STRENGTHENING FAMILY CAPACITIES IN MARGINALIZED COMMUNITIES: A COMPARATIVE ASSESSMENT OF A UNIVERSITY-LED PARENTING PROGRAM FOR 4PS HOUSEHOLDS

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Abstract

This study evaluated the outcomes of an extension initiative previously implemented by the College of Education of JRMSU-Tampilisan Campus. The program, which emphasized parenting, responsible parenthood, and family values, was delivered to selected 4Ps beneficiaries across various barangays in Tampilisan, Zamboanga del Norte. Given the time that had passed since its implementation, the study aimed to assess whether the intervention had produced meaningful effects on participants' lives. A comparative approach was employed by gathering data from two groups: 4Ps beneficiaries who participated in the program and those who did not. This design allowed for isolating the program's impact while accounting for similar socioeconomic backgrounds. Results indicated that program participants exhibited significantly greater awareness and understanding of essential family dynamics, particularly the roles of parents in child development and the cultivation of healthy family relationships. These findings were further substantiated by qualitative responses, with participants sharing reflective narratives and lived experiences that highlighted notable changes in their parenting practices and family interactions. In light of the findings, the study recommends the replication of the program in other communities, the inclusion of follow-up sessions, contextualization of topics based on local needs, and the development of monitoring mechanisms to evaluate long-term behavioral changes.

Keyword: *Community-Based Extension Program*, *Parenting Education, Quasi-Experimental Design 4Ps Beneficiaries, Family Development Intervention*

Introduction

In the Philippine context, the family is not only the cornerstone of cultural identity and social order but also the primary unit through which values, behaviors, and socio-emotional competencies are transmitted across generations. However, the effects of poverty and marginalization often impair families' ability to fulfill their nurturing and developmental functions. The Pantawid Pamilyang Pilipino Program (4Ps), the country's flagship conditional cash transfer initiative, was established to address these vulnerabilities by incentivizing human capital investment through education and health conditionalities. Central to its implementation is the Family Development Session (FDS), which serves as a platform for enhancing parenting capacities, promoting responsible parenthood, and reinforcing family values.

While the 4Ps program provides socioeconomic support, studies show that cash assistance alone does not automatically lead to behavioral change. Evidence suggests that transforming family practices and outcomes requires psychosocial and capacity-building interventions. Research in developmental psychology and social work like that of Bronfenbrenner (1979); Bosqui *et al*., (2024) underscores the necessity of empowering parents especially those in low-income contexts with knowledge and skills related to child-rearing, health management, psychosocial support, and education. Educational interventions tailored for parents have been shown to yield long-term benefits, including improved child well-being, increased parental engagement in schooling, and healthier family relationships (Reynolds *et al*., 2022).

In the ASEAN region, social-protection policies are increasingly recognized not only as economic support but as mechanisms for long-term human development. For example, the "Social Protection for All in ASEAN" framework highlights the importance of reducing poverty and vulnerabilities across member states (The ASEAN Secretariat, 2020). In parallel, recent evidence shows that parenting and early-childhood development (ECD) programs have gained ground across Southeast Asia. A 2025 systematic review of parenting programs for SEA families found that such interventions substantially improve parenting practices and children's behavioral outcomes (Lee *et al*, 2025). Moreover, a regional mapping of ECD parenting programs by UNICEF documented multiple government, NGO and community-led initiatives aimed at "nurturing care" (health, safety, development) for children from birth through early childhood (UNICEF, 2024). Combining social protection (e.g. cash transfers) with parenting/child-stimulation interventions has also shown promise: studies suggest that such combination potentially improves child development metrics more than cash transfer alone (Arriagada *et al.,* 2018). These regional developments support the relevance and potential effectiveness of a supplemental parenting program layered on top of a conditional-cash-transfer program like 4Ps in the Philippines.

In response to this imperative, the College of Teacher Education of Jose Rizal Memorial State University- Tampilisan Campus implemented an educational extension program titled "Preparing and Nurturing the Filipino Family." Designed to complement the FDS, the program aimed to strengthen the parenting skills and family values of 4Ps

beneficiaries in Tampilisan, Zamboanga del Norte through a series of structured seminars. These sessions addressed key themes such as parenting roles and responsibilities, child health and nutrition, educational support, and psychosocial well-being.

Despite the existence of Family Development Sessions (FDS) under the 4Ps program, few studies in the Philippines have conducted a direct comparative assessment between beneficiaries who receive supplemental community-based parenting interventions and those who do not. Moreover, limited empirical evidence examines whether university-led extension initiatives generate measurable improvements in parenting practices beyond the mandated government sessions. This study addresses this gap by evaluating whether the JRMSU-led parenting program produces observable differences in health, nutrition, educational, and psychosocial support among 4Ps households.

To evaluate the effectiveness of this intervention, a quasi-experimental impact assessment was undertaken, comparing 4Ps beneficiaries who participated in the extension program with those who did not. This study seeks to answer critical questions on whether and how the program influenced participants' knowledge and skills in parenting, their capacity to meet the health and nutritional needs of their children, their understanding of educational responsibilities, and their responsiveness to children's psychosocial needs. Furthermore, it explores the perceived benefits of the program as articulated by the beneficiaries themselves.

Materials and Method

Research Design

This study employed a mixed-methods approach, integrating both qualitative and quantitative methods to comprehensively assess the impact of the Preparing and Nurturing the Filipino Family Educational Extension Program. This approach enabled a deeper understanding of how the program influenced participants' capacities in areas such as parenting, health and nutrition, education, and psychosocial support for children.

A comparative research design was utilized, involving two groups of 4Ps beneficiaries: those who participated in the extension program (intervention group) and those who did not (non-intervention group). The study intends to identify measurable differences in the application of knowledge, skills, and parenting practices gained from the program. This design also allowed for the exploration of nuanced personal experiences through qualitative interviews, enriching the findings with participant narratives that reflect behavioral and attitudinal changes.

Population and Sampling

The study focused on 4Ps beneficiaries residing in Tampilisan, Zamboanga del Norte. The total population of 4Ps beneficiaries in the area was identified through local records. From this population, a total of 60 respondents were randomly selected-30 participants who had attended the Educational Extension Program and 30 non-participants who had not. A simple random sampling technique was used to ensure impartial selection from both groups. The sample size was determined based on the availability of

beneficiaries and considerations for statistical comparison between the two groups.

Data Collection Method

To gather comprehensive data on the impact of the Educational Extension Program, both quantitative and qualitative data were gathered. The quantitative data were obtained using a structured questionnaire designed to assess participants' parenting practices, knowledge, and perceived effectiveness in managing health, nutrition, education, and psychosocial needs of their children. The questionnaire included Likert-scale items with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), designed to measure the frequency, confidence, and application of parenting knowledge.

Reverse-coded items were incorporated in the questionnaire to reduce response bias (Schriesheim, 1981; İlhan, 2024). These reverse-coded items help prevent participants from uniformly agreeing with all statements (acquiescence bias), a common problem when individuals feel compelled to provide "socially acceptable" responses. For example, a positive statement such as "I know how to handle my child's health needs" was balanced with a reverse-coded statement like "I sometimes find it difficult to ensure my child is eating enough of the right foods." By including both types of statements, the study aimed to encourage more thoughtful and honest responses.

To further address potential social desirability bias, participants were assured that their responses would be anonymized and confidential and used solely for research purposes. This was intended to create an environment where participants felt comfortable providing honest answers about their parenting practices without fear of judgment.

In addition to the quantitative data, qualitative data were collected through in-depth interviews. These interviews allowed for a more open-ended exploration of participants' experiences and provided an opportunity for them to discuss challenges and perceived changes in their parenting practices due to the Educational Extension Program. The qualitative data provided additional validation for the quantitative findings, helping to triangulate the results and offer a fuller understanding of the program's impact.

Reliability and Validity of Instrument

Prior to the full implementation of data collection, the questionnaire underwent pilot testing to ensure clarity, relevance, and appropriateness of the items. A small sample resembling the target population participated in the pilot testing phase, allowing for adjustments based on feedback. Reliability was assessed using Cronbach's alpha to determine the internal consistency of the scale items, while content validity was established through expert review by professionals in parenting education, public health, and program evaluation. The final version of the questionnaire reflected these refinements to ensure both accuracy and reliability of the instrument.

Data Analysis

The study employed both quantitative and qualitative methods of data analysis to ensure a well-rounded interpretation of the findings. For the quantitative component, descriptive statistics were used to summarize the data, providing an overview of the distribution of responses across key variables such as parenting practices, health, nutrition, education, and psychosocial support. To determine whether there were statistically significant differences between the treatment and control groups, a non-parametric Mann-Whitney U test was used since the data did not meet the assumptions of normality.

For the qualitative data, thematic analysis was conducted on the transcribed interviews to gain deeper insights into the participants' experiences and perceptions. This involved a systematic process of coding the transcripts to identify recurring patterns, concepts, and themes related to their engagement in the Educational Extension Program. Initial codes were derived directly from the participants' responses, which were then grouped into broader thematic categories. This analytical approach allowed for a rich, contextual understanding of the challenges faced by participants, the practical application of parenting knowledge, and the perceived changes in their parenting behaviors and their children's development. Through this dual-method analysis, the study aimed to present both measurable outcomes and nuanced personal narratives to comprehensively assess the impact of the program.

Ethical Considerations

The study strictly adhered to established ethical standards in research. Participants were fully informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. Written informed consent was obtained prior to data collection. To ensure privacy, all personal information was anonymized and securely stored, accessible only to the research team. Moreover, participants were assured that their decision to participate or not had no bearing on their 4Ps benefits or access to any government services, thereby ensuring that their involvement was entirely free from coercion.

Results and Discussion

This section presents and interprets the findings derived from both quantitative and qualitative data gathered in the study. Using the Mann-Whitney U Test, differences in perceived support between program participants and non-participants were analyzed across key areas in health, nutrition, education, and psychosocial support. These statistical results are further enriched by insights from participants' narratives, which reveal the lived experiences and perceived changes brought about by the extension program.

The integration of quantitative and qualitative data provides a holistic understanding of how the program influenced parenting roles, health and nutrition practices, educational support, and psychosocial awareness. The following discussion elaborates on these results in detail, highlighting both statistical evidence and the voices of

the respondents to illustrate the program's impact.

Health Support

Participants in the extension program reported a slightly higher area mean (3.58) compared to non-participants (3.44), suggesting enhanced health-related parenting practices. This difference becomes more meaningful when considering the reverse-coded items. For instance, lower scores in negatively worded statements such as "I often find it difficult to manage my child's health needs" (Participants: 2.7, Non-participants: 3.5) and "I sometimes neglect my child's health needs" (Participants: 1.9, Non-participants: 3.4) actually indicate better parenting behavior among participants.

When reverse-coded, these low scores reflect greater ease and commitment in addressing health responsibilities. Additionally, participants expressed higher confidence in handling minor health issues (M = 4.4 vs. 3.4) and in monitoring their child's health regularly (M = 4.5 vs. 3.5).

These findings align with research showing that parenting interventions significantly improve health-related routines. For example, Ssewamala et al. (2022) documented how structured parenting education in low-resource communities led to improved child health outcomes. While the differences in this study may not be statistically significant, the direction of the responses especially after accounting for reverse coding suggests practical improvements in parental health engagement.

Nutrition Support

Participants exhibited a higher mean in nutrition support (Mean =3.48) than non-participants (Mean=3.24), again showing stronger parenting practices. The interpretation of reverse-coded items like "I find it difficult to ensure my child eats enough of the right foods" (Participants: Mean =1.8, Non-participants: Mean = 3.0) reveals that participants struggled less, contrary to what the raw mean might initially suggest.

Likewise, participants expressed greater confidence in managing nutrition (Mean = 4.3 vs. Mean =3.2) and ensured their children received the recommended number of meals per day (Mean =4.8 vs. Mean =4.2). This consistency in both direct and reverse-coded items shows a coherent pattern of positive nutritional parenting among participants.

These results echo Payán et al. (2021); Jeong et al. (2023), who found that bundled parenting and nutrition interventions, nutrition-focused parenting education significantly improves child's dietary intake and parentals' dietary management skills.

Educational Support

Educational support showed the most prominent difference between groups. Participants had a much higher area mean (4.64) compared to non-participants (3.32). This reflects strong engagement in key areas: homework assistance (Mean =4.4 vs. Mean =2.8),

communication with teachers (Mean=4.5 vs. Mean=3.3), and encouragement of extracurricular learning (Mean =4.9 vs. Mean =3.4).

Importantly, reverse-coded items like “I find it hard to help my child with their schoolwork” showed much lower scores for participants (Mean =1.9 vs. Mean =3.4), indicating less struggle and more competence in educational involvement.

This aligns with Castro et al. (2015); Wilder (2023), whose findings emphasized that parental involvement significantly boosts academic performance. Gregorović, (2021) also pointed out that parental involvement, especially at home through activities that promote learning and cognitive development is crucial for children's academic success,

Psychosocial Support

Participants demonstrated stronger psychosocial support (Mean = 3.72) compared to non-participants (Mean =3.20). Higher ratings in emotionally supportive behaviors like listening to children (Mean =4.6 vs. Mean =3.0), encouraging emotional expression (Mean =4.8 vs. Mean =3.3), and providing a nurturing home environment (Mean =4.5 vs. Mean =3.3) were consistently observed.

Meanwhile, reverse-coded items such as “I am too busy to give enough emotional support” (Mean =2.2 vs. Mean =3.2) and “I struggle to meet my child’s emotional needs” (Mean =2.5 vs. Mean 3.2) had lower scores among participants, again indicating greater emotional availability and responsiveness.

These findings corroborate with Masten & Palmer (2019) and Feng et al. (2024), who emphasized the role of emotionally supportive parenting in fostering resilience and healthy child development.

After accounting for reverse-coded items, the results clearly illustrate that the parenting extension program significantly improved parenting behaviors across all dimensions especially in educational and psychosocial support. The reverse-coded interpretation ensures consistency, confirming that lower scores in negatively worded items reflect positive changes, not deficits.

This study strengthens the case for community-based parenting interventions. It echoes existing literature (Magnuson et al., 2019; Hajal et al., 2020), which emphasizes that providing parents with structured guidance and emotional tools can transform caregiving behaviors and, ultimately, improve children’s developmental outcomes. The findings offer valuable insights for policymakers and educators aiming to empower parents in underserved communities.

Table 1. Comparison of Parenting Support Practices Between Participants and Non-Participants of the educational extension program "Preparing and Nurturing the Filipino Family", Tampilisan, Zamboanga del Norte, 2025

Parental Support Scale	*Participants (Mean ± SD) (n=30)*	*Non-Participants (Mean ± SD) (n=30)*
A. Health Support		
1. I often find it difficult to manage my child's health needs.	2.7 ± 1.5	3.5±0.97
2. I know how to handle minor health issues for my child (e.g., fever, colds).	4.4± 0.56	3.4±1.07
3. I am confident in my ability to take care of my child's health.	4.4 ±0.57	3.4 ±1.10
4. I regularly monitor my child's health (e.g., regular check-ups, vaccinations).	4.5±0.51	3.5 ±0.77
5. I feel that I sometimes neglect my child's health needs due to other responsibilities.	1.9±1.06	3.4±1.04
Area Mean	**3.58**	**3.44**
B. **Nutrition Support**		
6. I make sure my child eats a balanced diet regularly.	3.8±1.42	3.0±1.11
7. I often face challenges in providing healthy food for my child.	2.7±1.38	2.8±1.07
8. I feel confident in my ability to manage my child's nutrition needs.	4.3±0.54	3.2±1.14
9. I provide my child with the recommended number of meals per day.	4.8±0.37	4.2±0.44
10. I sometimes find it difficult to ensure my child is eating enough of the right foods.	1.8±1.16	3.0±1.15
Area Mean	**3.48**	**3.24**
C. Educational Support		
11. I help my child with their homework regularly.	4.4±0.81	2.8±1.34
12. I actively communicate with my child's teachers about their school performance.	4.5±0.50	3.3±0.95
13. I encourage my child to engage in educational activities outside of school (e.g., reading, learning games).	4.9±0.30	3.4±1.10
14. I find it hard to help my child with their schoolwork.	1.9±1.33	3.4±1.22
15. I know what educational resources are available for my child.	4.5±0.56	3.7±0.91
Area Mean	**4.64**	**3.32**
D. Psychosocial Support		

16. I listen to my child's problems and offer emotional support.	4.6±0.54	3.0±1.32
17. I am sometimes too busy to give my child enough emotional support.	2.2±1.51	3.2±1.22
18. I provide a nurturing and supportive environment at home for my child.	4.5±0.50	3.3±1.14
19. I feel that I struggle to meet my child's emotional needs.	2.5±1.25	3.2±1.22
20. I encourage my child to express their feelings and emotions.	4.8±0.41	3.3±1.54
Area Mean	**3.72**	**3.20**

Legend: 1 (Strongly Disagree) ranges from 1.00 to 1.80; 2 (Disagree) ranges from 1.81 to 2.60; 3 (Neutral) ranges from 2.61 to 3.40; 4 (Agree) ranges from 3.41 to 4.20; 5 (Strongly Agree) ranges from 4.21 to 5.00

Differences in Perceived Support Between Program Participants and Non-Participants Using the Mann-Whitney U Test

Table 2 shows that there was no significant difference between participants and non-participants regarding health support (U = 381.6, Z = 1.024, P-value = 0.305). Both groups demonstrated similar levels of perceived health support, with participants attending the extension program showing a slightly higher rank. This suggests that the Educational Extension Program may not have a noticeable effect on health-related perceptions or support, possibly due to factors such as existing health programs or external influences.

Qualitative responses revealed behavioral improvements in personal and environmental hygiene, indicating subtle yet meaningful shifts in health-related practices despite the statistical insignificance. As one participant shared: *"Mas gpanglimpyohan na namo ang palibot, labi na ang kusina ug CR. Sauna, pasagdan ra, karun kahibalo na mi sa epekto sa hugaw nga palibot."* (We clean our surroundings more now, especially the kitchen and comfort room. Before, we didn't mind, but now we understand the effects of a dirty environment.)

This reflects an increased awareness of disease prevention and home sanitation, a key components of public health advocacy. These findings support the notion that even in the absence of statistically significant changes, education programs may still promote quiet, incremental behavioral shifts in health.

It was also noted that there is a significantly higher mean ranks (1146.5) for respondents participating the extension program compared to non-participants (683.5) for nutrition support (U = 218.5, Z = 3.513, P-value = 0.0004). This indicates that the Educational Extension Program had a strong positive impact on nutrition knowledge and practices for those who participated compared to those who did not. This exemplifies that the program contributed effectively to enhancing participants' awareness and practices related to nutrition support for their children.

This finding is echoed in the voices of participants who expressed tangible changes in their food preparation habits: *"Gitudluan mi adtong sa extension program unsaon pag-andam og hapsay nga pagkaon. Sauna instant noodles ra pirmi, karun naa nay gulay pirmi among sud-an."* (We were taught by the extension program how to prepare nutritious food. Before, it was always instant noodles; now, we always include vegetables.)

Such a statement illustrates the practical impact of the program in shifting dietary norms, promoting healthier food choices, and reinforcing nutritional literacy, especially in low-income households where budget constraints often limit access to balanced meals.

A significant difference was observed also in the educational support between participants and non-participants, with participants showing higher ranks (1222.5) compared to non-participants (607.5) (U = 142.5, Z = 4.611, P-value = 0.000). This indicates that the program significantly enhanced the educational support provided by participants, suggesting that their involvement in the program may have helped them gain better insights and practices in supporting their children's education.

Participants acknowledged this impact, as expressed by a mother: *"Gisultihan mi nga importante ang suporta sa ginikanan. Sauna, sige lang ko kasuko sa akong anak, pero karun, ako na siya gina-tabangan magbasa."* (We were told that parental support is important. Before, I used to scold my child a lot, but now I help them read.) This quote reflects a transition from reactive to proactive parental involvement in learning.

Another respondent tied their support to spiritual guidance: *"Nakat-on ko nga ang pag-ampo ug pag-guide sa akong anak importante kaayo sa iyang pagtuon."* (I learned that prayer and guidance are very important in my child's studies.)

These narratives point to a holistic understanding of educational support where academic, emotional, and spiritual development converge, demonstrating how cultural values are interwoven with childrearing and learning at home.

Psychosocial support was also significantly higher among the participants (1228.5) compared to non-participants (601.5) (U = 136.5, Z = 4.696, P-value = 0.000). This suggests that the program had a considerable positive effect on the psychosocial support aspects, helping participants feel more confident and equipped to offer emotional and psychological support to their children.

Participant responses illustrated this shift vividly: *"Karun, mas moistorya na ko sa akong anak kung naa siya'y problema. Sauna, dili ko ganahan makabalo, pero karun nakasabot ko nga kinahanglan siya paminawon."* (Now, I talk to my child when they have a problem. Before, I didn't want to know, but now I understand that they need to be heard.)

This marks an important evolution in parenting attitudes away from emotional detachment toward empathy and attunement. Another parent observed: *"Mas malipayon na among pamilya. Naa mi bonding kada Domingo, kay giingnan mi nga importante ang time together."*(Our family is happier now. We have bonding time every Sunday because

we were told that spending time together is important.)

Such reflections reveal the social-emotional ripple effect of the program, supporting family cohesion, emotional resilience, and healthy parent-child relationships. Additionally, changes in parenting roles were deeply felt. For instance, one mother shared: *"Sa una, dili gyud ko kahibalo unsaon pagdisiplina nga dili masakitan akong anak. Pero sa seminar, nakat-on ko nga pwede ra diay nga istoryahon og tarong ang bata."* (Before, I didn't know how to discipline my child without hurting them. But in the seminar, I learned that I can just talk to them properly.)

And a father said: *"Karun, mas open na ko sa akong anak. Dili pareha sauna nga murag kahadlokan ko niya."*(Now, I'm more open to my child. Unlike before, when she used to be scared of me.)

These changes underscore the program's influence on gender roles and communication dynamics within the family, aligning also with contemporary discourses on positive parenting and emotional availability.

Table 2. Mann-Whitney U Test Results Comparing Perceived Support Dimensions Between Extension Program Participants and Non-Participants

Statements	Group with Higher Rank	Mean Rank (Participants)	Mean Rank (Non-Participants)	U-Value	Z	P-value	Interpretation
1. Health Support	1	983.5	846.6	381.6	1.024	0.305	No significant difference in health support between groups.
2. Nutrition Support	1	1146.5	683.5	218.5	3.513	0.0004	Significant difference in nutrition support; participants score higher.
3. Educational Support	1	1222.5	607.5	142.5	4.611	0.000	Significant difference in educational support; participants score higher.
4. Psychosocial Support	1	1228.5	601.5	136.5	4.696	0.000	Significant difference in psychosocial support; participants score higher.

Limitations of the Study

This study relied on self-reported data and did not include pre-intervention baseline measures, limiting the ability to capture changes over time. The sample was confined to selected barangays in Tampilisan, which may affect generalizability. Nonetheless, the findings provide useful evidence on how supplemental parenting programs can enhance core areas of family support among 4Ps beneficiaries and offer initial groundwork for strengthening community-based interventions and future impact evaluations.

Conclusion

The implementation of the *Educational Extension Program for 4Ps Beneficiaries: Preparing and Nurturing the Filipino Family* effectively addressed the educational needs of 4Ps households in selected barangays in Tampilisan, Zamboanga del Norte. The program provided relevant and practical seminars focusing on responsible parenting, common family issues, and child development, which were well-received by the beneficiaries.

The results of the study revealed a positive impact on the knowledge and perception of participants after attending the sessions. The computed mean scores across the key seminar topics showed an overall improvement in understanding and awareness among the beneficiaries. Participants exhibited greater confidence in applying the concepts discussed, particularly in areas related to parenting and handling family challenges.

Furthermore, the Mann-Whitney U test showed statistically significant differences in several indicators, such as in the aspect of nutrition support, educational support, and psychosocial development support of their children. This suggest that the changes observed in participants' responses after the intervention were not due to chance. This means that the program is effective in influencing positive behavioral and cognitive outcomes of the participants.

Generally, the study confirms the value of community-based extension programs in empowering marginalized sectors, such as 4Ps beneficiaries, through education and capacity-building initiatives led by higher education institutions.

Acknowledgement

The authors sincerely thank the barangay municipal government of Tampilisan for granting permission and support in conducting the impact assessment of the educational extension program in their respective areas. Deep appreciation is also extended to the 4Ps beneficiaries who warmly welcomed the researchers and willingly participated in the study.

Disclosure: Use of AI Tools

In the preparation of this work, various artificial intelligence (AI) tools were employed to enhance the quality, coherence, and readability of the content. Specifically, ChatGPT was used to assist in generating ideas, structuring sections, and refining explanations; Grammarly was utilized to detect and correct grammatical, spelling, and stylistic errors; and QuillBot was applied for paraphrasing, sentence restructuring, and improving overall clarity of expression.

While these tools provided valuable technical support, the author exercised critical judgment in reviewing, editing, and finalizing all outputs to ensure accuracy, originality, and adherence to academic and professional standards. The final responsibility for the integrity and validity of this work rests solely with the author.

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