52		
Female	74	57.81		
Nationality				
Malaysian	128	100		
Others	0	0		
Ethnicity				
Malay	45	35.43		
Chinese	60	46.88		
Indian	20	15.75		
Others	3	2.36		
Employment Status				
Employed	35	28.22		
Students	93	72.66		
Duration of Owning Pet				
3-6 Months	17	13.28		
7-12 Months	47	37.01		
More Than One Year	64	51.61		

Note. *n*= sum of respondents; %= percentage; *Min*=minimum; *Max*= maximum

Topic-Specific Variables Characteristics

The descriptive statistics for the three key study variables—pet companionship ($M = 38.000$, $SD = 8.185$), sense of belonging ($M = 52.921$, $SD = 13.842$), and psychological well-being ($M = 93.315$, $SD = 22.432$) are presented in Table 4.2.

For univariate analysis, all three variables were considered normally distributed, as their skewness and kurtosis values fell within the acceptable range of -2.00 to 2.00. However, the Shapiro-Wilk test indicated non-normality, with pet companionship ($W = 0.751$, $p < .001$), sense of belonging ($W = 0.761$, $p < .001$), and psychological well-being ($W = 0.774$, $p < .001$) all showing p -values below the standard threshold of .05. At the same time, the data meets normality assumptions based on skewness and kurtosis, so caution is required due to the Shapiro-Wilk results. Further assessment of bivariate normality is necessary to ensure the appropriateness of parametric analyses.

Table 4. 2

Descriptive Statistics of Topic-Specific Variables (i.e., pet companionship, sense of belongingness, and psychological well-being)

	Pet Companionship	Sense of Belongingness	Psychological Well-Being
Valid	127	127	127
Median	38.000	61.000	105.000
Mean	35.228	53.921	93.315
Std. Deviation	8.185	13.842	22.432
Skewness	-1.503	-1.270	-1.227
Kurtosis	1.087	0.167	0.157
Shapiro-Wilk	0.751	0.761	0.774
P-value of Shapiro-Wilk	< .001	< .001	< .001
Minimum	16.000	24.000	44.000
Maximum	44.000	72.000	115.000

Data Diagnostic and Missing Data

Frequency and Percentages of Missing Data

After performing variable and case screening, no missing data were found in the current study. Additionally, there were no unengaged responses, which are characterized by respondents selecting consistent answers across all scales, indicating low engagement. Such responses can negatively impact the validity of the data if not identified and removed. To detect unengaged responses, the study applied the rule of thumb, where responses with a standard deviation of less than .50 across the three scales were targeted (Lungisa, 2019). However, no responses met this criterion; therefore, all data remained for further analysis.

Method Employed for Addressing Missing Data

To prevent missing data, all questions in the Google Form were set as mandatory, ensuring that respondents could not skip any items before submitting their responses. This approach guaranteed that every question was answered, preventing incomplete submissions from being recorded in the final dataset. Additionally, Microsoft Excel was utilized to further verify the absence of missing data. The formula “=COUNTBLANK(A2:AV2)” was applied across the entire dataset to detect any blank responses. The result returned “0,” confirming that no missing data existed throughout the survey.

Criteria for Post-Data Collection Exclusion of Participants

The first step in post-data collection was to identify and remove unengaged responses. In this study, unengaged responses were determined by calculating the standard deviation of all items within each scale for each respondent using the formula “=STDEV.P(A2:AU2)” in Microsoft Excel. According to Steyn (2017), a standard deviation below .50 indicates low engagement. The results showed that all case numbers had a standard deviation above .50, confirming that no unengaged data were present in this study.

Furthermore, no invalid responses were removed, as all respondents met the inclusion and exclusion criteria. Specifically, all respondents fell within the required age group, were Malaysian citizens, and had owned a pet for more than three months. As a result, no data were excluded in this process.

Criteria for Imputation of Missing Data

Missing data should be imputed based on the level of measurement. Since the items in the instruments were measured at the ordinal level, the appropriate imputation method would be the

median, using the formula “=MEDIAN(O2:O128)” in Microsoft Excel. However, imputation was not necessary in the current study, as no missing data were found.

Defining and Processing of Statistical Outliers

A boxplot analysis was conducted to identify outliers in pet companionship, sense of belonging, and psychological well-being. The results revealed a total of 12 outliers, consisting of five in pet companionship, eight in sense of belonging, and three in psychological well-being. Consequently, all identified outliers were removed, specifically, cases numbered 4,5,6,7,18,19,20,21,57,65,124 and 126.

Data Transformation

The reversal of item scores was performed using the formula “=IF(M2=1,4,IF(M2=2,3,IF(M2=3,2,IF(M2=4,1,""))))” in Microsoft Excel. This process was applied to all items except item 4 in the Sense of Belonging Instrument-Psychological (SOBI-P) and items 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18 in the Brief 18-Item Psychological Well-Being Scale. The Comfort from Companion Animals Scale (CCAS) did not contain any reverse-scored items. After reversing the necessary items, the total scores for each scale were computed using the formula “=SUM(C2:N2)”.

Analyses of Data Distributions

Normality. The present study evaluated the normality of three key variables—pet companionship, sense of belongingness, and psychological well-being—as outlined in Table 4.2. Multiple normality tests were conducted, including skewness, kurtosis, the Shapiro-Wilk test, and boxplots, to ensure a comprehensive assessment of data distribution. These tests were

conducted to evaluate the data distribution and determine whether parametric or non-parametric statistical analyses were appropriate for further analysis (Orcan, 2020).

Skewness and Kurtosis. All three variables were assessed for normality using skewness and kurtosis values, both of which fell within the acceptable range of ± 2.000 . Specifically, the skewness values for pet companionship, sense of belongingness, and psychological well-being were -1.503, -1.270, and -1.227, respectively. Regarding kurtosis, the values for pet companionship, sense of belongingness, and psychological well-being were 1.087, 0.167, and 0.157, respectively. These positive values indicate a leptokurtic distribution, meaning the data exhibited a higher peak and heavier tails compared to a normal mesokurtic distribution (Kenton, 2024). In conclusion, the skewness and kurtosis values for all three variables were within an acceptable range, suggesting that the data could be considered normally distributed when evaluated based solely on these measures.

Shapiro-Wilk. The data for pet companionship ($W = 0.751, p < .001$), sense of belongingness ($W = 0.761, p < .001$), and psychological well-being ($W = 0.774, p < .001$) were not normally distributed, as their p-values were below the standard threshold of $p = .05$.

Boxplot. The boxplot for the three variables is presented in Appendix B, highlighting a total of 12 outliers in pet companionship, sense of belongingness, and psychological well-being. These outliers may contribute to the skewness of the data, potentially impacting the normality of the distribution. Given their influence on statistical analyses, addressing these outliers is essential to maintaining the accuracy and reliability of the results.

In conclusion, there were inconsistencies in the normality assessment, as skewness and kurtosis indicated normality, whereas the Shapiro-Wilk test suggested non-normality for the three variables. Hence, a bivariate normality test was conducted in the data analysis section to

assess whether the joint distribution of two variables at a time followed a normal distribution (see Table 4.4). The results of this test guided the selection of non-parametric correlation tests, as all three bivariate normality results showed p -values $< .001$, indicating a non-normal distribution.

Data Analysis

Level of pet companionship, sense of belonging, and psychological well-being among emerging adults in Malaysia.

The classification of scores for pet companionship was based on the scale interpretation by Zasloff (1996). According to this interpretation, respondents with scores between 18 and 27 were categorized as having a low level of pet comfort, those scoring between 28 and 35 experienced a moderate level, and scores ranging from 36 to 44 indicated a high level of pet comfort. For the sense of belonging, score classification was determined using percentile categorization, as the original author did not specify cutoff points. The median scores were 23 (Q1), 36 (Q2), and 54 (Q3), suggesting that a score between 11 and 23 reflected a low sense of belonging, 24 to 36 indicated a moderate sense of belonging, and 37 to 72 represented a high sense of belonging. Additionally, psychological well-being was classified following the scale interpretation by Ryff (1995), where scores between 18 and 49 indicated a low level of psychological well-being, 50 to 79 represented a moderate level, and scores above 80 signified a high level of psychological well-being (see Table 3.2).

After determining the classification criteria for each variable, the Excel formula “=IF(AW2>36,"high",IF(AW2>28,"medium","low"))” was applied to categorize the responses into low, medium, or high levels. Subsequently, the formula “=COUNTIF(BB2:BB127,"low")” was utilized to count the number of respondents falling into each classification level for the three variables.

As shown in Table 4.3, the classification of respondents based on their scores revealed that 18 individuals (14.52%) were categorized as having low pet comfort, 38 of them (29.69%) fell into the medium level, and 72 respondents (58.06%) were classified as having a high level of pet comfort. Regarding the sense of belonging, 16 respondents (12.5%) were identified as having a low sense of belonging, 10 of them (8.06%) were in the medium range, and the majority, 102 respondents (82.26%), exhibited a high sense of belonging. Lastly, in terms of psychological well-being, 18 individuals (14.52%) were classified as having a low level, 16 respondents (12.5%) fell into the medium category, and 94 of them (75.81%) were categorized as having a high level of psychological well-being.

Therefore, the findings of the current study suggest that emerging adults in Malaysia exhibit high levels of pet companionship, sense of belonging, and psychological well-being.

Table 4. 3

Frequency Distribution of Pet Companionship, Sense of Belonging, and Psychological Well-Being (n=128)

<i>Variables</i>	<i>n</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Pet Companionship			35.13	8.24	16	44
Low (≤ 27)	18	14.52				
Medium (≤ 35)	38	29.69				
High (≥ 36)	72	58.06				
Sense of Belonging						
Low (≤ 23)	16	12.5	54.06	13.72	24	72
Medium (≤ 36)	10	8.06				
High (≥ 37)	102	82.26				
Psychological Well-Being						
Low (≤ 49)	18	14.52	93.47	22.67	44	115
Medium (≤ 79)	16	12.5				
High (≥ 80)	94	75.81				

Note. n = number of respondents; % = percentage; M = mean; SD = standard deviation; Min = minimum; Max = maximum

There are significant relationship between pet companionship, sense of belonging, and psychological well-being.

The assumptions for the Spearman Rank Correlation Coefficient were met, including the measurement of variables on a ratio scale, paired observations, and the presence of monotonic relationships between variables. Additionally, the bivariate normality results for the relationship

between pet companionship, sense of belonging, and psychological well-being indicated p -values of less than .001 (see Table 4.4), indicating a violation of the normality assumption ($p=.05$).

Consequently, the Spearman Rank Correlation Coefficient was appropriate to identify the relationships among these variables.

Table 4. 4

Shapiro-Wilk Test for Bivariate Normality

			Shapiro-Wilk	p
Pet Companionship	-	Sense of Belonging	0.889	< .001
Pet Companionship	-	Psychological Well-Being	0.895	< .001
Sense of Belonging	-	Psychological Well-Being	0.913	< .001

Table 4. 5

Spearman's Correlations of Pet Companionship, Sense of Belonging, and Psychological Well-Being

Variable		Pet Companionship	Sense of Belonging	Psychological Well-Being
1. Pet Companionship	Spearman's rho	—		
	p-value	—		
2. Sense of Belonging	Spearman's rho	0.544***	—	
	p-value	< .001	—	
3. Psychological Well-Being	Spearman's rho	0.334***	0.636***	—
	p-value	.003	< .001	—

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. All tests were two-tailed.

H_{1a}: There is a significant relationship between pet companionship and a sense of belonging among emerging adults in Malaysia.

The results of Spearman correlation in Table 4.5 showed $r_s(128) = .544, p < .001$. As r_s p -value was less than .05, the null hypothesis was rejected, supporting H_{1a}. There was a statistically significant positive relationship between the variables, which means the higher the pet companionship, the higher the sense of belonging among emerging adults. According to Guilford's rule of thumb (1973), the effect size of .544 represents a moderate relationship between these variables.

H_{1b}: There is a significant relationship between pet companionship and psychological well-being among emerging adults in Malaysia.

The results of Spearman correlation in Table 4.5 showed $r_s(128) = .334, p = .003$. As r_s p -value was less than .05, the null hypothesis was rejected, supporting H_{1b}. There was a statistically significant positive relationship between the variables, which means the greater the pet companionship, the higher the psychological well-being among emerging adults. According to Guilford's rule of thumb (1973), the effect size of .334 represents a weak relationship between these variables.

H_{1c}: There is a significant relationship between a sense of belonging and psychological well-being among emerging adults in Malaysia.

The results of Spearman correlation in Table 4.5 showed $r_s(128) = .636, p < .001$. As r_s p -value was less than .05, the null hypothesis was rejected, supporting H_{1c}. There was a statistically significant positive relationship between the variables, which means the higher the sense of belonging, the greater the psychological well-being among emerging adults. According to

Guilford's rule of thumb (1973), the effect size of .636 represents a moderate relationship between these variables.

H_{2a}: Pet companionship is able to predict psychological well-being among emerging adults in Malaysia.

Based on Table 4.6, the assumptions of Simple Linear Regression (SLR) were met, including a linear relationship between pet companionship and psychological well-being, a normally distributed regression line, minimal or no multicollinearity, absence of autocorrelation, and homoscedasticity. As shown in Table 4.7, there is no multicollinearity as the Tolerance in the Collinearity Statistics is 1.000, which is not less than 0.1 or 0.01. The VIF is also 1.000, which is not above 5 to 10. Additionally, the value in Durbin-Watson's showed 1.752 (see Table 4.6), which falls between 1.5 to 2.5, indicating no autocorrelation. Given that these assumptions were satisfied, SLR was employed to assess the predictive power of pet companionship (independent variable) on psychological well-being (dependent variable). The analysis was conducted using a two-tailed test.

As presented in Table 4.8, the regression analysis showed a statistically significant result, $F(1,125) = 232.657, p < .001$, indicating that the model significantly fits the data at an α level of .05. According to Table 4.7, the identified equation to understand the relationship was: psychological well-being = 2.211 (pet companionship) + 15.441. This equation can be used to estimate individual psychological well-being scores based on pet companionship levels. Furthermore, pet companionship ($\beta = .807, p < .001$) was reported to significantly predict psychological well-being among emerging adults in Malaysia. As shown in Table 4.6, the adjusted R^2 value was .648, indicating that pet companionship explained 64.8% of the variance in psychological well-being. The effect size was determined using the formula, $f^2 = \frac{R^2}{1-R^2} =$

$\frac{0.648}{1-0.648} = 1.84$. According to Cohen (1988), the effect size of $f^2=1.84$ was very large. Therefore, pet companionship was confirmed as a strong predictor of psychological well-being, supporting the H_{2a} .

Table 4.6*Assumption Checks for SLR***Model Summary - BRIEF TOTAL**

Model	R	R ²	Adjusted R ²	RMSE	Durbin-Watson		
					Autocorrelation	Statistic	p
M ₀	0.000	0.000	0.000	22.432	0.863	1.266	< .001
M ₁	0.807	0.651	0.648	13.314	0.597	1.752	< .001

Table 4. 7*Simple Linear Regression Coefficient**Coefficients*

Model		Unstandardized	Standard	Standardized	t	p	Collinearity Statistics	
							Tolerance	VIF
			Error					
M ₀	(Intercept)	93.315	1.991		46.879	<.001		
M ₁	(Intercept)	15.441	5.240		2.947	0.004		
	SOBI-P	2.211	0.145	0.807	15.253	<.001	1.000	1.000
	Total							

Table 4. 8*Simple Linear Regression Model***ANOVA**

Model		Sum of Squares	df	Mean Square	F	p
M ₁	Regression	41244.121	1	41244.121	232.657	< .001
	Residual	22159.281	125	177.274		
	Total	63403.402	126			

Note. Dependent Variable= Psychological Well-Being; Predictors=Pet Companionship

H_{2b}: Sense of belonging is able to predict psychological well-being among emerging adults in Malaysia.

Based on Table 4.9, the assumptions of Simple Linear Regression (SLR) were satisfied, including a linear relationship between a sense of belonging and psychological well-being, a normally distributed regression line, minimal or no multicollinearity, absence of autocorrelation, and homoscedasticity. As shown in Table 4.10, there is no multicollinearity as the Tolerance in the Collinearity Statistics was 1.000, which is not less than 0.1 or 0.01. Similarly, the VIF was 1.000, remaining below the acceptable range of 5 to 10. Additionally, the Durbin-Watson's statistic was 1.578 (see Table 4.9), falling within the range of 1.5 to 2.5, indicating no autocorrelation. Since all assumptions were met, SLR was utilized to examine the predictive power of a sense of belonging (independent variable) on psychological well-being (dependent variable). The analysis was conducted using a two-tailed test.

As presented in Table 4.11, the regression analysis showed a statistically significant result, $F(1,125) = 644.661$, $p < .001$, indicating that the model significantly fits the data at an α level of .05. According to Table 4.10, the identified equation to understand the relationship was:

psychological well-being = 1.483 (sense of belonging) + 13.344. This equation can be used to estimate individual psychological well-being scores based on the sense of belonging levels. Furthermore, the sense of belonging ($\beta=.915$, $p<.001$) was reported to significantly predict psychological well-being among emerging adults in Malaysia. As shown in Table 4.9, the adjusted R^2 value was .836, indicating that the sense of belonging explained 83.6% of the variance in psychological well-being. The effect size was determined using the formula, $f^2 = \frac{R^2}{1-R^2} = \frac{0.836}{1-0.836} = 5.10$. According to Cohen (1988), the effect size of $f^2=5.10$ considered very large. Therefore, the sense of belonging was confirmed as a strong predictor of psychological well-being, supporting the H_{2b} .

Table 4. 9

Assumption Checks for SLR

Model Summary - BRIEF TOTAL

Model	R	R ²	Adjusted R ²	RMSE	Durbin-Watson		
					Autocorrelation	Statistic	p
M ₀	0.000	0.000	0.000	22.432	0.863	0.266	< .001
M ₁	0.915	0.838	0.836	9.076	0.247	1.578	0.002

Table 4. 10*Simple Linear Regression Coefficient***Coefficients**

Model		Unstandardized	Standard	Standardized	t	p	Collinearity Statistics	
							Tolerance	VIF
			Error					
M ₀	(Intercept)	93.315	1.991		46.879	<.001		
M ₁	(Intercept)	13.344	3.251		4.104	<.001		
	SOBI-P	1.483	0.058	0.915	25.390	<.001	1.000	1.0
	Total							00

Table 4. 11*Simple Linear Regression Model***ANOVA**

Model		Sum of Squares	df	Mean Square	F	p
M ₁	Regression	53106.104	1	53106.104	644.661	< .001
	Residual	10297.297	125	82.378		
	Total	63403.402	126			

Note. Dependent Variable= Psychological Well-Being; Predictors=Sense of Belonging

Table 4. 12*Summary of Hypotheses Testing*

Hypothesis	Statistical Test	Result
H _{1a}	Spearman Rank Correlation Coefficient	Rejected null hypothesis. Moderate positive relationship.
H _{1b}	Spearman Rank Correlation Coefficient	Rejected null hypothesis. Weak positive relationship.
H _{1c}	Spearman Rank Correlation Coefficient	Rejected null hypothesis. Moderate positive relationship.
H _{2a}	Simple Linear Regression	Reject null hypothesis. Strong effect size.
H _{2b}	Simple Linear Regression	Reject null hypothesis. Strong effect size.

Table 4.12 summarizes the hypothesis testing results in the current study. For the correlation hypotheses (H_{1a}, H_{1b}, and H_{1c}), the Spearman Rank Correlation Coefficient indicated significant positive relationships among all three variables. Additionally, the Simple Linear Regression analysis (H_{2a} and H_{2b}) confirmed that both pet companionship and sense of belonging were strong predictors of psychological well-being.

Chapter 5 Discussion and Conclusion

Level of Pet Companionship, Sense of Belonging, and Psychological Well-Being

The high pet companionship level among Malaysian emerging adults (n=72) reflects a broader societal shift toward recognizing animals as sources of emotional support and nonjudgmental companionship in Malaysia. This bond contributes significantly to emotional regulation (Huang et al., 2021), stress reduction (Borgi & Cirulli, 2022), and coping with loneliness (Mueller et al., 2021). For society, it signals a growing openness to non-traditional support systems and promotes greater empathy among the younger population which in turn fosters a more emotionally resilient generation in the high-stress environment (Ji & Jin , 2023).

A heightened sense of belonging among Malaysian emerging adults (n=102) plays a vital role in shaping a socially cohesive and mentally resilient population (Alaei et al., 2023). Psychologically, individuals who feel accepted and connected are more likely to experience higher self-esteem (Mazereel et al., 2021), emotional stability (Gillen-O'Neel, 2019), and lower levels of anxiety or depression (Tholen et al., 2022). This fosters stronger community engagement and healthier interpersonal relationships which can have long-term benefits on mental health outcomes.

The generally high levels of psychological well-being (n=94) observed suggest that Malaysia's emerging adults are becoming more aware of and proactive about their mental health. Psychologically, individuals with higher well-being involve having a positive outlook and satisfaction in life (Egcas et al., 2021), which are crucial in personal growth and autonomy (Kundi et al., 2021). At the societal level, this reflects individuals who are more inclined to seek

meaningful experiences and derive purpose from their roles (Oishi & Westgate, 2021), thereby enhancing their contributions and promoting positive functioning across various aspects of life.

Pet Companionship and Sense of Belonging

A statistically significant positive correlation was found between pet companionship and sense of belonging among emerging adults in Malaysia ($r = .544, p < .001$), providing support for H_{1a}. This suggests that emerging adults who share companionship with pets are more likely to experience a stronger sense of belonging.

This finding aligns with previous research that underscores the emotional and social support pets provide in various contexts such as grief (Cryer et al., 2021), post-traumatic stress disorder (Cacciatore et al., 2021), and pandemic-related loneliness (Bussolari et al., 2021), all of which contribute to a stronger sense of belonging. For instance, Clements et al. (2021) found that pet owners often view their pets as substitutes for human interaction, offering a sense of purpose and continuity that helps them maintain psychological stability and avoid life demotivation. These findings support the current study's results, suggesting that pet companionship offers a meaningful relational connection, particularly when human support systems are limited or inaccessible.

In the Malaysian context, urbanization may also explain the positive association between pet companionship and a sense of belonging among emerging adults. The growing acceptance of pet ownership, especially in urban areas, is supported by improved access to pet-friendly housing, veterinary care, and pet-related services (Lim, 2025). This cultural shift has normalized pets as part of daily life, particularly for emerging adults who migrate to cities for education or employment (Puat et al., 2024). While such transitions increase autonomy, they may also lead to

heightened feelings of isolation due to physical distance from family and pre-existing social networks (Katrijn, 2023). In this regard, pets serve as social surrogates, fulfilling emotional needs such as companionship, routine, and unconditional support.

Collectively, these findings suggest that pet companionship is increasingly recognized in Malaysian societies as a legitimate and impactful relational support system that enhances emotional connection and prevents psychological distress.

Pet Companionship and Psychological Well-Being

There was a statistically significant positive relationship ($r=.334$, $p=.003$) between pet companionship and psychological well-being among emerging adults in Malaysia, supporting H_{1b}. This suggests that individuals who experience higher levels of pet companionship tend to report better psychological health outcomes, such as greater life satisfaction, emotional stability, and purpose. This result is consistent with existing papers, where pet ownership has been associated with increased positive affect and reduced levels of stress (Denis-Robichaud et al., 2022), anxiety (Carr & Pendry, 2021), and depression (Żebrowska et al., 2023) which contribute to psychological well-being.

According to Ellis et al. (2024), the positive relationship between pet companionship and psychological well-being can be better understood through the lens of self-expansion theory within the human–companion animal bond. Self-expansion theory posits that individuals are intrinsically motivated to enhance their efficacy, self-concept, and identity through close relationships that offer opportunities for growth and new perspectives (Aron et al., 2022). In this context, pets often serve as non-judgmental, emotionally consistent companions who support this self-expanding process by providing emotional comfort, routines of care, and a sense of

responsibility (Ellis et al., 2024). These daily interactions foster purpose, emotional security, and personal growth which are the key dimensions of psychological well-being (Freire et al., 2021). For emerging adults navigating a critical stage of identity formation, such bonds can offer a unique space for self-discovery through emotional and behavioral engagement.

Consequently, the relationship with pets becomes a meaningful part of the emerging adults' psychological toolkit, enhancing overall well-being through sustained emotional and personal growth.

Sense of Belonging and Psychological Well-Being

There was a statistically significant positive relationship ($r = .636, p < .001$) between sense of belonging and psychological well-being among emerging adults in Malaysia, supporting H_{1c}. It can be justified through both psychological and cultural frameworks. This result aligns with existing literature, which consistently highlights that a strong sense of belonging enhances mental health outcomes by reducing feelings of isolation (Hadi & Farhad, 2023), promoting emotional security (Dromgold-Sermen, 2020), and reinforcing self-worth (Stebbleton et al., 2022).

Humans possess an inherent drive to form and sustain meaningful interpersonal relationships, and when these belonging needs are unmet, it can lead to heightened anxiety, depression, and feelings of alienation, ultimately compromising mental health (Gopalan et al., 2021). This is particularly relevant in Malaysia's collectivist culture, where social identity and group affiliation are deeply embedded in society norms. Within such a context, a strong sense of belonging not only fulfills relational needs but also serves as a psychological resource that enhances resilience and mitigates vulnerability (Puranitee et al., 2022). Being part of social

groups such as family, peers, or academic institutions reinforces one's social identity and boosts self-esteem through shared experiences, mutual recognition, and support.

Importantly, when these affiliations are perceived as meaningful and positive, emerging adults are more likely to report higher levels of life satisfaction, self-worth, and optimism, all of which are key dimensions of psychological well-being.

Pet Companionship Predict Psychological Well-Being

Based on the findings from the present study's Simple Linear Regression (SLR), pet companionship was found to be a statistically significant predictor ($\beta=.807$, $p<.001$) of psychological well-being among emerging adults in Malaysia, thereby supporting H_{2a}. This indicates that individuals who form meaningful bonds with their pets tend to report higher levels of emotional support, personal fulfillment, and overall psychological health.

This finding has been supported by past research including during the COVID-19 pandemic (Amiot et al., 2022), pet promoting physical touch (Barcelos et al., 2023), and pet encouraging emotional resilience (Barklam & Felisberti, 2022) which can benefit and predict individual's psychological well-being in a long run. Specifically, Ellis et al. (2024) emphasized that pet companionship can significantly predict mental health outcomes through the perception of pet insensitivity that is defined as the extent to which owners feel their pets are unresponsive or inattentive to their emotional needs. While pets are commonly regarded as emotionally supportive, when owners feel that their pets are indifferent or fail to meet their emotional expectations, particularly during emotional distress, may reduce the efficacy of the pet-human bond in promoting psychological well-being (Ellis et al., 2024). This is consistent with findings by Hawkins et al. (2024), which highlighted the importance of owner–pet compatibility .

Compatibility, in this context, refers to the alignment between an owner's personality and lifestyle and the pet's characteristics (Bender et al., 2023). The study found that such compatibility fosters harmonious relationships, thereby predicting greater psychological well-being over time.

These findings suggest that not just the presence of a pet, but the quality of the relational and emotional fit between pet and owner, plays a critical role in influencing mental health outcomes.

Sense of Belonging Predict Psychological Well-Being

Based on the results of the current study's Simple Linear Regression (SLR), sense of belonging was found to be a statistically significant predictor ($\beta=.915$, $p<.001$) of psychological well-being among emerging adults in Malaysia, thereby supporting H_{2b}. This suggests that individuals who feel more accepted, connected, and valued within their social environments are more likely to experience greater emotional stability, life satisfaction, and overall mental wellness.

The findings are consistent with existing literature supporting this predictive relationship (Mellinger et al., 2023; Haim-Litevsky et al., 2023; Prati & Cicognani, 2018). Baumeister and Robson (2021) offer a powerful justification from a human evolutionary perspective, proposing that the need to belong is not only a fundamental human drive but also a key predictor of psychological well-being. Historically, social connectedness was crucial for survival where individuals integrated into social groups were more likely to gain access to protection, resources, and emotional support, whereas isolation increased vulnerability. Over time, this survival advantage led to an internalized, biologically ingrained motivation to seek meaningful social

bonds (Williams, 2021). In today's context, especially among emerging adults, experiencing a strong sense of belonging whether through family, peer groups, or institutional settings fosters a sense of emotional security and self-worth. These feelings, in turn, predict greater emotional resilience, life satisfaction, and overall psychological stability.

Therefore, the predictive power of belonging on psychological well-being reflects this evolutionary imperative, where social bonds are not only beneficial but biologically necessary for optimal mental functioning.

Implications of Study

Theoretical Implications

The theoretical framework underpinning this study was the PERMA model from Seligman's Well-Being Theory (2011). In brief, the theory identifies five core elements of well-being which are Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment. In this study, pet companionship was aligned with Positive Emotion, Relationships, and Accomplishment, while sense of belonging was associated with Engagement and Meaning. The findings of the study provided empirical support for this framework within the context of Malaysian emerging adults, demonstrating that both pet companionship and a sense of belonging significantly predict psychological well-being. The statistically significant correlations between the three variables further reinforce the model's applicability in diverse cultural and relational contexts.

Unlike previous studies, this current research focuses on application of the PERMA framework within a pet-based context, as opposed to the majority of existing articles that

primarily emphasizes human relationships and interactions (Kovich et al., 2022; Khaw & Kern, 2015; Dorri Sedeh & Aghaei, 2024). Despite this difference, the findings demonstrated that the PERMA model remains flexibly adapted across diverse contexts. Specifically, pets were shown to foster positive emotions, supportive relationships, and a sense of accomplishment, just as effectively as humans. These results highlight that non-human companionship can also play a meaningful role in enhancing psychological well-being, reinforcing the versatility and applicability of the PERMA model across different relational settings.

Practical Implications

By acknowledging the correlational, predictive relationship, and high level of pet companionship, sense of belonging and psychological well-being among emerging adults. The results potentially contribute to several stakeholders.

First, this research contributes to the growing body of knowledge on creative and alternative therapeutic approaches within the guidance and counselling fields, particularly Animal-Assisted Therapy (AAT) in Malaysia which is a field that remains largely underexplored. The findings support the use of pet companionship as a beneficial intervention for emerging adults' clients who are experiencing low psychological well-being, loneliness, or a diminished sense of belonging. By understanding this, counsellors and mental health practitioners are encouraged to incorporate pet-assisted approaches or consider clients' relationships with animals as part of their therapeutic process. This may help create more client-centered, emotionally supportive, and engaging sessions, in order to enhance the therapeutic alliance at the same time promote greater comfort and self-expression in sessions.

Furthermore, the study provides emerging adults themselves with self-awareness and validation regarding the positive role of pets and social connectedness in maintaining their

psychological well-being. Given that this life stage is often characterized by academic or career pressure, and social transitions, recognizing the emotional benefits of pet companionship and a strong sense of belonging can encourage healthier lifestyle choices. By this, emerging adults may be more inclined to seek out meaningful relationships, engage in community-building activities, or consider pet ownership as a coping mechanism to reduce stress and promote emotional balance. These proactive steps can empower them to make informed decisions about their lifestyle and support systems in ways that enhance their overall mental health.

From an academic and research perspective, the current study provides a valuable foundation for further exploration into the fields of human–animal interaction, belonging, and psychological well-being within the Malaysian context. The strong associations identified among these variables highlight their relevance and encourage future researchers to expand upon these findings. Consequently, it would deepen the understanding of how these constructs interact and evolve, contributing to more culturally nuanced and evidence-based practices in mental health and social research.

Limitations of the Study

One of the primary limitations of this study is its low external generalizability. The use of purposive sampling resulted in an uneven distribution of demographic characteristics, such as age, gender, and ethnicity, which may limit the applicability of the findings to the broader population of Malaysian emerging adults. Additionally, the reliance on non-parametric statistical methods due to violations of bivariate normality, potentially limits the ability to capture broader population traits, further affecting the external validity of the results. Moreover, the mean age of respondents was not recorded, which restricted a more detailed identification of potential

variations in psychological well-being, pet companionship, and sense of belonging across specific age subgroups.

Another notable limitation relates to the use of the instruments employed in the data collection. Some respondents reported that certain questionnaire items were difficult to understand or unacceptable, likely due to differences in cultural interpretations. In addition, the length of the questionnaire which comprises a large number of items may have caused respondent fatigue, leading to reduced attention and potentially affecting the accuracy and reliability of the responses.

Lastly, the timing of data collection, primarily during the Chinese New Year festive period, may have social desirability bias, impacting the accuracy of the findings. The generally joyful and celebratory atmosphere could have influenced respondents to overreport positive experiences or underreport psychological distress, which is a common issue in self-report data. Interestingly, a UK-based study reported that over 17% of people experienced heightened loneliness during festive periods, driven by idealized celebration and social comparison (Statista Research Department, 2024), which in turn fostered feelings of disconnectedness if unable to meet the expectation (Gunn, 2021). This suggests that emotional responses during such periods are often complex and not always aligned with outward expressions, which may skew the results, particularly in a research context focused on psychological well-being.

Recommendations for Future Research

There are several recommendations for future research to avoid the similar limitation in this study.

To address the issue of low external generalizability, future research should consider using probability sampling techniques, such as stratified sampling to ensure more balanced

demographic representation across age, gender, and ethnicity. This approach would enhance the external validity and make the findings more representative of the broader emerging adult population in Malaysia. Recording the exact mean age of respondents in future studies is also crucial to allow for a more nuanced analysis of subgroups within the emerging adult population. Additionally, researchers are encouraged to explore mixed-method or case study designs, such as single-case or longitudinal studies, to gain in-depth insights into psychological changes over time within specific age groups.

Following that, future research should focus on modifying or adapting existing measurement instruments to better align with the Malaysian cultural context. This may include conducting Exploratory Factor Analysis (EFA) to refine constructs and minimize the number of items (Sürücü et al., 2024). Simplifying language and shortening lengthy questionnaires supported by expert validation and pre-testing can help minimize respondent fatigue and improve data quality. To further ensure respondents engagement and focus, control questions can also be integrated into the questionnaire design (Rumble, 2023).

To minimize social desirability bias particularly may peak arising in festive seasons, future research should carefully consider the timing of data collection to avoid emotionally heightened periods. Administering surveys during more neutral periods is likely to yield more accurate and authentic reflections of respondents' psychological states. Furthermore, employing a mixed-methods approach that integrates both qualitative and quantitative data can offer a more comprehensive and contextually grounded understanding of the phenomenon under study. This triangulation method enhances the reliability and validity of findings, particularly when assessing subjective constructs such as psychological well-being.

Conclusion

In brief, this study provided meaningful insights and justifications regarding the levels, relationship, and predictive effects of pet companionship and sense of belonging on the psychological well-being of emerging adults in Malaysia. The findings support the applicability of the PERMA model, particularly by integrating pet-related factors into the components in promoting well-being. Despite its contributions, the study has several limitations that warrant cautious interpretation; thus, future research is encouraged to build upon these findings using more diverse methodologies and populations. Overall, the study holds significant implications for mental health professionals, emerging adults, and scholars by supporting the development of culturally sensitive interventions that foster psychological well-being through human–animal bonds and a strengthened sense of belonging.

References

- Abbott, R. A., Ploubidis, G. B., Huppert, F. A., Kuh, D., Wadsworth, M. E., & Croudace, T. J. (2006). Psychometric evaluation and predictive validity of Ryff's psychological well-being items in a UK birth cohort sample of women. *Health and Quality of Life Outcomes*, 4(1). <https://doi.org/10.1186/1477-7525-4-76>
- Abd, M., Gopinath, G., Alabed , A. B., & Abdalqader, M. (2024). A Cross-Sectional Study on Social Media Addiction and its Relationship with Stress and Loneliness. *Malaysian Journal of Public Health Medicine*, 24(2), 223–230.
<https://mjphm.org/index.php/mjphm/article/view/2402>
- Abdul Kadir, N. B., & Mohd, R. H. (2021). The 5Cs of Positive Youth Development, Purpose in Life, Hope, and Well-Being Among Emerging Adults in Malaysia. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.641876>
- Acoba, E. F. (2024). Social support and mental health: The mediating role of perceived stress. *Frontiers in Psychology*, 15(15), 1–12. <https://doi.org/10.3389/fpsyg.2024.1330720>
- Ahn, M. Y., & Davis, H. H. (2020). Sense of belonging as an indicator of social capital. *International Journal of Sociology and Social Policy*, ahead-of-print(ahead-of-print).
<https://doi.org/10.1108/ijssp-12-2019-0258>
- Alaei, F., Nouroozi, F., & Dehghan, H. (2023). The Role of Sense of Security and Social Cohesion in Adherence to Social Moral Values. *Int J Ethics Soc*, 5(2), 41–48.
<https://doi.org/10.22034/ijethics.5.2.59>
- Ali , S., Ahmad , S., Mahmud , I., Zainal Abidin, H., Subhan, M., & Abu Bakar , A. Y. (2018). Resilience and sense of belonging among medical students in a Malaysian public university . *International Journal of Engineering & Technology*, 7, 70–73.

- Allahverdipour, H., Karimzadeh, Z., Alizadeh, N., Asghari Jafarabadi, M., & Javadivala, Z. (2019). Psychological well-being and happiness among Middle-aged women: A cross-sectional study. *Health Care for Women International*, 1–15.
<https://doi.org/10.1080/07399332.2019.1703990>
- Allen, K. (2003). Are Pets a Healthy Pleasure? The Influence of Pets on Blood Pressure. *Current Directions in Psychological Science*, 12(6), 236–239. <https://doi.org/10.1046/j.0963-7214.2003.01269.x>
- Allison, M., & Ramaswamy, M. (2016). Adapting Animal-Assisted Therapy Trials to Prison-Based Animal Programs. *Public Health Nursing*, 33(5), 472–480.
<https://doi.org/10.1111/phn.12276>
- Amanda , T. F., Rodrigues, E. G., Cesar, Ricardo , O. G., Maria , A. M., Durvanei , A. M., & Carlos , E. A. (2016). *Animal-assisted therapy in early childhood schools in São Paulo, Brazil*. 36(suppl 1), 46–50. <https://doi.org/10.1590/s0100-736x2016001300007>
- Amiot, C. E., Gagné, C., & Bastian, B. (2022). Pet ownership and psychological well-being during the COVID-19 pandemic. *Scientific Reports*, 12(1), 6091.
<https://doi.org/10.1038/s41598-022-10019-z>
- Amirrudin, M., Nasution, K., & Supahar, S. (2020). Effect of Variability on Cronbach Alpha Reliability in Research Practice. *Jurnal Matematika, Statistika Dan Komputasi*, 17(2), 223–230. <https://doi.org/10.20956/jmsk.v17i2.11655>
- Andrade, C. (2020). The inconvenient truth about convenience and purposive samples. *Indian Journal of Psychological Medicine*, 43(1), 86–88.
<https://doi.org/10.1177/0253717620977000>

- Arnett, J.J. (2014). *Emerging Adulthood: The Winding Road from the Late Teens Through the Twenties, Second Edition*. Oxford University Press.
- Arnon, S., Fisher, P. W., Pickover, A., Lowell, A., Turner, J. B., Hilburn, A., Jacob-McVey, J., Malajian, B. E., Farber, D. G., Hamilton, J. F., Hamilton, A., Markowitz, J. C., & Neria, Y. (2020). Equine-Assisted Therapy for Veterans with PTSD: Manual Development and Preliminary Findings. *Military Medicine*, 185(5-6), e557–e564.
<https://doi.org/10.1093/milmed/usz444>
- Aron, A., Lewandowski, G., Branand, B., Mashek, D., & Aron, E. (2022). Self-expansion motivation and inclusion of others in self: An updated review. *Journal of Social and Personal Relationships*, 39(12), 026540752211106.
<https://doi.org/10.1177/02654075221110630>
- Arslan, G. (2022). Psychological maltreatment and substance use among college students: Psychological distress, belongingness, and social support. *Journal of Ethnicity in Substance Abuse*, 1–24. <https://doi.org/10.1080/15332640.2022.2122098>
- Asamoah, M. K. (2014). Re-examination of the limitations associated with correlational research. *Journal of Educational Research and Reviews*, 2(4), 45–52.
- Azlan, S., Mohamad, F., Rahima, D., Zarina Ismail, I., Kadir Shahar, H., Nainey Kamaruddin, K., Nur Amirah, S., Syed, N., & Hana Shamsuddin, N. (2024). Self-system and mental health status among Malaysian youth attending higher educational institutions: A nationwide cross-sectional study. *PubMed*, 19, 12–12. <https://doi.org/10.51866/oa.341>
- Bakhurst, D. (2018). Activity, action and self-consciousness. *Educational Review*, 70(1), 91–99.
<https://doi.org/10.1080/00131911.2018.1388618>

- Bang, H., & Reio, T. G. (2016). Personal Accomplishment, Mentoring, and Creative Self-Efficacy as Predictors of Creative Work Involvement: The Moderating Role of Positive and Negative Affect. *The Journal of Psychology, 151*(2), 148–170.
<https://doi.org/10.1080/00223980.2016.1248808>
- Barcelos, A. M., Kargas, N., Maltby, J., & Mills, D. S. (2023). Potential Psychosocial Explanations for the Impact of Pet Ownership on Human Well-Being: Evaluating and Expanding Current Hypotheses. *Human-Animal Interactions, 2023*.
<https://doi.org/10.1079/hai.2023.0008>
- Barklam, E. B., & Felisberti, F. M. (2022). Pet Ownership and Wellbeing During the COVID-19 Pandemic: The Importance of Resilience and Attachment to Pets. *Anthrozoös, 36*(2), 1–22. <https://doi.org/10.1080/08927936.2022.2101248>
- Bastian, B., Kuppens, P., De Roover, K., & Diener, E. (2014). Is valuing positive emotion associated with life satisfaction? *Emotion, 14*(4), 639–645.
<https://doi.org/10.1037/a0036466>
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Baumeister, R. F., & Robson, D. A. (2021). Belongingness and the modern schoolchild: on loneliness, socioemotional health, self-esteem, evolutionary mismatch, online sociality, and the numbness of rejection. *Australian Journal of Psychology, 73*(1), 1–9.
<https://doi.org/10.1080/00049530.2021.1877573>

- Baumgartner, J. N., & Burns, J. K. (2013). Measuring social inclusion--a key outcome in global mental health. *International Journal of Epidemiology*, 43(2), 354–364.
<https://doi.org/10.1093/ije/dyt224>
- Beck, A., & Katcher, A. (1996). *Between Pets and People*. Google Books.
<https://books.google.com.my/books?hl=en&lr=&id=cod2UA-W-rwC&oi=fnd&pg=PR9&dq=Pet+companionship+refers+to+the+bond+between+humans+and+their+pets>
- Beckett, L. K., Lu, F., & Sabati, S. (2022). Beyond Inclusion: Cultivating a Critical Sense of Belonging through Community-Engaged Research. *Social Sciences*, 11(3), 132.
<https://doi.org/10.3390/socsci11030132>
- Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and Psychophysiological Effects of Human-Animal Interactions: The Possible Role of Oxytocin. *Frontiers in Psychology*, 3(234). <https://doi.org/10.3389/fpsyg.2012.00234>
- Behler, A. M. C., Green, J. D., & Joy-Gaba, J. (2020). “We Lost a Member of the Family”: Predictors of the Grief Experience Surrounding the Loss of a Pet. *Human-Animal Interaction Bulletin*, 2020. <https://doi.org/10.1079/hai.2020.0017>
- Bender, Y., Bräuer, J., & Schweinberger, S. R. (2023). What Makes a Good Dog-Owner Team? – A Systematic Review about Compatibility in Personality and Attachment. *Applied Animal Behaviour Science*, 260, 105857. <https://doi.org/10.1016/j.applanim.2023.105857>
- Benlahcene, A., Kaur, A., & Awang-Hashim, R. (2020). Basic psychological needs satisfaction and student engagement: the importance of novelty satisfaction. *Journal of Applied Research in Higher Education*, ahead-of-print(ahead-of-print).
<https://doi.org/10.1108/jarhe-06-2020-0157>

- Berry, C., Michelson, D., Othman, E., Tan, J. C., Gee, B., Hodgekins, J., Byrne, R. E., Ng, A. L. O., Marsh, N. V., Coker, S., & Fowler, D. (2019). Views of young people in Malaysia on mental health, help-seeking and unusual psychological experiences. *Early Intervention in Psychiatry*, 14(1), 115–123. <https://doi.org/10.1111/eip.12832>
- Bessaha, M., Persaud, U., Asfe, R., & Muñoz-Laboy, M. (2023). Community-Based Providers' Perspectives on Addressing Loneliness and Mental Health Services for Migrant Youth and Emerging Adults. *Journal of Social Service Research*, 49(1), 93–104. <https://doi.org/10.1080/01488376.2022.2164640>
- Bi, H. (2024). Research on the effects of pet companionships on people's well-being. *Routledge EBooks*, 757–768. <https://doi.org/10.1201/9781032676043-104>
- Booten, A. E. (2024). *Effects of Animal-Assisted Therapy on Behavior and Reading in the Classroom*. Marshall Digital Scholar. <https://mds.marshall.edu/etd/22/>
- Borgi, M., & Cirulli, F. (2022). Companionship and Wellbeing: Benefits and Challenges of Human-Pet Relationships. *The Palgrave Macmillan Animal Ethics Series*, 289–315. https://doi.org/10.1007/978-3-030-85277-1_14
- Brandt, L., Liu, S., Heim, C., & Heinz, A. (2022). The Effects of Social Isolation Stress and Discrimination on Mental Health. *Translational Psychiatry*, 12(1), 1–11. <https://doi.org/10.1038/s41398-022-02178-4>
- Bristol, S. M. (2023). *Understanding Participation in the Community for Autistic Children, Their Families and Their Assistance Dogs - ProQuest*. Proquest.com. <https://www.proquest.com/openview/9db88a9dfae0820aed82bc22f3a1fe2c/1?pq-origsite=gscholar&cbl=18750&diss=y>

- Browne, R. H. (1995). On the use of a pilot sample for sample size determination. *Statistics in Medicine*, 14(17), 1933–1940. <https://doi.org/10.1002/sim.4780141709>
- Bulsara, M., Wood, L., Giles-Corti, B., & Bosch, D. (2007). More Than a Furry Companion: The Ripple Effect of Companion Animals on Neighborhood Interactions and Sense of Community. *Society & Animals*, 15(1), 43–56. <https://doi.org/10.1163/156853007x169333>
- Burton, L. E., Qeadan, F., & Burge, M. R. (2019). Efficacy of equine-assisted psychotherapy in veterans with posttraumatic stress disorder. *Journal of Integrative Medicine*, 17(1), 14–19. <https://doi.org/10.1016/j.joim.2018.11.001>
- Bussolari, C., Currin-McCulloch, J., Packman, W., Kogan, L., & Erdman, P. (2021). “I Couldn’t Have Asked for a Better Quarantine Partner!”: Experiences with Companion Dogs during Covid-19. *Animals*, 11(2), 330. <https://doi.org/10.3390/ani11020330>
- Cacciatore, J., Thieleman, K., Fretts, R., & Jackson, L. B. (2021). What is good grief support? Exploring the actors and actions in social support after traumatic grief. *PLOS ONE*, 16(5). <https://doi.org/10.1371/journal.pone.0252324>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661. <https://doi.org/10.1177/1744987120927206>
- Carr, A. M., & Pendry, P. (2021). Understanding Links Between College Students’ Childhood Pet Ownership, Attachment, and Separation Anxiety During the Transition to College. *Anthrozoös*, 35(1), 1–18. <https://doi.org/10.1080/08927936.2021.1963545>

- Cavanaugh, L. A., Leonard, H. A., & Scammon, D. L. (2008). A tail of two personalities: How canine companions shape relationships and well-being. *Journal of Business Research*, 61(5), 469–479. <https://doi.org/10.1016/j.jbusres.2007.07.024>
- Charmaraman, L., Kiel, E., Richer, A. M., Gramajo, A., & Mueller, M. K. (2022). Associations between Pet Care Responsibility, Companion Animal Interactions, and Family Relationships during COVID-19. *Animals*, 12(23), 3274. <https://doi.org/10.3390/ani12233274>
- Chen, Y., Huang, C.-C., Yang, M., & Wang, J. (2022). Relationship Between Adverse Childhood Experiences and Resilience in College Students in China. *Journal of Family Violence*. <https://doi.org/10.1007/s10896-022-00388-4>
- Chesney, T., & Lawson, S. (2007). The illusion of love. *Interaction Studies*, 8(2), 337–342. <https://doi.org/10.1075/is.8.2.09che>
- Chiu, M. M., Chow, B. W.-Y., McBride, C., & Mol, S. T. (2015). Students' Sense of Belonging at School in 41 Countries. *Journal of Cross-Cultural Psychology*, 47(2), 175–196. <https://doi.org/10.1177/0022022115617031>
- Christopher, J. C. (1999). Situating Psychological Well-Being: Exploring the Cultural Roots of Its Theory and Research. *Journal of Counseling & Development*, 77(2), 141–152. <https://doi.org/10.1002/j.1556-6676.1999.tb02434.x>
- Cicognani, E., Pirini, C., Keyes, C., Joshanloo, M., Rostami, R., & Nosratabadi, M. (2007). Social Participation, Sense of Community and Social Well Being: A Study on American, Italian and Iranian University Students. *Social Indicators Research*, 89(1), 97–112. <https://doi.org/10.1007/s11205-007-9222-3>

- Clements, H., Valentin, S., Jenkins, N., Rankin, J., Gee, N. R., Snellgrove, D., & Sloman, K. A. (2021). Companion Animal Type and Level of Engagement Matter: A Mixed-Methods Study Examining Links between Companion Animal Guardianship, Loneliness and Well-Being during the COVID-19 Pandemic. *Animals*, 11(8), 2349. <https://doi.org/10.3390/ani11082349>
- Cloninger, Cr. (2013). What makes people healthy, happy, and fulfilled in the face of current world challenges? *Mens Sana Monographs*, 11(1), 16. <https://doi.org/10.4103/0973-1229.109288>
- Cohen, S. P. (2002). Can Pets Function as Family Members? *Western Journal of Nursing Research*, 24(6), 621–638. <https://doi.org/10.1177/019394502320555386>
- Companion Animal Community Center . (n.d.). *Your cat settling into your home with the 3-3-3 rule – Companion Animal Community Center*. Companion Animal Community Center-Dog and Cat Foster and Adoption. <https://companionanimalcommunitycenter.org/your-cat-settling-into-your-home-with-the-3-3-3-rule/>
- Conway, R. J., Heary, C., & Hogan, M. J. (2015). An Evaluation of the Measurement Properties of the Five Cs Model of Positive Youth Development. *Frontiers in Psychology*, 6. <https://doi.org/10.3389/fpsyg.2015.01941>
- Cordaro, M. (2012). Pet Loss and Disenfranchised Grief: Implications for Mental Health Counseling Practice. *Journal of Mental Health Counseling*, 34(4), 283–294. <https://doi.org/10.17744/mehc.34.4.41q0248450t98072>
- Cowles, K. V. (2016). The Death of a Pet: Human Responses to the Breaking of the Bond. *Routledge EBooks*, 135–148. <https://doi.org/10.4324/9781315784656-10>

- Cox, C. T., Stepovich, N., Bennion, A., Fauconier, J., & Izquierdo, N. (2021). Motivation and Sense of Belonging in the Large Enrollment Introductory General and Organic Chemistry Remote Courses. *Education Sciences*, 11(9), 549.
<https://doi.org/10.3390/educsci11090549>
- Crawford, J., Allen, K.-A., Sanders, T., Baumeister, R. F., Parker, P. D., Saunders, C., & Tice, D. M. (2023). Sense of belonging in higher education students: an Australian longitudinal study from 2013 to 2019. *Studies in Higher Education*, 49(3), 1–15.
<https://doi.org/10.1080/03075079.2023.2238006>
- Cromer, L. D., & Barlow, M. R. (2013). Factors and Convergent Validity of The Pet Attachment and Life Impact Scale (PALS). *Human-Animal Interaction Bulletin*, 2013.
<https://doi.org/10.1079/hai.2013.0012>
- Cryer, S., Henderson-Wilson, C., & Lawson, J. (2021). Pawsitive Connections: The role of Pet Support Programs and pets on the elderly. *Complementary Therapies in Clinical Practice*, 42, 101298. <https://doi.org/10.1016/j.ctcp.2020.101298>
- Dawn, E. (2015, December). *A study of the contribution of variables related to companion animals on positivity*. Handle.net; Kansas State University.
<http://hdl.handle.net/2097/20532>
- Denis-Robichaud, J., Aenishaenslin, C., Richard, L., Desmarchelier, M., & Carabin, H. (2022). Association between Pet Ownership and Mental Health and Well-Being of Canadians Assessed in a Cross-Sectional Study during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 19(4), 2215.
<https://doi.org/10.3390/ijerph19042215>

- Dewi, S. R., Suryamarta, R., Kurnia, D., & Andari. (2020). Sense of Belonging and Job Satisfaction on Employee Performance. *Proceedings of the International Conference on Community Development (ICCD 2020)*, 477(2352-5398).
<https://doi.org/10.2991/assehr.k.201017.140>
- Dorri Sedeh, S., & Aghaei, A. (2024). The effectiveness of PERMA model education on university students' well-being. *Journal of Education and Health Promotion*, 13(1).
https://doi.org/10.4103/jehp.jehp_840_23
- Drezner, N. D., & Pizmony-Levy, O. (2020). I Belong, Therefore, I Give? The Impact of Sense of Belonging on Graduate Student Alumni Engagement. *Nonprofit and Voluntary Sector Quarterly*, 50(4), 089976402097768. <https://doi.org/10.1177/0899764020977687>
- Drolet, M., Arcand, I., Ducharme, D., & Leblanc, R. (2013). The Sense of School Belonging and Implementation of a Prevention Program: Toward Healthier Interpersonal Relationships Among Early Adolescents. *Child and Adolescent Social Work Journal*, 30(6), 535–551.
<https://doi.org/10.1007/s10560-013-0305-5>
- Dromgold-Sermen, M. S. (2020). Forced migrants and secure belonging: a case study of Syrian refugees resettled in the United States. *Journal of Ethnic and Migration Studies*, 1–20.
<https://doi.org/10.1080/1369183x.2020.1854087>
- Drucker, S. J., & Gumpert, G. (2012). The Impact of Digitalization on Social Interaction and Public Space. *Open House International*, 37(2), 92–99. <https://doi.org/10.1108/ohi-02-2012-b0011>
- Dzul, Z. (2018). *Calling Dr Dog!* New Straits Times .
<https://www.nst.com.my/lifestyle/pulse/2018/02/334016/calling-dr-dog>

- Edwards, J. D., Barthelemy, R. S., & Frey, R. F. (2021). Relationship between Course-Level Social Belonging (Sense of Belonging and Belonging Uncertainty) and Academic Performance in General Chemistry 1. *Journal of Chemical Education*.
<https://doi.org/10.1021/acs.jchemed.1c00405>
- Egcas, R. A., Oducado, R. M. F., Cleofas, J. V., Rabacal, J. S., & Lausa, S. M. (2021). After Over a Year of Pandemic: Mental Well-being and Life Satisfaction of Filipino College Students. *Pertanika Journal of Social Sciences and Humanities*, 29(4), 2401–2416.
<https://doi.org/10.47836/pjssh.29.4.17>
- Ellis, A., Stanton, S. C. E., Hawkins, R. D., & Loughnan, S. (2024). Development and validation of the Companion Animals Self-Expansion Scale. *Human-Animal Interactions*.
<https://doi.org/10.1079/hai.2024.0020>
- Ellis, A., Stanton, S. C. E., Hawkins, R. D., & Loughnan, S. (2024). The Link between the Nature of the Human–Companion Animal Relationship and Well-Being Outcomes in Companion Animal Owners. *Animals*, 14(3), 441. <https://doi.org/10.3390/ani14030441>
- Evans, O., Cruwys, T., Cárdenas, D., Wu, B., & Cognian, A. V. (2022). Social Identities Mediate the Relationship Between Isolation, Life Transitions, and Loneliness. *Behaviour Change*, 39(3), 1–14. <https://doi.org/10.1017/bec.2022.15>
- Fan, X., Luchok, K., & Dozier, J. (2020). College students’ satisfaction and sense of belonging: differences between underrepresented groups and the majority groups. *SN Social Sciences*, 1(1). <https://doi.org/10.1007/s43545-020-00026-0>
- Ferrell, J., & Crowley, S. L. (2023). Emotional support animal partnerships: Behavior, welfare, and clinical involvement. *Anthrozoös*, 36(3), 1–17.
<https://doi.org/10.1080/08927936.2023.2166711>

- Fine, A. H. (2010). Incorporating animal-assisted therapy into psychotherapy. *Handbook on Animal-Assisted Therapy*, 169–191. <https://doi.org/10.1016/b978-0-12-381453-1.10010-8>
- Fisher, L. B., Overholser, J. C., Ridley, J., Braden, A., & Rosoff, C. (2015). From the Outside Looking In: Sense of Belonging, Depression, and Suicide Risk. *Psychiatry*, 78(1), 29–41. <https://doi.org/10.1080/00332747.2015.1015867>
- Franck, K. R., Paz, J. E. G., Costa, E. de F., & da Costa, F. V. A. (2022). Human-cat emotional closeness and unacceptable behavior in cats: A Brazilian perspective. *Journal of Veterinary Behavior*, 52-53, 50–54. <https://doi.org/10.1016/j.jveb.2022.05.003>
- Freedman, S., Paramova, P., & Senior, V. (2020). “It gives you more to life, it’s something new every day”: an Interpretative Phenomenological Analysis of wellbeing in older care home residents who keep a personal pet. *Ageing and Society*, 41(9), 1–23. <https://doi.org/10.1017/s0144686x19001880>
- Freire, C., Ferradás, M. del M., Núñez, J. C., & Valle, A. (2021). LA CONSECUCIÓN DEL FUNCIONAMIENTO PSICOLÓGICO PLENO: LA DIMENSIÓN DE CRECIMIENTO PERSONAL. *Papeles Del Psicólogo - Psychologist Papers*, 42(2). <https://doi.org/10.23923/pap.psicol.2976>
- Friesen, L. (2009). Exploring Animal-Assisted Programs with Children in School and Therapeutic Contexts. *Early Childhood Education Journal*, 37(4), 261–267. <https://doi.org/10.1007/s10643-009-0349-5>
- Gallea, J. I., Medrano, L. A., & Morera, L. P. (2021). Work-Related Mental Health Issues in Graduate Student Population. *Frontiers in Neuroscience*, 15. <https://doi.org/10.3389/fnins.2021.593562>

- Garcia, D., Kazemitabar, M., & Mojtaba, H. A. (2023). The 18-item Swedish version of Ryff's psychological wellbeing scale: psychometric properties based on classical test theory and item response theory. *Frontiers in Psychology, 14*.
<https://doi.org/10.3389/fpsyg.2023.1208300>
- Gautam, S., Jain, A., Chaudhary, J., Gautam, M., Gaur, M., & Grover, S. (2024). Concept of mental health and mental well-being, it's determinants and coping strategies. *Indian Journal of Psychiatry, 66*(Suppl 2), S231–S244.
https://doi.org/10.4103/indianjpsychiatry.indianjpsychiatry_707_23
- Genieve , H. G., Hill, A.-M., Yeung, P., Keesing, S., & Netto, J. A. (2019). Pet ownership and its influence on mental health in older adults. *Aging & Mental Health, 24*(10), 1605–1612.
<https://doi.org/10.1080/13607863.2019.1633620>
- Gigantesco, A., Stazi, M. A., Alessandri, G., Medda, E., Tarolla, E., & Fagnani, C. (2011). Psychological well-being (PWB): a natural life outlook? An Italian twin study on heritability of PWB in young adults. *Psychological Medicine, 41*(12), 2637–2649.
<https://doi.org/10.1017/s0033291711000663>
- Gilbey, A., & Tani, K. (2020). Pets and Loneliness: Examining the Efficacy of a Popular Measurement Instrument. *Anthrozoös, 33*(4), 529–546.
<https://doi.org/10.1080/08927936.2020.1771058>
- Gillen-O'Neel, C. (2019). Sense of Belonging and Student Engagement: A Daily Study of First- and Continuing-Generation College Students. *Research in Higher Education, 62*(4).
<https://doi.org/10.1007/s11162-019-09570-y>
- González-Ramírez, M. T., & Landero-Hernández, R. (2021). Pet–Human Relationships: Dogs versus Cats. *Animals, 11*(9), 2745. <https://doi.org/10.3390/ani11092745>

- Gopalan, M., Linden-Carmichael, A., & Lanza, S. (2021). College Students' Sense of Belonging and Mental Health Amidst the COVID-19 Pandemic. *Journal of Adolescent Health*, 70(2). <https://doi.org/10.1016/j.jadohealth.2021.10.010>
- Gopika, S. K., Mathieu, N. M., Freed, J. K., Sigmund, C. D., & Gutterman, D. D. (2023). Addressing the Decline in Graduate Students' Mental Well-Being. *American Journal of Physiology-Heart and Circulatory Physiology*, 325(4), H882–H887. <https://doi.org/10.1152/ajpheart.00466.2023>
- Gradidge, S., Loughnan, S., & Gibson, N. (2024). Exploring the “Pet Effect”: Does Playing with Pets Contribute to Owner Wellbeing?. *Pets*, 1(3), 328–339. <https://doi.org/10.3390/pets1030023>
- Graham, A., & Barnfield, A. (2021). Types of Social Relationships and Their Effects on Psychological Well-being. *Western Undergraduate Psychology Journal*, 9(1). <https://ojs.lib.uwo.ca/index.php/wupj/article/view/14375>
- Grajfoner, D., Ke, G. N., & Wong, R. M. M. (2021). The Effect of Pets on Human Mental Health and Wellbeing during COVID-19 Lockdown in Malaysia. *Animals*, 11(9), 2689. <https://doi.org/10.3390/ani11092689>
- Gunn, L. (2021). *Coping with loneliness during the festive season* / Nuffield Health. Nuffieldhealth.com. <https://www.nuffieldhealth.com/article/coping-with-loneliness-during-the-festive-period>
- Guo, S., Fu, H., & Guo, K. (2024). Effects of physical activity on subjective well-being: the mediating role of social support and self-efficacy. *Frontiers in Sports and Active Living*, 6. <https://doi.org/10.3389/fspor.2024.1362816>

HABRI Research . (n.d.). *Mental Health Conditions*. HABRI. <https://habri.org/research/mental-health/conditions/>

Hadi , S., & Farhad , T. R. (2023). The Relationship Between Sense of Belonging and Life Satisfaction Among University Students: The Mediating Role of Social Isolation and Psychological Distress. *Ittiḥād va Razm-i Dānish/Āmūz*, 6(3), 11–24.
<https://doi.org/10.61186/ijes.6.3.11>

Hagerty, B. M. K., & Patusky, K. (1995). Developing a measure of sense of belonging. *Nursing Research*, 44(1), 9–13. <https://doi.org/10.1097/00006199-199501000-00003>

Hagerty, B. M. K., Lynch-Sauer, J., Patusky, K. L., Bouwsema, M., & Collier, P. (1992). Sense of belonging: A vital mental health concept. *Archives of Psychiatric Nursing*, 6(3), 172–177. [https://doi.org/10.1016/0883-9417\(92\)90028-h](https://doi.org/10.1016/0883-9417(92)90028-h)

Haim-Litevsky, D., Komemi, R., & Lipskaya-Velikovsky, L. (2023). Sense of Belonging, Meaningful Daily Life Participation, and Well-Being: Integrated Investigation. *International Journal of Environmental Research and Public Health*, 20(5), 4121.
<https://doi.org/10.3390/ijerph20054121>

Hale, C. A. (2013). A Sense of Belonging in Re-Membering: Anthropocosmic Connection in the Twenty-First Century. *World Futures*, 69(1), 45–60.
<https://doi.org/10.1080/02604027.2012.730439>

Hartwig, E. K. (2017). Building Solutions in Youth: Evaluation of the Human–Animal Resilience Therapy Intervention. *Journal of Creativity in Mental Health*, 12(4), 468–481.
<https://doi.org/10.1080/15401383.2017.1283281>

Hashim, R., Omar, & Saunders, P. (2012). *Indicators of poverty and social exclusion in Malaysia: Early findings*. <https://doi.org/10.1109/chuser.2012.6504383>

- Hawkins, R. D., Ellis, A., & Robinson, C. (2024). Exploring the Connection Between Pet Attachment and Owner Mental Health: The Roles of Owner-Pet Compatibility, Perceived Pet Welfare, and Behavioral Issues. *MedRxiv (Cold Spring Harbor Laboratory)*.
<https://doi.org/10.1101/2024.11.20.24317636>
- Hawkins, R. D., Kuo, C.-H., & Robinson, C. (2024). Young adults' views on the mechanisms underpinning the impact of pets on symptoms of anxiety and depression. *Frontiers in Psychiatry, 15*. <https://doi.org/10.3389/fpsyt.2024.1355317>
- Herzog, H. (2011). The Impact of Pets on Human Health and Psychological Well-Being. *Current Directions in Psychological Science, 20*(4), 236–239.
<https://doi.org/10.1177/0963721411415220>
- Hoying, J., Melnyk, B. M., Hutson, E., & Tan, A. (2020). Prevalence and Correlates of Depression, Anxiety, Stress, Healthy Beliefs, and Lifestyle Behaviors in First-Year Graduate Health Sciences Students. *Worldviews on Evidence-Based Nursing, 17*(1), 49–59. <https://doi.org/10.1111/wvn.12415>
- Huang, R., Krier, L., Josiam, B., & Kim, H. (2021). Understanding Consumer–Pet Relationship during Travel: A Model of Empathetic Self-Regulation in Canine Companionship. *Journal of Quality Assurance in Hospitality & Tourism, 23*(4), 1088–1105.
<https://doi.org/10.1080/1528008x.2021.1955236>
- Hunt, S. J., Hart, L. A., & Gomulkiewicz, R. (2016). Role of Small Animals in Social Interactions between Strangers. *The Journal of Social Psychology, 132*(2), 245–256.
<https://doi.org/10.1080/00224545.1992.9922976>

- Huppert, F. A. (2009). Psychological Well-being: Evidence regarding Its Causes and Consequences. *Applied Psychology: Health and Well-Being*, 1(2), 137–164.
<https://doi.org/10.1111/j.1758-0854.2009.01008.x>
- Iacobucci, D., Posavac, S. S., Kardes, F. R., Schneider, M. J., & Popovich, D. L. (2015). Toward a more nuanced understanding of the statistical properties of a median split. *Journal of Consumer Psychology*, 25(4), 652–665. <https://doi.org/10.1016/j.jcps.2014.12.002>
- Ihamäki, P., & Heljakka, K. (2021). Robot Pets as “Serious Toys”- Activating Social and Emotional Experiences of Elderly People. *Information Systems Frontiers*.
<https://doi.org/10.1007/s10796-021-10175-z>
- Inc, G. (2023). *Meta-Gallup Global State of Social Connections*. Gallup.com.
<https://www.gallup.com/analytics/509675/state-of-social-connections.aspx>
- Irina, K., & Tatiana, E. (2020). Cognitive and style predictors of the students’ psychological well-being. *International Journal of Cognitive Research in Science, Engineering and Education*, 8(1), 1–13. <https://cyberleninka.ru/article/n/cognitive-and-style-predictors-of-the-students-psychological-well-being>
- Izuchukwu, L. G. N., & Nwafor, V. C. (2023). Incremental Contributions of Sense of Belonging above and beyond Locus of Control in Subjective Wellbeing among Undergraduates. *Journal of Psychology and Allied Disciplines*, 1(1).
<https://www.jpadfuna.com/index.php/JPAD/article/view/11>
- Jalongo, M. R. (2021). Pet Keeping in the Time of COVID-19: The Canine and Feline Companions of Young Children. *Early Childhood Education Journal*.
<https://doi.org/10.1007/s10643-021-01251-9>

- Janssens, M., Janssens, E., Eshuis, J., Lataster, J., Simons, M., Reijnders, J., & Jacobs, N. (2021). Companion Animals as Buffer against the Impact of Stress on Affect: An Experience Sampling Study. *Animals*, 11(8), 2171. <https://doi.org/10.3390/ani11082171>
- Ji, Y. S., & Jin, S. H. (2023). Exploring the Role of Empathy as a Dual Mediator in the Relationship between Human–Pet Attachment and Quality of Life: A Survey Study among Adult Dog Owners. *Exploring the Role of Empathy as a Dual Mediator in the Relationship between Human–Pet Attachment and Quality of Life: A Survey Study among Adult Dog Owners*, 13(13), 2220–2220. <https://doi.org/10.3390/ani13132220>
- Johnson, E., & Volsche, S. (2021). COVID-19: Companion Animals Help People Cope during Government-Imposed Social Isolation. *Society & Animals*, 1–18. <https://doi.org/10.1163/15685306-bja10035>
- Johnson, R. A., Albright, D. L., Marzolf, J. R., Bibbo, J. L., Yaglom, H. D., Crowder, S. M., Carlisle, G. K., Willard, A., Russell, C. L., Grindler, K., Osterlind, S., Wassman, M., & Harms, N. (2018). Effects of therapeutic horseback riding on post-traumatic stress disorder in military veterans. *Military Medical Research*, 5(1). <https://doi.org/10.1186/s40779-018-0149-6>
- Jung, M.-H. (2017). The Effect of Psychological Well-Being on Life Satisfaction for Employees. *Journal of Industrial Distribution & Business*, 8(5), 35–42. <https://doi.org/10.13106/ijidb.2017.vol8.no5.35>
- Kaligis, F., Ismail, R. I., Wiguna, T., Prasetyo, S., Indriatmi, W., Gunardi, H., Pandia, V., & Magdalena, C. C. (2021). Mental Health Problems and Needs among Transitional-Age Youth in Indonesia. *International Journal of Environmental Research and Public Health*, 18(8), 4046. <https://doi.org/10.3390/ijerph18084046>

- Kan, J. W., & Gero, J. S. (2017). *Quantitative Methods for Studying Design Protocols*. Springer Netherlands. <https://doi.org/10.1007/978-94-024-0984-0>
- Kanat-Maymon, Y., Antebi, A., & Zilcha-Mano, S. (2016). Basic psychological need fulfillment in human–pet relationships and well-being. *Personality and Individual Differences*, 92, 69–73. <https://doi.org/10.1016/j.paid.2015.12.025>
- Katrijn , D. (Ed.). (2023). Migration-related inequalities in loneliness across age groups: a cross-national comparative study in Europe. *European Journal of Ageing*, 20(1). <https://doi.org/10.1007/s10433-023-00782-x>
- Kern, M. L., Waters, L. E., Adler, A., & White, M. A. (2015). A multidimensional approach to measuring well-being in students: Application of the PERMA framework. *The Journal of Positive Psychology*, 10(3), 262–271. <https://doi.org/10.1080/17439760.2014.936962>
- Khalid, A., & Naqvi, I. (2016). Relationship between pet attachment and empathy among young adults. *Journal of Behavioural Sciences*, 26(1), 66.
- Khatun, N. (2021). Applications of Normality Test in Statistical Analysis. *Open Journal of Statistics*, 11(01), 113–122. <https://doi.org/10.4236/ojs.2021.111006>
- Khaw, D., & Kern, M. (2015). *A Cross-Cultural Comparison of the PERMA Model of Well-being*. https://www.peggykern.org/uploads/5/6/6/7/56678211/khaw___kern_2015_-_a_cross-cultural_comparison_of_the_perma_model_of_well-being.pdf
- Kim, J., & Chun, B. C. (2021). Association between companion animal ownership and overall life satisfaction in Seoul, Korea. *PLOS ONE*, 16(9), e0258034. <https://doi.org/10.1371/journal.pone.0258034>
- King, M. (2023, June 8). *Psychologist: Young adults hit hard by pandemic's toll on mental health*. Clark Now | Clark University.

- <https://clarknow.clarku.edu/2023/06/08/psychologist-young-adults-hit-hard-by-pandemics-toll-on-mental-health/>
- Klein, N. (2016). Prosocial behavior increases perceptions of meaning in life. *The Journal of Positive Psychology, 12*(4), 354–361. <https://doi.org/10.1080/17439760.2016.1209541>
- Kogan, L. R., Bussolari, C., Currin-McCulloch, J., Packman, W., & Erdman, P. (2022). Disenfranchised Guilt—Pet Owners’ Burden. *Animals, 12*(13), 1690. <https://doi.org/10.3390/ani12131690>
- Kovich, M. K., Simpson, V. L., Foli, K. J., Hass, Z., & Phillips, R. G. (2022). Application of the PERMA Model of Well-being in Undergraduate Students. *International Journal of Community Well-Being, 6*(1), 1–20. <https://doi.org/10.1007/s42413-022-00184-4>
- Kreutzmann, M., Zander, L., & Webster, G. D. (2017). Dancing is belonging! How social networks mediate the effect of a dance intervention on students’ sense of belonging to their classroom. *European Journal of Social Psychology, 48*(3), 240–254. <https://doi.org/10.1002/ejsp.2319>
- Kundi, Y. M., Aboramadan, M., Elhamalawi, E. M. I., & Shahid, S. (2021). Employee Psychological Well-being and Job Performance: Exploring Mediating and Moderating Mechanisms. *International Journal of Organizational Analysis, 29*(3), 736–754. Emerald. <https://doi.org/10.1108/ijoa-05-2020-2204>
- Lane, H. B., & Zavada, S. D. W. (2013). When Reading Gets Ruff: Canine-Assisted Reading Programs. *The Reading Teacher, 67*(2), 87–95. <https://doi.org/10.1002/trtr.1204>
- Lanning, B. A., & Krennek, N. (2013). Guest editorial: Examining effects of equine-assisted activities to help combat veterans improve quality of life. *Journal of Rehabilitation*

Research and Development, 50(8).

<https://www.rehab.research.va.gov/jour/2013/508/pdf/JRRD-2013-07-0159.pdf>

Lau, F. (2017). *Chapter 12: Methods for correlational studies*. Nih.gov; University of Victoria.

<https://www.ncbi.nlm.nih.gov/books/NBK481614/>

Leach, C. W. (2017). Understanding Shame and Guilt. *Handbook of the Psychology of Self-Forgiveness*, 17–28. https://doi.org/10.1007/978-3-319-60573-9_2

Leary, M. R., Twenge, J. M., & Quinlivan, E. (2006). Interpersonal Rejection as a Determinant of Anger and Aggression. *Personality and Social Psychology Review*, 10(2), 111–132. https://doi.org/10.1207/s15327957pspr1002_2

Levin, K. A. (2006). Study Design III: Cross-sectional Studies. *Evidence-Based Dentistry*, 7(1), 24–25. <https://doi.org/10.1038/sj.ebd.6400375>

Lim, J. X. (2025). Pet-Friendly Urban Parks in Pursuit of Sustainable Green Spaces. *Asian Journal of Law and Policy*, 5(1), 85–100. <https://doi.org/10.33093/ajlp.2025.5>

Lim, L. L., & Kua, E.-H. (2011). Living Alone, Loneliness, and Psychological Well-Being of Older Persons in Singapore. *Current Gerontology and Geriatrics Research*, 2011, 1–9. <https://doi.org/10.1155/2011/673181>

Lin, H. (2022). Research on the Relationship Between Pets and Emotion of Human. *Proceedings of the 2022 5th International Conference on Humanities Education and Social Sciences (ICHESS 2022)*, 2179–2185. https://doi.org/10.2991/978-2-494069-89-3_250

Livaniou, N. (2020). Honest behavior and perceived anonymity in online environment - University of Twente Student Theses. *Utwente.nl*. <https://purl.utwente.nl/essays/81305>

- Longmont Humane Society. (2024). *It Doesn't Happen Overnight – The 3-3-3 Rule for Dog Adoptions – Longmont Humane Society*. Longmonthumane.org.
<https://www.longmonthumane.org/3-3-3/>
- Maran, A., Gianino, M., Serra, G., & Cortese, C. (2022). Potential benefits of human-animal interaction among nurses pet owners and non-pet owners: A pilot study. *BOLLETTINO DI PSICOLOGIA APPLICATA*, 2022(294). <https://doi.org/10.26387/bpa.2022.00005>
- Marlowe, J. M., Bartley, A., & Collins, F. (2016). Digital belongings: The intersections of social cohesion, connectivity and digital media. *Ethnicities*, 17(1), 85–102.
<https://doi.org/10.1177/1468796816654174>
- Martens, P., Enders-Slegers, M.-J., & Walker, J. K. (2016). The Emotional Lives of Companion Animals: Attachment and Subjective Claims by Owners of Cats and Dogs. *Anthrozoös*, 29(1), 73–88. <https://doi.org/10.1080/08927936.2015.1075299>
- Martínez-García, A., Valverde-Montesino, S., & García-García, M. (2024). Promoting mental health in higher education: towards a model of well-being factors in emerging adulthood. *International Journal of Qualitative Studies on Health and Well-Being*, 19(1).
<https://doi.org/10.1080/17482631.2024.2408831>
- Masika, R., & Jones, J. (2015). Building student belonging and engagement: insights into higher education students' experiences of participating and learning together. *Teaching in Higher Education*, 21(2), 138–150. <https://doi.org/10.1080/13562517.2015.1122585>
- Matijczak, A., McDonald, S. E., Tomlinson, C. A., Murphy, J. L., & O'Connor, K. (2020). The Moderating Effect of Comfort from Companion Animals and Social Support on the Relationship between Microaggressions and Mental Health in LGBTQ+ Emerging Adults. *Behavioral Sciences*, 11(1), 1. <https://doi.org/10.3390/bs11010001>

- Matthew, H. (2022). *Digital Belonging: The Role of Social Network Sites in Establishing a Sense of Belonging Among First-Year Undergraduate Males in an Online-Only Setting - ProQuest*. Proquest.com.
<https://www.proquest.com/openview/d7f9248a0fe9dd84459ecb0541564e71/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Mazereel, V., Vansteelandt, K., Menne-Lothmann, C., Decoster, J., Derom, C., Thiery, E., Rutten, B. P. F., Jacobs, N., van Os, J., Wichers, M., De Hert, M., Vancampfort, D., & van Winkel, R. (2021). The complex and dynamic interplay between self-esteem, belongingness and physical activity in daily life: An experience sampling study in adolescence and young adulthood. *Mental Health and Physical Activity*, 21, 100413.
<https://doi.org/10.1016/j.mhpa.2021.100413>
- McConnell, A. R., Brown, C. M., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends with benefits: On the positive consequences of pet ownership. *Journal of Personality and Social Psychology*, 101(6), 1239–1252. <https://doi.org/10.1037/a0024506>
- McConnell, A. R., Paige Lloyd, E., & Humphrey, B. T. (2019). We Are Family: Viewing Pets as Family Members Improves Wellbeing. *Anthrozoös*, 32(4), 459–470.
<https://doi.org/10.1080/08927936.2019.1621516>
- McLaren, S., & Castillo, P. (2020). What About Me? Sense of Belonging and Depressive Symptoms among Bisexual Women. *Journal of Bisexuality*, 20(2), 1–17.
<https://doi.org/10.1080/15299716.2020.1759174>
- McNicholas, J., & Collis, G. M. (2000). Dogs as catalysts for social interactions: Robustness of the effect. *British Journal of Psychology*, 91(1), 61–70.
<https://doi.org/10.1348/000712600161673>

- Mellinger, C., Fritzson, A., Park, B., & Dimidjian, S. (2023). Developing the Sense of Belonging Scale and Understanding Its Relationship to Loneliness, Need to Belong, and General Well-Being Outcomes. *Journal of Personality Assessment*, 106(3), 1–14.
<https://doi.org/10.1080/00223891.2023.2279564>
- Mellor, D., Stokes, M., Firth, L., Hayashi, Y., & Cummins, R. (2008). Need for belonging, relationship satisfaction, loneliness, and life satisfaction. *Personality and Individual Differences*, 45(3), 213–218. <https://doi.org/10.1016/j.paid.2008.03.020>
- Meyer, I., & Forkman, B. (2014). Dog and owner characteristics affecting the dog–owner relationship. *Journal of Veterinary Behavior*, 9(4), 143–150.
<https://doi.org/10.1016/j.jveb.2014.03.002>
- Mohamed, N., Aini, A. M., & Sulaiman, A. (2023). The Relationship between the Use of Social Networking Sites, Perceived Social Support and Spirituality on Loneliness among University Students in Klang Valley, Malaysia. *International Journal of Academic Research in Business & Social Sciences*, 13(17). <https://doi.org/10.6007/ijarbss/v13-i17/19823>
- Mohamed, Z., Newton, J. M., & McKenna, L. (2013). Belongingness in the workplace: a study of Malaysian nurses' experiences. *International Nursing Review*, 61(1), 124–130.
<https://doi.org/10.1111/inr.12078>
- Moore, G., Fardghassemi, S., & Joffe, H. (2023). Wellbeing in the city: Young adults' sense of loneliness and social connection in deprived urban neighbourhoods. *Wellbeing, Space and Society*, 5, 100172. <https://doi.org/10.1016/j.wss.2023.100172>

- Mueller, M. K., Richer, A. M., Callina, K. S., & Charmaraman, L. (2021). Companion Animal Relationships and Adolescent Loneliness during COVID-19. *Animals, 11*(3), 885.
<https://doi.org/10.3390/ani11030885>
- Muldoon, J. C., & Williams, J. M. (2024). When Having a Pet Becomes a Luxury You Can No Longer Afford. *Anthrozoös, 37*(5), 1–24.
<https://doi.org/10.1080/08927936.2024.2351276>
- Museus, S., & Maramba, D. (2010). The Impact of Culture on Filipino American Students' Sense of Belonging. *The Review of Higher Education, 34*(2), 231–258.
<https://doi.org/10.1353/rhe.2010.0022>
- MyPF. (2021, October 7). *The financial costs of caring for a pet*. Free Malaysia Today.
<https://www.freemalaysiatoday.com/category/leisure/money/2021/10/07/the-financial-costs-of-caring-for-a-pet/>
- Neda, A. K. (Ed.). (2022). The Five Major Factors of Personality, Thinking Styles and their Relations to Psychological Well-Being among Divorced Women in Palestine. *Najah.edu*.
<https://repository.najah.edu/items/2c133ea3-6ead-412e-ac3e-29f734aaf95f>
- Nelissen, R. M. A. (2014). Relational utility as a moderator of guilt in social interactions. *Journal of Personality and Social Psychology, 106*(2), 257–271.
<https://doi.org/10.1037/a0034711>
- Newby, J. (2024). *The Pact for Survival*. Google Books.
https://books.google.com.my/books/about/The_Pact_for_Survival.html?id=jOG5PAAACAAJ&redir_esc=y
- Nosheen, A., Riaz, M., Malik, N., Yasmin, H., & Malik, S. (2017). Mental Health Outcomes of Sense of Coherence in Individualistic and Collectivistic Culture: Moderating Role of

- Social Support. *Pakistan Journal of Psychological Research*, 32(2), 563–579.
<https://pjpr.scione.com/newfiles/pjpr.scione.com/205/205-PJPR.pdf>
- Oishi, S., & Westgate, E. C. (2021). A psychologically rich life: Beyond happiness and meaning. *Psychological Review*, 129(4). <https://doi.org/10.1037/rev0000317>
- ORCAN, F. (2020). Parametric or Non-parametric: Skewness to Test Normality for Mean Comparison. *International Journal of Assessment Tools in Education*, 7(2), 236–246.
<https://dergipark.org.tr/en/pub/ijate/article/656077>
- Palis, H., Marchand, K., & Oviedo-Joeckes, E. (2018). The relationship between sense of community belonging and self-rated mental health among Canadians with mental or substance use disorders. *Journal of Mental Health*, 29(2), 1–8.
<https://doi.org/10.1080/09638237.2018.1437602>
- Pardede, S., & Kovač, V. B. (2023). Distinguishing the Need to Belong and Sense of Belongingness: The Relation between Need to Belong and Personal Appraisals under Two Different Belongingness–Conditions. *European Journal of Investigation in Health, Psychology and Education*, 13(2), 331–344. <https://doi.org/10.3390/ejihpe13020025>
- Parry, N. M. A. (2020). COVID-19 and pets: When pandemic meets panic. *Forensic Science International: Reports*, 2, 100090. <https://doi.org/10.1016/j.fsir.2020.100090>
- Pedler, M. L., Willis, R., & Nieuwoudt, J. E. (2022). A sense of belonging at university: student retention, motivation and enjoyment. *Journal of Further and Higher Education*, 46(3), 397–408. <https://doi.org/10.1080/0309877x.2021.1955844>
- Phang, K., Fall, A. A., & Jamil, Z. (2023). Attitude towards pets and depression among residents in Klang Valley, Malaysia: Moderating effect of pet ownership. *Journal of Concurrent Disorders*. <https://doi.org/10.54127/sqjx8459>

- Pinto, A. F., Reed, N. P., & Odd Morten Mjøen. (2024). Beyond the first week: sustaining the feeling of social inclusion and sense of belonging for students. *International Journal of Qualitative Studies on Health and Well-Being*, 19(1).
<https://doi.org/10.1080/17482631.2024.2421032>
- Pongrácz, P., & Dobos, P. (2023). What is a companion animal? An ethological approach based on Tinbergen's four questions. Critical review. *Applied Animal Behaviour Science*, 267, 106055. <https://doi.org/10.1016/j.applanim.2023.106055>
- Power, E. R. (2013). Dogs and Practices of Community and Neighboring. *Anthrozoös*, 26(4), 579–591. <https://doi.org/10.2752/175303713x13795775536011>
- Praharso, N. F., Tear, M. J., & Cruwys, T. (2017). Stressful life transitions and wellbeing: A comparison of the stress buffering hypothesis and the social identity model of identity change. *Psychiatry Research*, 247, 265–275.
<https://doi.org/10.1016/j.psychres.2016.11.039>
- Prati, G., & Cicognani, E. (2018). School sense of community as a predictor of well-being among students: A longitudinal study. *Current Psychology*.
<https://doi.org/10.1007/s12144-018-0017-2>
- Puat, A., Karim, N. A., Majid, R. A., & Fauziah, R. (2024). Data Insight: Data Visualization on Urbanization and Migration Patterns of The Malaysian Population. *Labuan Bulletin of International Business and Finance (LBIBF)*, 22(2).
<https://jurcon.ums.edu.my/ojums/index.php/lbibf/article/view/5854>
- Puranitee, P., Kaewpila, W., Heeneman, S., van Mook, W. N. K. A., & Busari, J. O. (2022). Promoting a sense of belonging, engagement, and collegiality to reduce burnout: a mixed

- methods study among undergraduate medical students in a non-Western, Asian context. *BMC Medical Education*, 22(1). <https://doi.org/10.1186/s12909-022-03380-0>
- Quintana, S., Borckardt, M., & Aditya, T. (2019). Dog Days of Final Exams: Using Canine-Assisted Therapy to Reduce Stress and Improve Mood Among Community College Students. *Quest*, 3(1). <https://digitalcommons.collin.edu/quest/vol3/iss1/3/>
- Rault, J.-L., Waiblinger, S., Boivin, X., & Hemsworth, P. (2020). The Power of a Positive Human–Animal Relationship for Animal Welfare. *Frontiers in Veterinary Science*, 7. <https://doi.org/10.3389/fvets.2020.590867>
- Ravin , P. (2024, June 28). *Facing rising costs, pet lovers seek subsidies, tax relief*. The Vibes. <https://www.thevibes.com/articles/news/102560/facing-rising-costs-pet-lovers-seek-subsidies-tax-relief>
- Redmalm, D. (2015). Pet Grief: When is Non-Human Life Grievable? *The Sociological Review*, 63(1), 19–35. <https://doi.org/10.1111/1467-954x.12226>
- Redmalm, D. (2020). Discipline and puppies: the powers of pet keeping. *International Journal of Sociology and Social Policy*, ahead-of-print(ahead-of-print). <https://doi.org/10.1108/ijssp-08-2019-0162>
- Ritchie, A., & Gaultier, A. (2018). Dancing towards belonging: the use of a dance intervention to influence migrant pupils’ sense of belonging in school. *International Journal of Inclusive Education*, 1–15. <https://doi.org/10.1080/13603116.2018.1464069>
- Rogers, J., Hart, L. A., & Boltz, R. P. (2010). The Role of Pet Dogs in Casual Conversations of Elderly Adults. *The Journal of Social Psychology*, 133(3), 265–277. <https://doi.org/10.1080/00224545.1993.9712145>

- Romaniuk, M., Evans, J., & Kidd, C. (2018). Evaluation of an equine-assisted therapy program for veterans who identify as “wounded, injured or ill” and their partners. *PLOS ONE*, 13(9), e0203943. <https://doi.org/10.1371/journal.pone.0203943>
- Rony, M. K. K., Md. Numan, S., & Alamgir, H. M. (2023). The association between work-life imbalance, employees’ unhappiness, work’s impact on family, and family impacts on work among nurses: A cross-sectional study. *Informatics in Medicine Unlocked*, 38(1). <https://doi.org/10.1016/j.imu.2023.101226>
- Rubel, A. N., & Bogaert, A. F. (2015). Consensual Nonmonogamy: Psychological Well-Being and Relationship Quality Correlates. *Journal of Sex Research*, 52(9), 961–982. <https://doi.org/10.1080/00224499.2014.942722>
- Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: A multidimensional analysis of 21 countries. *Health and Quality of Life Outcomes*, 18(192). <https://doi.org/10.1186/s12955-020-01423-y>
- Ruini, C., Ottolini, F., Rafanelli, C., Tossani, E., Ryff, C. D., & Fava, G. A. (2003). The Relationship of Psychological Well-Being to Distress and Personality. *Psychotherapy and Psychosomatics*, 72(5), 268–275. <https://doi.org/10.1159/000071898>
- Rumble, M. (2023, June 11). *What is the Control Question Techniques & Other Methods in Lie Detector Testing?* LIE DETECTOR TEST U.K. SERVICES. <https://www.liedetector.test.org/post/control-question-other-methods-in-polygraph-test/>
- Ryan, R., & Deci, E. (2001). On Happiness and Human Potentials: a Review of Research on Hedonic and Eudaimonic Well-Being. *Annual Review of Psychology*, 52(1), 141–166. <https://doi.org/10.1146/annurev.psych.52.1.141>

- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology*, 57(6), 1069.
- Ryff, C. D. (1995). Psychological Well-Being in Adult Life. *Current Directions in Psychological Science*, 4(4), 99–104. <https://doi.org/10.1111/1467-8721.ep10772395>
- Sable, P. (1995). Pets, Attachment, and Well-Being across the Life Cycle. *Social Work*, 40(3). <https://doi.org/10.1093/sw/40.3.334>
- Sagone, E., & Caroli, M. E. D. (2014). Relationships between Psychological Well-being and Resilience in Middle and Late Adolescents. *Procedia - Social and Behavioral Sciences*, 141, 881–887. <https://doi.org/10.1016/j.sbspro.2014.05.154>
- Said, M. A., Thangiah, G., Abdul Majid, H., Ismail, R., Maw Pin, T., Rizal, H., Zaidi, M. A. S., Reidpath, D., & Su, T. T. (2022). Income Disparity and Mental Wellbeing among Adults in Semi-Urban and Rural Areas in Malaysia: The Mediating Role of Social Capital. *International Journal of Environmental Research and Public Health*, 19(11), 6604. <https://doi.org/10.3390/ijerph19116604>
- Sarkova, M., Bacikova-Sleskova, M., Madarasova Geckova, A., Katreniakova, Z., van den Heuvel, W., & van Dijk, J. P. (2014). Adolescents' psychological well-being and self-esteem in the context of relationships at school. *Educational Research*, 56(4), 367–378. <https://doi.org/10.1080/00131881.2014.965556>
- Schmitz, R. M., Carlisle, Z. T., & Tabler, J. (2021). “Companion, friend, four-legged fluff ball”: The power of pets in the lives of LGBTQ+ young people experiencing homelessness. *Sexualities*, 25(5-6), 136346072098690. <https://doi.org/10.1177/1363460720986908>
- Schroder, C., Medves, J., Paterson, M., Byrnes, V., Chapman, C., O’Riordan, A., Pichora, D., & Kelly, C. (2010). Development and pilot testing of the collaborative practice assessment

- tool. *Journal of Interprofessional Care*, 25(3), 189–195.
<https://doi.org/10.3109/13561820.2010.532620>
- Seah , K. X., & Aini , A. M. (2023). Exploring The Relationship Between Pet Companionship, Family Support, Peer Support, and Social Media Support on Psychological Well-Being among Young Adults in Selangor, Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 13(17). <https://doi.org/10.6007/ijarbss/v13-i17/19843>
- Seligman, M. E. P. (2011). *Flourish: A Visionary New Understanding of Happiness and Well-being*. New York: Free Press.
- Shirdel, E., & Mohammadi, M. (2021). A Qualitative Study of the Formation of a Sense of Social Belonging and Recidivism of Crime by Former Criminals. *Quarterly of Social Studies and Research in Iran*, 10(2), 499–528.
<https://doi.org/10.22059/jisr.2021.294903.986>
- Soo, Y., Wong, Y., Ong, S., & Ooi, G. (2024). Perceptions and Beliefs Towards Mental Health and Mental Illness: A Qualitative Study among University Students in Malaysia. *Malaysian Journal of Medicine and Health Sciences*, 20(1), 2636–9346.
<https://doi.org/10.47836/mjmhs.20.1.10>
- Standard Insight. (2023, May 17). *A Closer Look at Pet Ownership in Malaysia*. Standard Insight. <https://standard-insights.com/blog/pet-ownership-in-malaysia/>
- Statista Research Department,. (2024). *Loneliness at Christmas in the UK 2018*. Statista.
<https://www.statista.com/statistics/950868/feelings-of-loneliness-during-christmas-in-uk/>
- Stebbleton, M. J., Kaler, L. S., & Potts, C. (2022). “Am I Even Going to Be Well-Liked in Person?”: First-Year Students’ Social Media Use, Sense of Belonging, and Mental

Health. *Journal of College and Character*, 23(3), 210–226.

<https://doi.org/10.1080/2194587x.2022.2087683>

Strauser, D. R., Lustig, D. C., & Çiftçi, A. (2008). Psychological Well-Being: Its Relation to Work Personality, Vocational Identity, and Career Thoughts. *The Journal of Psychology*, 142(1), 21–35. <https://doi.org/10.3200/jrlp.142.1.21-36>

Suhaili , A., Siti Salina , A., Nor Ezdanie , O., Mohamed, N., & Yusni Mohamad , Y. (2023). The Prevalence of Mental Health among Malaysian University Students. *International Journal of Academic Research in Business & Social Sciences*, 13(12).

<https://doi.org/10.6007/ijarbss/v13-i12/19796>

Sürücü, L., Yıkılmaz, İ., & Maşlakçı, A. (2024). Exploratory Factor Analysis (EFA) in Quantitative Researches and Practical Considerations. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi*, 13(2), 947–965. <https://doi.org/10.37989/gumussagbil.1183271>

Syasya, F. A., Aini , A. M., Abdullah, H., & Zeinab, Z. (2023). Culture and Communication Styles: Collectivism vs Individualism Cultural Orientations from Malaysian Perspectives. *International Journal of Academic Research in Business & Social Sciences*, 13(16).

<https://doi.org/10.6007/ijarbss/v13-i16/18738>

Tavakol, M., & Dennick, R. (2011). Making Sense of Cronbach’s Alpha. *International Journal of Medical Education*, 2(2), 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>

Tholen, R., Wouters, E., Ponnet, K., de Bruyn, S., & Van Hal, G. (2022). Academic Stress, Anxiety, and Depression Among Flemish First-Year Students: The Mediating Role of Sense of Belonging. *Journal of College Student Development*, 63(2), 200–217.

<https://doi.org/10.1353/csd.2022.0015>

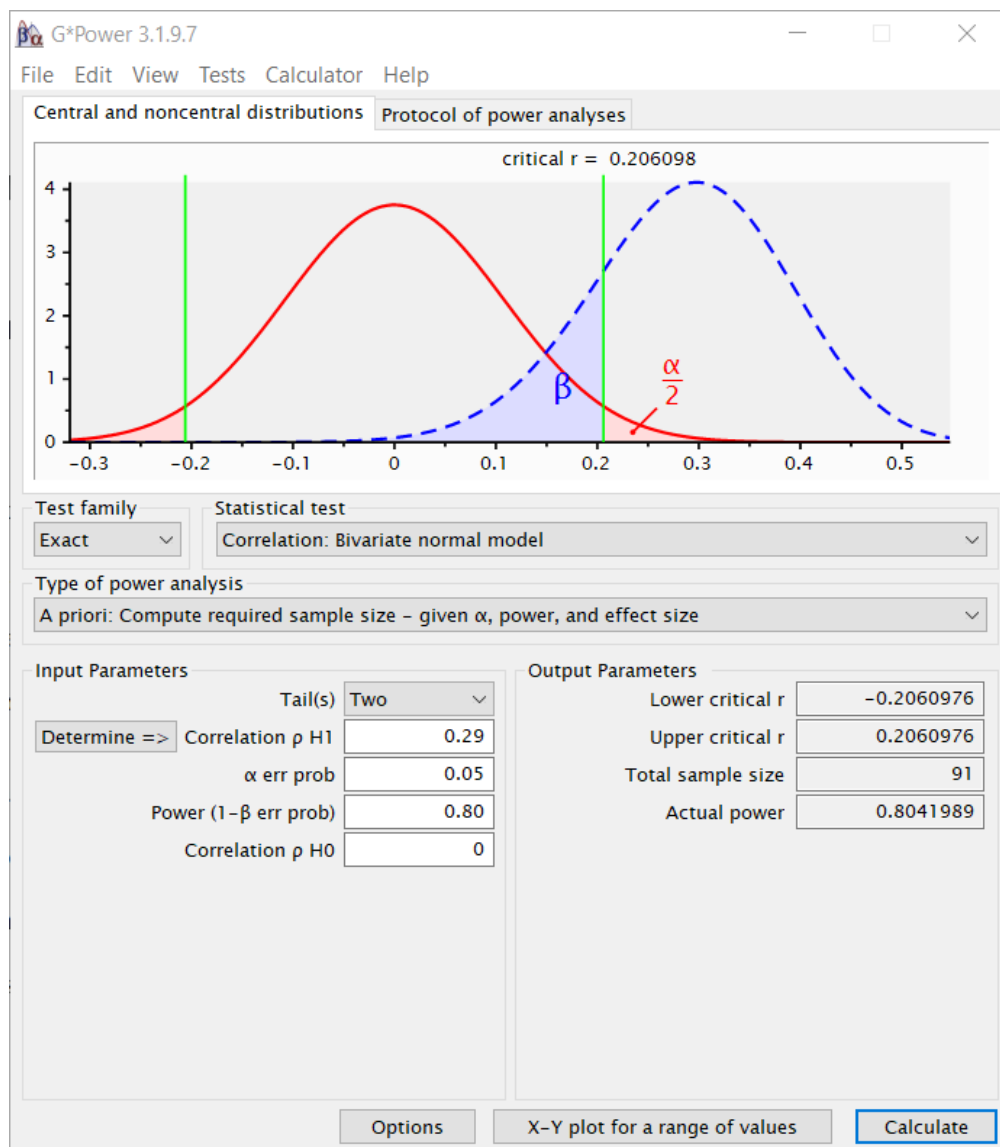
- Tomlinson, C. A., Pittman, S. K., Murphy, J. L., Matijczak, A., & McDonald, S. E. (2021). Psychometric Evaluation of the Comfort from Companion Animals Scale in a Sexual and Gender Minority Sample. *Anthrozoös*, 35(1), 143–163.
<https://doi.org/10.1080/08927936.2021.1963548>
- Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of Personality and Social Psychology*, 92(1), 56–66. <https://doi.org/10.1037/0022-3514.92.1.56>
- UNICEF. (2023). *INSTITUTE FOR YOUTH RESEARCH MALAYSIA & UNITED NATIONS CHILDREN'S FUND*.
https://www.unicef.org/malaysia/media/4421/file/UNICEF_MyMHI2023_ENG_Final.pdf
- Waller, L. (2020). Fostering a Sense of Belonging in the Workplace: Enhancing Well-Being and a Positive and Coherent Sense of Self. *The Palgrave Handbook of Workplace Well-Being*, 1(1), 1–27. https://doi.org/10.1007/978-3-030-02470-3_83-1
- Walsh, F. (2009). Human-Animal Bonds I: The Relational Significance of Companion Animals. *Family Process*, 48(4), 462–480. <https://doi.org/10.1111/j.1545-5300.2009.01296.x>
- Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest*, 158(1), 65–71. <https://doi.org/10.1016/j.chest.2020.03.012>
- Warr, P. (1978). A study of psychological well-being. *British Journal of Psychology*, 69(1), 111–121. <https://doi.org/10.1111/j.2044-8295.1978.tb01638.x>
- Wazid, S. W., & Shahnawaz, Md. G. (2017). Relationship Quality as Mediator of Forgiveness and Psychological Well-being among Transgressors in Romantic Relationships. *Psychological Studies*, 62(2), 200–208. <https://doi.org/10.1007/s12646-017-0406-x>

- Williams, J. (2021). The affective need to belong: belonging as an affective driver of human religion. *International Journal of Philosophy and Theology*, 1–22.
<https://doi.org/10.1080/21692327.2021.1978309>
- Winefield, H. R., Gill, T. K., Taylor, A. W., & Pilkington, R. M. (2012). Psychological well-being and psychological distress: is it necessary to measure both? *Psychology of Well-Being: Theory, Research and Practice*, 2(1), 3. <https://doi.org/10.1186/2211-1522-2-3>
- Wirth, J. H., Bernstein, M. J., Wesselmann, E. D., & LeRoy, A. S. (2016). Social cues establish expectations of rejection and affect the response to being rejected. *Group Processes & Intergroup Relations*, 20(1), 32–51. <https://doi.org/10.1177/1368430215596073>
- Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, 122(3), 213–217. <https://doi.org/10.1016/j.jad.2009.06.032>
- Wood, D., Crapnell, T., Lau, L., Bennett, A., Lotstein, D., Ferris, M., & Kuo, A. (2018). *Emerging Adulthood as a Critical Stage in the Life Course* (N. Halfon, C. B. Forrest, R. M. Lerner, & E. M. Faustman, Eds.). PubMed; Springer.
<https://www.ncbi.nlm.nih.gov/books/NBK543712/>
- Wood, L., Martin, K., Christian, H., Nathan, A., Lauritsen, C., Houghton, S., Kawachi, I., & McCune, S. (2015). The pet factor - companion animals as a conduit for getting to know people, friendship formation and social support. *PLOS ONE*, 10(4), 1–17.
<https://doi.org/10.1371/journal.pone.0122085>
- Workman, M. (2001). Collectivism, Individualism, and Cohesion in a Team-Based Occupation. *Journal of Vocational Behavior*, 58(1), 82–97. <https://doi.org/10.1006/jvbe.2000.1768>

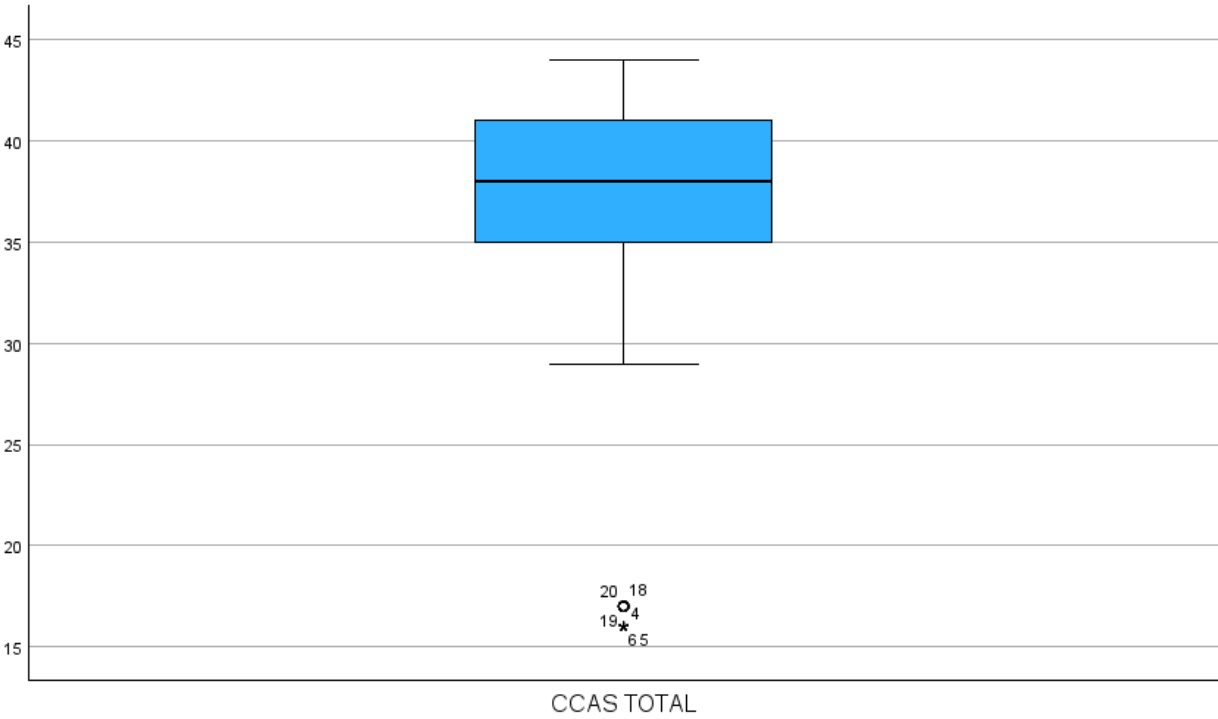
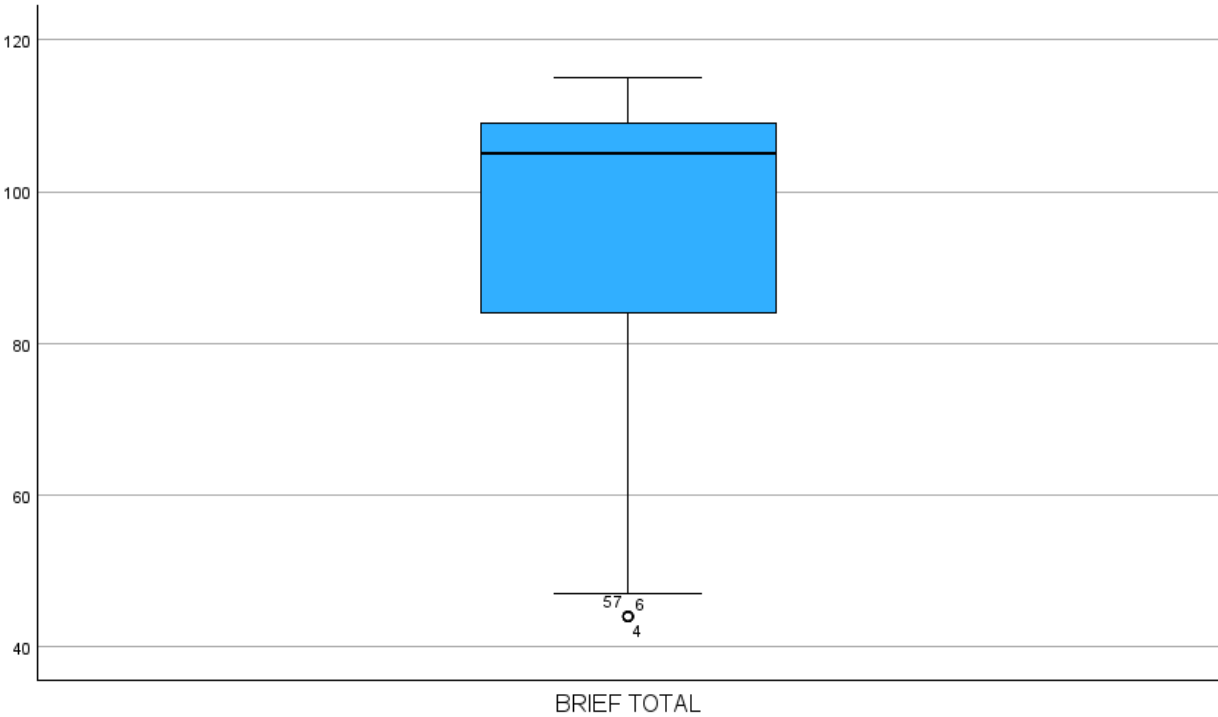
- World Health Organization. (2022). *ICD-11: International classification of diseases* (11th revision). <https://icd.who.int/browse/2024-01/mms/en#129180281>
- Worsley, J. D., Harrison, P., & Corcoran, R. (2021). Bridging the Gap: Exploring the Unique Transition From Home, School or College Into University. *Frontiers in Public Health*, 9(634285). <https://doi.org/10.3389/fpubh.2021.634285>
- Yamini, P., & Pujar, L. (2024). Interrelationship between Social Media Addiction and Mental Health of Emerging Adults. *Advances in Research*, 25(4), 497–502. <https://doi.org/10.9734/air/2024/v25i41129>
- Yu, J. H., Chae, S. J., & Chung, Y.-S. (2018). Do basic psychological needs affect student engagement in medical school? *Korean Journal of Medical Education*, 30(3), 237–241. <https://doi.org/10.3946/kjme.2018.98>
- Zasloff, R. Lee. (1996). Measuring attachment to companion animals: a dog is not a cat is not a bird. *Applied Animal Behaviour Science*, 47(1-2), 43–48. [https://doi.org/10.1016/0168-1591\(95\)01009-2](https://doi.org/10.1016/0168-1591(95)01009-2)
- Żebrowska, M., Strohmaier, S., Westgarth, C., Huttenhower, C., Erber, A. C., Haghayegh, S., Eliassen, A. H., Huang, T., Laden, F., Hart, J. E., Rosner, B., Kawachi, I., Chavarro, J. E., Okereke, O. I., & Schernhammer, E. S. (2023). Relationship between pet ownership and risk of high depressive symptoms in adolescence and young adulthood. *Journal of Affective Disorders*, 323, 554–561. <https://doi.org/10.1016/j.jad.2022.11.070>
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2012). Pets as safe havens and secure bases: The moderating role of pet attachment orientations. *Journal of Research in Personality*, 46(5), 571–580. <https://doi.org/10.1016/j.jrp.2012.06.005>

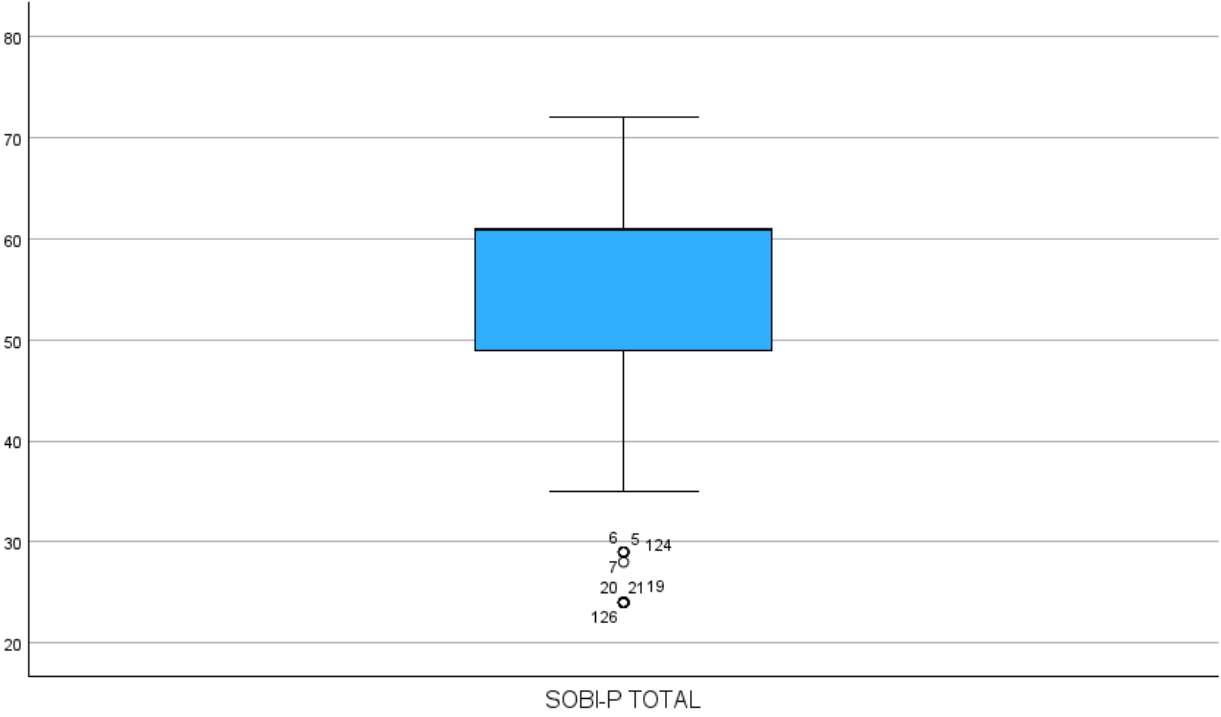
Appendices

Appendix A: PPMC Sample Size Calculation



Appendix B: Boxplot





Appendix C: Turnitin Report

Chong Xin Yi			
ORIGINALITY REPORT			
13%	11%	4%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
PRIMARY SOURCES			
1	eprints.utar.edu.my Internet Source	6%	
2	www.ncbi.nlm.nih.gov Internet Source	1%	
3	Submitted to Universiti Tunku Abdul Rahman Student Paper	1%	
4	Submitted to Roehampton University Student Paper	<1%	
5	pmc.ncbi.nlm.nih.gov Internet Source	<1%	
6	core.ac.uk Internet Source	<1%	
7	Ginette M. Sims, Maryam Kia-Keating, Sabrina R. Liu, Ida Taghavi. "Political climate and sense of belonging in higher education: Latina undergraduates and mental health.", Peace and Conflict: Journal of Peace Psychology, 2020 Publication	<1%	
8	Ren-Hau Li, Hsiu-Ling Peng, Ming-Hsin Yeh, Jiunnhorng Lou. "Psychological Well-Being Increment as Post-Traumatic Growth in Women with Breast Cancer: A Controlled Comparison Design Using Propensity Score Matching", Healthcare, 2022 Publication	<1%	
Submitted to University of Kent at Canterbury			

Appendix D: JASP Output for Reliability in Pilot Study

Pet Companionship

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.867
95% CI lower bound	0.774
95% CI upper bound	0.927

Sense of Belonging

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.940
95% CI lower bound	0.841
95% CI upper bound	0.962

Psychological Well-Being

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.684
95% CI lower bound	0.619
95% CI upper bound	0.745

Appendix E: JASP Output for Reliability in Actual Study

Pet Companionship

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.947
95% CI lower bound	0.935
95% CI upper bound	0.972

Sense of Belonging

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.964
95% CI lower bound	0.959
95% CI upper bound	0.976

Psychological Well-Being

Frequentist Scale Reliability Statistics

Estimate	Cronbach's α
Point Estimate	0.851
95% CI lower bound	0.837
95% CI upper bound	0.879

Appendix F: JASP Output for Spearman Rank Correlation Coefficient

Shapiro-Wilk Test for Bivariate Normality

			Shapiro-Wilk	p
CCAS TOTAL	-	SOBI-P TOTAL	0.889	< .001
CCAS TOTAL	-	BRIEF TOTAL	0.895	< .001
SOBI-P TOTAL	-	BRIEF TOTAL	0.913	< .001

Spearman's Correlations

Variable		CCAS TOTAL	SOBI-P TOTAL	BRIEF TOTAL
1. CCAS TOTAL	Spearman's rho	—		
	p-value	—		
2. SOBI-P TOTAL	Spearman's rho	0.544	—	
	p-value	< .001	—	
3. BRIEF TOTAL	Spearman's rho	0.334	0.636	—
	p-value	.003	< .001	—

Appendix G: JASP Output for H_{2a} Simple Linear Regression

Model Summary - BRIEF TOTAL

Model	R	R ²	Adjusted R ²	RMSE	Durbin-Watson		
					Autocorrelation	Statistic	p
M ₀	0.000	0.000	0.000	22.432	0.863	0.266	< .001
M ₁	0.807	0.651	0.648	13.314	0.597	0.752	< .001

Note. M₁ includes CCAS TOTAL

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M ₁	Regression	41244.121	1	41244.121	232.657	< .001
	Residual	22159.281	125	177.274		
	Total	63403.402	126			

Note. M₁ includes CCAS TOTAL

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardized	Standard Error	Standardized	t	p
M ₀	(Intercept)	93.315	1.991		46.879	< .001
M ₁	(Intercept)	15.441	5.240		2.947	0.004
	CCAS TOTAL	2.211	0.145	0.807	15.253	< .001

Descriptives

	N	Mean	SD	SE
BRIEF TOTAL	127	93.315	22.432	1.991
CCAS TOTAL	127	35.228	8.185	0.726

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Intercept)	CCAS TOTAL
M ₁	1	1.974	1.000	0.013	0.013

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Intercept)	CCAS TOTAL
	2	0.026	8.757	0.987	0.987

Note. The intercept model is omitted, as no meaningful information can be shown.

Appendix H: JASP Output for H_{2b} Simple Linear Regression

Model Summary - BRIEF TOTAL

Model	R	R ²	Adjusted R ²	RMSE	Durbin-Watson		
					Autocorrelation	Statistic	p
M ₀	0.000	0.000	0.000	22.432	0.863	0.266	< .001
M ₁	0.915	0.838	0.836	9.076	0.247	1.478	0.002

Note. M₁ includes SOBI-P TOTAL

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M ₁	Regression	53106.104	1	53106.104	644.661	< .001
	Residual	10297.297	125	82.378		
	Total	63403.402	126			

Note. M₁ includes SOBI-P TOTAL

Note. The intercept model is omitted, as no meaningful information can be shown.

Coefficients

Model		Unstandardized	Standard Error	Standardized	t	p
M ₀	(Intercept)	93.315	1.991		46.879	< .001
M ₁	(Intercept)	13.344	3.251		4.104	< .001
	SOBI-P TOTAL	1.483	0.058	0.915	25.390	< .001

Descriptives

	N	Mean	SD	SE
BRIEF TOTAL	127	93.315	22.432	1.991
SOBI-P TOTAL	127	53.921	13.842	1.228

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Intercept)	SOBI-P TOTAL
M ₁	1	1.969	1.000	0.016	0.016
	2	0.031	7.947	0.984	0.984

Note. The intercept model is omitted, as no meaningful information can be shown.