

PHYSICAL STRAINS OF CARRYING TODDLERS AND PARENTS' MOBILITY FOR THE ENHANCEMENT OF SERVICE QUALITY AT THE MANILA ZOO

BANTING, JUZMEEN RIO D.; ALEGRE, MARK DANIEL S.; SORIANO, NORIKO MILCHA S.,
DALHAG, HENDRICK M.
juzmeenrio@gmail.com
Lyceum of Alabang

ABSTRACT

Educational games can play a vital role in improving one's learning experience; This study examined the physical strains and mobility challenges experienced by parents carrying toddlers while visiting the Manila Zoo. It aimed to understand how these two factors; physical strains and parents' mobility influence their overall experience and to offer recommendations for enhancing service quality and creating a more family-friendly environment. A quantitative research design was employed, with data collected through surveys of parents visiting the zoo. Findings revealed significant physical discomfort among parents, particularly in the form of back pain, shoulder pain, and muscle fatigue. In addition, mobility limitations including reduced speed, frequent rest stops, and the need for mobility aids were found to impact their enjoyment and ease of movement within the zoo. Most respondents were aged 28–37, predominantly female, and many were from single-parent households. Despite these challenges, the zoo remained a favored destination across various socioeconomic groups. While parents appreciated existing amenities, high discomfort scores indicated the need for improved support services. Suggested enhancements included stroller rentals, upgraded rest areas, and parent assistance programs to help ease physical burdens and mobility limitations. The data also showed how parents adapt by pacing themselves and taking breaks to manage their children's needs effectively. Although crowd management efforts were positively received, moderate satisfaction levels with rest areas and seating highlighted a key area for improvement. In conclusion, while Manila Zoo provides a generally positive experience for families, targeted improvements in facilities and amenities are essential to better support parents with toddlers.

Keywords: *Physical Strains, Parents' Mobility, Manila Zoo*

INTRODUCTION

One of the Philippines' premier zoological and botanical gardens is the Manila Zoo, which offers many attractions and experiences for visitors of all ages. Manila Zoo provides visitors an enjoyable and educational experience while promoting wildlife conservation and environmental stewardship. However, parents accompanying toddlers face unique challenges as they navigate the busy pathways of the zoo while carrying their children. The physical strain of carrying toddlers for a long time and the need to ensure mobility within the Manila Zoo's diverse landscape emphasize how crucial it is to understand the effect of these factors on parents' experiences.

The Sustainable Development Goal (SDG 3), "Good Health and Well-being," seeks to guarantee that individuals of all ages can lead healthy and fulfilling lives. It

acknowledges that good health is a fundamental human right and crucial in achieving sustainable development. This goal emphasizes the importance of reducing health-related risks and promoting physical well-being. By addressing the physical challenges parents face in public spaces like the zoo, the research supports the creation of safer, more accessible, and health-conscious environments that align with its principles.

Republic Act No. 9013 establishes the Philippine Quality Award to encourage organizations in both the public and private sectors to attain excellence in quality in the production and delivery of their goods and services. This study, focusing on the visitor experience at Manila Zoo, aligns with the spirit of this act by aiming to enhance the quality of service provided to families with young children. Since parents and their children are primarily visitors to Manila Zoo, the study will help the management of Manila Zoo by recommending ways to enhance its service quality and provide memorable and comfortable experiences to its visitors.

The study is proposed to examine the physical strains encountered by parents carrying toddlers and to assess their mobility within the Manila Zoo. By analyzing parents' experiences, the study aims to understand how the demand for carrying a toddler impacts parents' ability to move freely and comfortably within the zoo's diverse attractions and terrains. By quantitatively measuring physical strains and mobility factors, the researchers seek to provide insights into the unique challenges parents with toddlers' face in recreational settings. The findings will be valuable to zoological and botanical garden management, especially for the Manila Zoo. They will offer them a roadmap to enhance their comfort for families with young children and create inclusive and family-friendly environments within leisure destinations.

RESEARCH QUESTIONS

The main objective of the study is to examine the physical strains experienced by parents in carrying their toddlers/children and its impact on their total experience in visiting Manila Zoo.

Specifically, this study sought to answer the following questions:

1. What is the demographic profile of the respondents in terms of?
 - 1.1 Age
 - 1.2 Gender
 - 1.3 Civil Status
 - 1.4 Social Status
 - 1.5 Number of Children?
2. What is the level of physical strains on carrying toddlers in terms of?
 - 2.1 Back Pain
 - 2.2 Shoulder Pain
 - 2.3 Level of Muscle Fatigue?
3. What is the level of parents' mobility in terms of?
 - 3.1 Speed of Movement
 - 3.2 Frequency of Rest Stops
 - 3.3 Mobility Equipment Usage?
4. What is the level of enhancement of service quality in Manila Zoo in terms of?
 - 4.1 Crowd Density

4.2 Visitor Satisfaction Scores

4.3 Visit Duration?

5. Is there any significant relationship between the physical strain of carrying toddlers and the level of enhancement of service quality in Manila Zoo?
6. Is there any significant relationship between the parents' mobility and the level of enhancement of service quality in Manila Zoo?

HYPOTHESIS

Ho1: There is no significant relationship between the physical strain of carrying toddlers and the level of enhancement of service quality in Manila Zoo.

Ho2: There is no significant relationship between the parents' mobility and the level of enhancement of service quality in Manila Zoo.

METHODOLOGY

This study utilized a descriptive approach within a quantitative research design. The systematic integration of key components allowed for a coherent and logical strategy to address the research problem effectively. Additionally, this approach provided the necessary structure for gathering, measuring, and analyzing data (Creswell & Creswell, 2021; Babbie, 2020). The study targeted parents with toddlers visiting Manila Zoo, selected using simple random sampling to ensure a representative sample. Based on Trakas' (2020) research, a modified survey questionnaire served as the primary data collection tool. It included four sections: demographic profile, physical strains of carrying toddlers, parents' mobility, and suggestions for enhancing service quality. The questionnaire underwent a thorough validation process with input from experts, the adviser, and the Dean before final approval by the RDE. Respondents answered using a 4-point Likert Scale. Data collection occurred on three dates in July and August 2024, yielding 289 responses. The responses were encoded in Excel and analyzed by a statistician using descriptive statistics such as frequency, percentage, weighted mean, and standard deviation to interpret key aspects of the study. Lastly, Spearman's Rho was applied to examine relationships between variables due to the data's non-normal distribution and ordinal measurement level. This statistical method is ideal for ordinal data like Likert-scale responses, as it does not assume normality and assesses monotonic associations effectively (Mukaka, 2020; Dancey & Reidy, 2021).

RESULTS AND DISCUSSION

Table 1

Summary of the Mean Scores and Standard Deviation of Physical Strains of Carrying Toddlers of Parents.

Indicator	Mean	Standard Deviation	Verbal Interpretation
Back Pain	3.42	0.61	Agree
Shoulder Pain	3.33	0.62	Agree
Level of Muscle Fatigue	3.57	0.51	Strongly Agree
Average Mean	3.44	0.58	Agree

Legend 1.00-1.49=Strongly Disagree, 1.50-2.49=Disagree, 2.50-3.49=Agree, 3.50-4.00=Strongly Agree

Table 1 shows the average mean of the physical strains experienced by parents while carrying toddlers was 3.44 with a standard deviation of 0.58, interpreted as Agree. It can be observed from the table that all indicators were assessed as Agree, except for the level of muscle fatigue, which was assessed as Strongly Agree. Muscle fatigue had the highest mean of 3.57 with a standard deviation of 0.51, followed by back pain with a mean of 3.42 and a standard deviation of 0.61, and shoulder pain with a mean of 3.33 and a standard deviation of 0.62.

The prominence of muscle fatigue aligns with the findings of Snijders et al. (2020), who emphasized the repetitive strain on major muscle groups due to toddler-carrying activities. Similarly, Heffernan et al. (2019) and Ramezani et al. (2020) highlighted how poor posture and repetitive lifting contribute to lower back pain findings consistent with the present study's back pain results. Kihlstrand et al. (2016) also support the association between prolonged carrying and shoulder strain. These findings are supported by Leisure and Social Theory (Moorst, 2006) which supports the idea that physical strains are socio-environmental barriers to full participation in recreational experiences. The combination of emotional obligations and physical stress limits parents' ability to engage freely, suggesting that service quality in family-centric attractions must account for such strains.

Table 2

Summary of Mean Scores and Standard Deviation of Parents' Mobility.

Indicator	Mean	Standard Deviation	Verbal Interpretation
Speed of Movement	3.69	0.47	Strongly Agree
Frequency Rest Stops	3.41	0.56	Agree
Mobility Equipment Usage	3.67	0.56	Strongly Agree
Average Mean	3.59	0.58	Strongly Agree

Legend 1.00-1.49=Strongly Disagree, 1.50-2.49=Disagree, 2.50-3.49=Agree, 3.50-4.00=Strongly Agree

Table 2 shows the average mean of parents' mobility, with a mean of 3.59 and a standard deviation of 0.53, interpreted as Strongly Agree. It can be observed from the table that two indicators, speed of movement, with a mean of 3.69 and a standard deviation of 0.47, and mobility equipment usage, with a mean of 3.67 and a standard deviation of 0.56, were assessed as Strongly Agree. In contrast, the frequency of rest stops, with a mean of 3.41 and a standard deviation of 0.56, was assessed as Agree.

The high scores for mobility indicators suggest that despite experiencing physical strains, parents are highly engaged in managing their movement to maintain a smooth visit. This aligns with Leisure and Social Theory (Moorst, 2006), which asserts that the quality of leisure experiences is influenced by social structures and constraints including physical limitations and available support systems. Moreover, the use of mobility equipment (mean = 3.67) aligns with the study of Roberts (2023) and Bindu et al. (2020), who emphasized how strollers and assistive tools increase independence and reduce physical burdens for caregivers. This finding also supports Flynn's (2023) view that a caregiver's fundamental movement skills (FMS) directly affect their ability to move freely in recreational settings.

Table 3

Summary of Mean Scores and Standard Deviation of the Enhancement of Service Quality at the Manila Zoo.

Indicator	Mean	Standard Deviation	Verbal Interpretation
Crowd Density	3.51	0.54	Strongly Agree
Visitor Satisfaction Scores	2.96	0.64	Agree
Visit Duration	3.66	0.54	Strongly Agree
Average Mean	3.38	0.57	Agree

Legend 1.00-1.49=Strongly Disagree, 1.50-2.49=Disagree, 2.50-3.49=Agree, 3.50-4.00=Strongly Agree

Table 3 shows the average mean of service quality enhancement at the Manila Zoo, with a mean of 3.38 and a standard deviation of 0.57, interpreted as Agree. It can be observed from the table that two indicators, crowd density, with a mean of 3.51 and a standard deviation of 0.54, and visit duration, with a mean of 3.66 and a standard deviation of 0.54, were assessed as Strongly Agree. In contrast, the visitor satisfaction score, with a mean of 2.96 and a standard deviation of 0.64, was assessed as Agree.

This result can be better understood through the integration of Leisure and Social Theory (Moorst, 2006) which posits that recreational experiences are shaped not only by individual preferences but also by the social and structural context in which they occur. As such, a parent's satisfaction is not solely based on entertainment value or visit duration but also on how well the zoo environment addresses social constraints like physical fatigue, child-carrying demands, and accessibility. Literature by Sadri et al. (2024) and Agyeman and Asebah (2022) supports this by noting

that visitor satisfaction in zoos is highly dependent on service quality dimensions such as staff support, facility accessibility, and crowd management.

Table 4

Test of Significant Relationship between Physical Strains of Carrying Toddlers and the Level of Enhancement of Service Quality at the Manila Zoo.

Physical Strain of Carrying Toddlers	Enhancement of Service Quality at the Manila Zoo	Computed r - value	P - value	Decision on Ho	Verbal Interpretation
Back Pain	Crowd Density	0.203**	0.006	Reject	Significant
	Visitor Satisfaction	0.220**	0.005	Reject	Significant
	Visit Duration	0.212**	0.004	Reject	Significant
Shoulder Pain	Crowd Density	0.231**	0.004	Reject	Significant
	Visitor Satisfaction	0.241**	0.007	Reject	Significant
	Visit Duration	0.216**	0.006	Reject	Significant
Level of Muscle Fatigue	Crowd Density	0.251**	0.003	Reject	Significant
	Visitor Satisfaction	0.205**	0.005	Reject	Significant
	Visit Duration	0.230**	0.007	Reject	Significant

** Correlation is significant if the p-value is $\leq$ at 0.05 level

The table presents a significant relationship between the physical strain of carrying toddlers, including back pain, shoulder pain, and muscle fatigue, and various aspects of service quality at the Manila Zoo, such as crowd density, visitor satisfaction, and visit duration. All the computed correlation coefficients (r-values) fall between 0.203 and 0.251, with p-values below 0.05, indicating that the relationships are statistically significant. As a result, the null hypothesis was rejected in all cases. It means that the physical discomfort experienced by visitors carrying toddlers is significantly associated with how they perceive the zoo's service quality.

Table 5

Test of Significant Relationship between Parents' Mobility and the Level of Enhancement of Service Quality at the Manila Zoo.

Parent's Mobility	Enhancement of Service Quality at the Manila Zoo	Computed r - value	P - value	Decision on Ho	Verbal Interpretation
Speed of Movement	Crowd Density	0.230**	0.008	Reject	Significant
	Visitor Satisfaction	0.251**	0.004	Reject	Significant
	Visit Duration	0.211**	0.009	Reject	Significant
Frequency of Rest Stops	Crowd Density	0.291**	0.005	Reject	Significant
	Visitor Satisfaction	0.214**	0.006	Reject	Significant
	Visit Duration	0.280**	0.004	Reject	Significant
Mobility Equipment	Crowd Density	0.207**	0.007	Reject	Significant
	Visitor Satisfaction	0.220**	0.008	Reject	Significant
	Visit Duration	0.212**	0.006	Reject	Significant

**** Correlation is significant if the p-value is $\leq$ at 0.05 level**

The table shows a significant relationship between parents' mobility, measured by speed of movement, frequency of rest stops, and use of mobility equipment, and the perceived enhancement of service quality at the Manila Zoo. All computed correlation values (r-values) range from 0.207 to 0.291, and all p-values are less than 0.05, indicating statistically significant results. Therefore, the null hypothesis was rejected in each case. This suggests that the level of a parent's mobility has a meaningful influence on how they perceive factors such as crowd density, visitor satisfaction, and the duration of their visit at the zoo.

CONCLUSION

Among the 289 respondents to the study on the Manila Zoo, the majority were parents aged 28-37 years, making up 47% of the total, with a higher percentage of females at 59% compared to males at 31%. Most respondents were single parents, representing 74% of the sample, and the majority visited the zoo with one or two children, indicating a focus on small family groups. The socio-economic background of visitors was varied, with middle and working-class individuals representing the most considerable portions. The study revealed significant physical strains, particularly back pain, shoulder pain, and muscle fatigue, highlighting parents' challenges while carrying toddlers at the zoo. Parents expressed a need for better facilities, such as stroller rentals, to alleviate these discomforts.

Regarding parental mobility, the analysis showed that parents adjusted their pace, with a mean score of 3.69, and frequently took rest stops, with a mean score of 3.41, during their zoo visits. They also commonly used mobility equipment like strollers, with a mean score of 3.67, to ease their movement. The crowd density at the zoo received positive feedback, with parents agreeing that the zoo managed crowd levels well, contributing to a comfortable visit. However, visitor satisfaction was moderate, with parents indicating a

need for more seating areas and rest stops. While the zoo's services generally meet expectations, the findings suggest that further improvements, particularly amenities for families with young children, could enhance the visitor experience.

Based on the findings, the researchers' hypotheses, which stated that physical strains on carrying toddlers and parental mobility have no significant relationship with the level of service quality enhancement at the Manila Zoo, were both rejected.

RECOMMENDATIONS

The following recommendations were given based on the findings and conclusions drawn.

1. Manila Zoo should offer stroller rentals to alleviate physical strain for parents carrying toddlers.
2. Family-friendly rest areas with comfortable seating should be upgraded to provide relief for parents.
3. A parent assistance program with services like electric carts or shuttles should be implemented to reduce physical fatigue for families.
4. Designated family lanes and interactive mobile apps should be introduced to improve movement speed and guide families effectively.
5. Shaded rest zones and picnic-friendly benches should be established to enhance family comfort during visits.
6. Extended or themed visit options and upgraded dining establishments should be offered to meet family needs and enhance satisfaction.
7. Future studies should evaluate seasonal variations in visitor experiences to improve yearround zoo operations.
8. Researchers should explore the experiences of specific demographics, such as single parents or families with children with disabilities, for targeted recommendations.
9. Qualitative methods like interviews or focus groups should be used to deepen the understanding of parents' challenges and complement quantitative data.

REFERENCE LIST

- Akiyama, J., Sakagami, T., Uchiyama, H., & Ohta, M. (2021). The health benefits of visiting a zoo, park, and aquarium for older Japanese. *Anthrozoös*, 34(3), 463–473. <http://surl.li/thusue>
- Alamri A. (2022). Cloud of Things in Crowd Engineering: A Tile-Map-Based Method for Intelligent Monitoring of Outdoor Crowd Density. *Sensors (Basel, Switzerland)*, 22(9), 3328. <http://surl.li/xaoeos>
- AlHefdhhi, H. A., Al Zomia, A. S., Alshehri, N. M., Alaskari, A. A., Hussain, A. A., Lahiq, L. A., Asiri, M. A., Al Asiri, W., Alahmari, A. M., Asiri, H. M., & Alomari, S. A. (2024). Examining the Quality of Life and Discrimination Impact on Parents of Children With Autism Spectrum Disorder in Aseer Region, Saudi Arabia: A WHO-QOL Survey. *Cureus*, 16(2), e53616. <http://surl.li/orfmfp>

- Alkhatni, F., Ishak, S. Z., & Milad, A. (2021). Characteristics and potential impacts of rest areas proximate to roadways: a review. *the Open Transportation Journal*, 15(1), 260–271. <http://surl.li/zcjxos>
- Antczak, R., Quashie, N. T., Mair, C. A., & Arpino, B. (2023). Less is (Often) more: number of children and health among older adults in 24 countries. *the Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 78(11), 1892–1902. <http://surl.li/prlfcz>
- Bam, N., & Kunwar, A. (2019). Tourist Satisfaction: Relationship Analysis Among Its Antecedents and Revisit Intention. *Advances in Hospitality and Tourism Research (AHTR)*, 8 (1)(2147–9100), 30–47. <http://surl.li/binoes>
- Beaujouan, É., & Solaz, A. (2019). Is the Family Size of Parents and Children Still Related? Revisiting the Cross-Generational Relationship Over the Last Century. *Demography*, 56(2), 595–619. <http://surl.li/iecrvm>
- Beermann, M., & Sieben, A. (2023). The connection between stress, density, and speed in crowds. *Scientific Reports*, 13(1). <http://surl.li/khrijf>
- Blomstervik, I. H., & Olsen, S. O. (2022). Progress on novelty in tourism: An integration of personality, attitudinal and emotional theoretical foundations. *Tourism Management*, 93, 104574. <http://surl.li/sujkbb>
- Brake. (2022b, July 11). *Walking with children*. Brake. <http://surl.li/liryjb>
- Cano, T. (2022). Social class, parenting, and child development: A multidimensional approach. *Research in Social Stratification and Mobility*, 77, 100648. <http://surl.li/zpvmjd>
- Cantalini, S., Guetto, R., & Panichella, N. (2020b). Parental age at childbirth and children's educational outcomes: evidence from upper-secondary schools in Italy. *Genus*, 76(1). <http://surl.li/hkfxpi>
- Cao, C. (2019). Design of Growth Baby Stroller based on Computer aided Innovation technology. *MATEC Web of Conferences*, 267, 02005. <http://surl.li/rntmfi>
- Çetin, G. (2020). Experience vs quality: predicting satisfaction and loyalty in services. *Service Industries Journal/the Service Industries Journal*, 40(15), 1167–1182. <http://surl.li/cuxudr>
- Coastal Bend Mom Collective. (2023, June 10). *Toddler walks: Connect with nature and each other*. Coastal Bend Mom Collective. <http://surl.li/srhxsn>
- Coolman, A. A., Niedbalski, A., Powell, D., Kozłowski, C. P., Franklin, A. D., & Deem, S. L. (2020). Changes in human health parameters associated with an immersive exhibit experience at a zoological institution. *PloS One*, 15(4), e0231383. <http://surl.li/ykfp sp>
- Daware, T., & Dhote, T. (2023). Enhancing public safety through Real-Time crowd density analysis and management. <http://surl.li/cbwjqd>
- Diamante, D. J., Ruiz, A. E., Apad, R. E., Ferrer, J. P. A., & Fillone, A. (2021). Crowd estimation of the Black Nazarene Procession in Manila, Philippines. *The Philippine Journal of Science*, 150(3). <http://surl.li/poewaz>
- Do, Y. K., Malhotra, C., Nguyen, H. T., Choi, J., & Morimoto, Y. (2018). Do Support and Strain with Adult Children Affect Mothers' and Fathers' Physical Activity? *Journal of Aging and Health*, 30(8), 1274–1299. <http://surl.li/lhhqmx>

- Duncan, T. A., & Dale, M. (2020). Accessibility and visitor experience: The role of mobility aids in enhancing satisfaction at public attractions. *Tourism Management Perspectives*, 36, 100-110.
- Enoka, R. M., & Duchateau, J. (2008). Muscle fatigue: what, why and how it influences muscle function. *The Journal of physiology*, 586(1), 11–23. <http://surl.li/gcwtjk>
- Falster, K., Hanly, M., Banks, E., Lynch, J., Chambers, G., Brownell, M., Eades, S., & Jorm, L. (2018). Maternal age and offspring developmental vulnerability at age five: A population-based cohort study of Australian children. *PLoS medicine*, 15(4), e1002558. <http://surl.li/rihcet>
- Feng, J., Huang, W. Y., & Sit, C. H. P. (2022). Effectiveness of a Parent-Focused intervention targeting 24-H movement behaviors in Preschool-Aged children: study protocol for a randomized controlled trial. *Frontiers in Public Health*, 10. <http://surl.li/fmllsi>
- Flynn, R. J., Pringle, A., & Roscoe, C. M. P. (2023). Direct Parent Engagement to Improve Fundamental Movement Skills in children: A Systematic review. *Children*, 10(7), 1247. <http://surl.li/ajklzy>
- Fun on the run: basic recreation beyond most family budgets, LISEP research shows. (2023). <http://surl.li/axflmb>
- Georgievska, S., Rutten, P., Amoraal, J., Rangelova, E., Bakhshi, R., De Vries, B. L., Lees, M., & Klous, S. (2019b). Detecting high indoor crowd density with Wi-Fi localization: a statistical mechanics approach. *Journal of Big Data*, 6(1). <http://surl.li/fopkht>
- Giallo, R., Wood, C. E., Jellett, R., & Porter, R. (2013). Fatigue, wellbeing and parental self-efficacy in mothers of children with an autism spectrum disorder. *Autism: the international journal of research and practice*, 17(4), 465–480. <http://surl.li/tfmrhc>
- Godinez, A. M., & Fernandez, E. J. (2019). What is the zoo experience? How zoos impact a visitor's behaviors, perceptions, and conservation efforts. *Frontiers in Psychology*, 10. <http://surl.li/ggapeq>
- Golombok, S., Zadeh, S., Freeman, T., Lysons, J., & Foley, S. (2021). Single mothers by choice: Parenting and child adjustment in middle childhood. *Journal of family psychology: JFP: Journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 35(2), 192–202. <http://surl.li/ikxvfw>
- Gonzalez, L., Cortés-Sancho, R., Murcia, M., Ballester, F., Rebagliato, M., & Rodríguez-Bernal, C. L. (2020). The role of parental social class, education and unemployment on child cognitive development. *Gaceta Sanitaria*, 34(1), 51–60. <http://surl.li/ngfslo>
- Goodwin, C., PhD. (2023, April 12). What is the ideal number of kids? Parenting Translator. <http://surl.li/zybdar>
- Gu, Y., Wang, Z., Shi, H., He, Y., Yang, Y., Lü, Y., Chen, S., Wang, Z., Mei, Y. P., & Long, X. (2024). Global, regional, and national change patterns in the incidence of low back pain from 1990 to 2019 and its predicted level in the next decade. *International Journal of Public Health*, 69. <http://surl.li/isorg>
- Guo, X., Jiang, S., Liu, J., Chen, Z., & Hong, X. (2024). Understanding the role of visitor behavior in soundscape restorative experiences in urban parks. *Forests*, 15(10), 1751. <http://surl.li/zfwyoy>
- Halki, E., Kapiri, M., Plakas, S., Tsiou, C., Govina, O., Galanis, P., & Alikari, V. (2024). Fatigue among Greek Parents of Children with Autistic Spectrum Disorder: The Roles of Spirituality and Social Support. *Healthcare (Basel, Switzerland)*, 12(4), 455. <http://surl.li/zlsizm>

- Hip. (2022, August 17). *Redevelopment Study of the Manila Zoo Thesis* (400 words) - PHDessay.com. Free Essays - PhDessay.com. <http://surl.li/hgftje>
- Huang, Y., Perales, F., & Western, M. (2021). The long arm of parental advantage: Socio-economic background and parental financial transfers over adult children's life courses. *Research in Social Stratification and Mobility*, 71, 100582. <https://doi.org/10.1016/j.rssm.2021.100582>
- Institute for Family Studies. (2022, September 12). Children first: Why family structure and stability matter for children*. Institute for Family Studies. <http://surl.li/oxbkee>
- Institute for Family Studies. (2023, March 27). New research confirms: Having married parents helps kids get ahead. Institute for Family Studies. <http://surl.li/fqmcfb>
- Jadva, V., Lysons, J., Imrie, S., & Golombok, S. (2022). An exploration of parental age in relation to parents' psychological health, child adjustment and experiences of being an older parent in families formed through egg donation. *Reproductive biomedicine online*, 45(2), 401–409. <http://surl.li/mnyzbb>
- Kamson, S., MD PhD. (2020, August 24). Is family history a predictor of low back pain? Fix My Pain. <http://surl.li/rrlmsz>
- Karanikola, P., Panagopoulos, T., Tampakis, S., & Tampakis, A. (2020). Visitor preferences and satisfaction in Attica zoological park, Greece. *Heliyon*, 6(9), e04935. <http://surl.li/kcjlal>
- Kim. (2019, May 21). Big Rest Time Benefits for Kids (and the whole family!). Team Cartwright. <http://surl.li/onwgis>
- Kretschmer, L., Salali, G. D., Andersen, L. B., Hallal, P. C., Northstone, K., Sardinha, L. B., Dyble, M., Bann, D., Andersen, L. B., Anderssen, S., Cardon, G., Davey, R., Jago, R., Janz, K. F., Kriemler, S., Møller, N., Northstone, K., Pate, R., Puder, J. J., . . . Van Sluijs, E. M. F. (2023). Gender differences in the distribution of children's physical activity: evidence from nine countries. *the International Journal of Behavioural Nutrition and Physical Activity*, 20(1). <http://surl.li/dfckl>
- Lier, R., Nilsen, T. I. L., Vasseljen, O., & Mork, P. J. (2014). Neck/upper back and low back pain in parents and their adult offspring: Family linkage data from the Norwegian HUNT Study. *European Journal of Pain*, 19(6), 762–771. <http://surl.li/cfcunz>
- Liu, C., Cao, Y., Zhang, Z., Gao, R., & Qu, G. (2023). Correlation of fundamental movement skills with health-related fitness elements in children and adolescents: A systematic review. *Frontiers in Public Health*, 11. <http://surl.li/zksykl>
- Liu, Shaonan., Zhang, C., Cai, Yiyi., Guo, Xin-feng., Zhang, A., Xue, C., & Lu, Chuanjian. (2019). Acupuncture for Post-stroke Shoulder-Hand Syndrome: A Systematic Review and Meta-Analysis. *Frontiers in Neurology*, 10. <http://surl.li/msadqc>
- Lysons, J., & Jadva, V. (2023). The psychosocial outcomes of older parenthood in early to mid-childhood: a mini-review. *Human reproduction* (Oxford, England), 38(6), 1028–1035. <http://surl.li/qcswsa>
- Madison. (2023, March 17). 10 Benefits of hiring a Professional Caregiver – MCG. MeetCaregivers. <http://surl.li/gojcga>

- Mailey, E. L., Huberty, J., Dinkel, D., & McAuley, E. (2019). Physical activity barriers and facilitators among working mothers and fathers. *BMC Public Health*, 14(1). <http://surl.li/ybxqse>
- Mosimanegape, P. S., Jaiyeoba, O., Iwu, C. G., & Cheneso, C. (2020). Examining the Relationship between Service Quality and Customer Satisfaction in the Public Service. The Case of Botswana. *WSEAS Transactions on Business and Economics*, 17, 579–593. <http://surl.li/rrbhuk>
- Mroz, J. E., & Allen, J. A. (2020). To excuse or not to an excuse: Effect of explanation type and provision on reactions to a workplace behavioral transgression. *Journal of Business and Psychology*, 35(2), 187–201. <https://doi.org/10.1007/s10869-019-09622-1>
- Murray, A., & Armitage, C. J. (2019). The role of mobility aids in enhancing family outings: A focus on strollers and public spaces. *Journal of Family Studies*, 25(3), 123–135. <http://surl.li/osjxqv>
- Ou, Y., Liu, Y., Chang, Y., & Lee, B. (2021). Relationship between Musculoskeletal Disorders and Work Performance of Nursing Staff: A Comparison of Hospital Nursing Departments. *International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health*, 18(13), 7085. <http://surl.li/efrokj>
- Parenting Practices and Socioeconomic Gaps in Childhood Outcomes on JSTOR. (n.d.). www.jstor.org. <http://surl.li/qsgzms>
- Parr, R. a. R. (2016). The effects of family size on parenting behavior and child development. *Dlsu*. <http://surl.li/fnrfbn>
- Paul Halpern, H., & Perry-Jenkins, M. (2016). Parents' Gender Ideology and Gendered Behavior as Predictors of Children's Gender-Role Attitudes: A Longitudinal Exploration. *Sex roles*, 74(11), 527–542. <http://surl.li/emadab>
- Pertold-Gebicka, B., & Spolcova, D. (2019). Family size and subjective well-being in Europe: Do more children make us (un)happy? <http://surl.li/mpdajm>
- Physical Activity/Mobility. (n.d.). CT.gov - Connecticut's Official State Website. <http://surl.li/gedmda>
- Pieters, L., Lewis, J., Kuppens, K., Jochems, J., Brainstems, T., Joossens, L., & S Struyf, F. (2020). An update of systematic reviews examining the effectiveness of conservative physical therapy interventions for subacromial shoulder pain. *Journal of Orthopaedic and Sports Physical Therapy*, 50(3), 131–141. <http://surl.li/lhnzxa>
- Pituch, E., Bindi, A. M., Grondin, M., & Bottari, C. (2020). Parenting with a physical disability and cognitive impairments: a scoping review of the needs expressed by parents. *Disability and Rehabilitation*, 44(13), 3285–3300. <http://surl.li/gatajq>
- Ramezani, M., Eghlidi, J., Pourghayoomi, E., & Mohammadi, S. (2020). Caring Related Chronic Low Back Pain and Associated Factors among Mothers of Children with Cerebral Palsy. *Rehabilitation Research and Practice*, 2020, 1–6. <http://surl.li/ctjpyo>
- Roberts, N. (2023, July 1). The benefits of using mobility equipment - daily living products. *Daily Living Products*. <http://surl.li/sbnnhn>
- Rose, P., & Riley, L. M. (2022). Expanding the role of the future zoo: Wellbeing should become the fifth aim for modern zoos. *Frontiers in Psychology*, 13. <http://surl.li/klnyit>

- Sadri, N., Yusoff, A. F. M., & Hanafiah, M. H. (2024). Assessing the experiential service quality, perceived image, experiential satisfaction, and revisiting intentions of public zoo visitors. *Journal of Park and Recreation Administration*. <http://surl.li/kkavpi>
- Sartor, T., Lange, S., & Tröster, H. (2022). Cumulative Stress of Single Mothers - An exploration of potential risk factor. *the æFamilyJournal/FamilyJournal*, 31(1), 88–94. <http://surl.li/zwmgad>
- Shahvali, M., Zargham, H., & Kerstetter, D. L. (2019). Visitor Satisfaction Revisited: A Methodological Approach. N/A. <http://surl.li/ugrfqe>
- Shiri, R., & Falah-Hassani, K. (2017). Does leisure time physical activity protect against low back pain? Systematic review and meta-analysis of 36 prospective cohort studies. *British Journal of Sports Medicine*, 51(19), 1410–1418. <http://surl.li/kntyof>
- Sillar, S. (2021, October 1). *The importance of Rest*. The Rainbow Clinic. <http://surl.li/rwdkhu>
- Street, K. (2023, May 19). The importance of rest. Auckland Physiotherapy. <http://surl.li/cfwxcr>
- Stokes, N., Herbert, B., Johnson, A., & Magnani, J. W. (2021). The effect of the lone parent household on cardiovascular health (National Health and Nutrition Examination Survey, 2015–2016). *American Heart Journal Plus*, 3, 100015. <http://surl.li/fjpxgl>
- Su, A., & Lin, Y. (2018). Factors affecting yearly and monthly visits to Taipei Zoo. *Theoretical and Applied Climatology*, 135(1–2), 463–472. <http://surl.li/gesboq>
- Support. (2020, September 23). Are you suffering back or muscle pain since you became a new parent? Long Island Spine Rehabilitation Medicine, PC. <http://surl.li/tyofea>
- Taylor, B., Johnson, L., & Smith, R. (2021). The impact of walking pace and rest stops on family outings in recreational settings. *Journal of Family Recreation*, 18(2), 45–59. <http://surl.li/vjsyjj>
- Theorell, T., Harms-Ringdahl, K., Ahlberg-Hultén, G., & Westin, B. (2020). Psychosocial job factors and symptoms from the locomotor system--a multicausal analysis. *Journal of Rehabilitation Medicine*, 23(3), 165–173. <http://surl.li/nlvzui>
- Thomas, J. (2020). Parenting after the Death of a Co-parent: A Qualitative Study of the Lived Experiences of Surviving Parents. *OMEGA - Journal of Death and Dying*, 82(4), 567–589. <http://surl.li/qnztif>
- TinyBerg. (2023, December 6). What is the importance of using a baby stroller in your daily routine? *Medium*. <http://surl.li/eacwpj>
- Turrisi, T., Bittel, K. M., West, A. B., Hojjatinia, S., Hojjatinia, S., Mama, S. K., Lagoa, C., & Conroy, D. E. (2021). Seasons, weather, and device measured movement behaviors: a scoping review from 2006 to 2020. *the æInternational Journal of Behavioural Nutrition and Physical Activity*, 18(1). <http://surl.li/abnvcv>
- Tyler, J. M., & Feldman, R. S. (2007). The double-edged sword of excuses: Whendo they help, when do they hurt. *Journal of Social and Clinical Psychology*, 26(6), 659–688.
- Unicmc. (2023, September 20). Health Advantages of mobility equipment - CMC University. My Blog. <http://surl.li/vahjod>
- S. Census Bureau. (2022, March 25). Percentage and number of children living with two parents has dropped since 1968. Census.gov. <http://surl.li/fsgdfk>

- Villines, Z. (2021, June 23). Effects of gender discrimination on health. <http://surl.li/jpklse>
- Vu, L. H., & Phung, T. (2021). The Effect of Child Quantity and Education on Parents' Well-Being in Vietnam. *Frontiers in Public Health*, 9. <http://surl.li/qnfiyl>
- Wan, J. J., Qin, Z., Wang, P. Y., Sun, Y., & Liu, X. (2017). Muscle fatigue: general understanding and treatment. *Experimental & molecular medicine*, 49(10), e384. <http://surl.li/lebuik>
- Wang, I. Y., & Cheung, R. Y. M. (2023). Parents' gender role Attitudes and child adjustment: the mediating role of parental involvement. *Sex Roles*, 89(7–8), 425–441. <http://surl.li/rdguev>
- Wells, M. T. (2023, May 18). *9 reasons why parents are embracing stroller wagons*. My Tunbridge Wells - Family Events, Classes, Child Friendly Day Out and Tunbridge Wells News. <http://surl.li/pggcsy>
- What to Expect. (2023, October 18). Making a zoo visit with toddlers. What to Expect. <http://surl.li/pvgpfa>
- Wilk, M., Zajac, A., & Tufano, J. J. (2021). The Influence of Movement Tempo During Resistance Training on Muscular Strength and Hypertrophy Responses: A Review. *Sports medicine (Auckland, N.Z.)*, 51(8), 1629–1650. <http://surl.li/qmetfe>
- Williams, L., Standifird, T., & Madsen, M. (2019). Effects of infant transportation on lower extremity joint moments: Baby carrier versus carrying in-arms. *Gait&Posture*, 70, 168–174. <http://surl.li/chqhyy>
- Wu, T. (2020). Research and application of baby carriage design based on product service system design. Baby carriage rental platform in Chinese market centered. Politecnico Di Milano. <http://surl.li/plfpdy>
- Yang, J., Mo, Z., Zhang, Y., Ji, R., Tao, C., & Fan, Y. (2023). The effects of walking aids on shoulder joint kinematics in older persons: an initial study. *BMC Geriatrics*, 23(1). <http://surl.li/rjmeji>
- Yang, Y., Yu, J., Wang, C., & Wen, J. (2022). Risk Assessment of Crowd Gathering in urban open public spaces supported by Spatio- Temporal Big Data. *Sustainability*, 14(10), 6175. <https://tinyurl.com/kv66c43y>
- Yopp, J. M., Rosenstein, D. L., Laris, B. A., Shelton, M. M., Craig, S. E., & Zhao, G., Liu, C., Xu, G., He, F., & Zhang, J. (2021). A high-density crowd state judgment model based on entropy theory. *PloS One*, 16(9), e0255468. <https://tinyurl.com/yp4tfbp8>