

# Eco-Parenting as A Nature-Based, Family-Centred Psychoeducational Approach: A Mixed-Methods Pilot Study of Parental Psychological Well-Being and Family Experiences

Nur Azmina Paslan., Fauziah Zaiden., Nur Fatimah Raimi., Salmalina Salleh., Fatimah Solehah Mukram, Muhammad Faiz Abd Rahman, Krishna Kumar A/L Supramaniam

Faculty of Educational Science and Technology, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

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## ABSTRACT

Parental psychological well-being is important for healthy family functioning, while nature-based activities may support parent–child relationships, environmental awareness and positive parenting practices. This mixed-methods pilot study examined parental psychological well-being and explored parents’ experiences of participating in the Eco-Parenting: Nature-Based Family Therapy programme. The quantitative component involved 33 parents and assessed six dimensions of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Descriptive statistics were complemented by thematic analysis of reflective Parenting Journaling entries. Overall psychological well-being was moderate ( $M = 4.14$ ,  $SD = 0.430$ ), with positive relations with others recording the highest score ( $M = 4.97$ ,  $SD = 0.891$ ), followed by self-acceptance ( $M = 4.87$ ,  $SD = 1.000$ ) and purpose in life ( $M = 4.78$ ,  $SD = 0.710$ ). Autonomy recorded the lowest score ( $M = 2.10$ ,  $SD = 1.010$ ). Thematic analysis identified six themes which is environmental awareness and responsibility, family relationships and communication, positive emotional experiences and perceived family well-being, discipline and responsibility, Eco-Parenting routines and family commitment, and challenges in sustaining practices. The integrated findings highlight strong relational resources and suggest that nature-based family activities provide meaningful opportunities for parent–child engagement, communication and environmental responsibility. These preliminary findings support Eco-Parenting as a family-centred, nature-based psychoeducational approach, while further controlled and longitudinal research is needed to evaluate its effectiveness.

**Keywords:** Eco-Parenting, Nature-Based Family Therapy, Psychological Well-Being, Parenting Journaling, Parent–Child Relationships, Nature Connectedness

## INTRODUCTION

The integration of nature and outdoor environments into family therapeutic practice represents an emerging paradigm that challenges the predominantly indoor, office-based tradition of family therapy while emotion-focused therapies generally show promising results, evidence of nature-based family therapy is still scarce, though a wealth of studies demonstrate the associations between nature contact and well-being, and gradually, nature-based solutions are becoming more widespread in mental health care and recovery (Fernee et al., 2023). Eco-parenting an approach that emphasizes the connection between parenting practices and the natural environment and nature-based family therapy intersect at the intersection of family systems theory, environmental psychology and therapeutic practice. This review examines the conceptual foundations, empirical evidence, mechanisms of change and clinical applications of nature-based family interventions, synthesizing evidence from outdoor behavioral healthcare programs, ecotherapy practices and environmentally informed family interventions.

In this study, Eco-Parenting is conceptualised as a family-centred approach that integrates parenting practices, shared nature-based activities, environmental responsibility and reflective learning. It is related to, but distinct from, nature-based family therapy, which applies therapeutic principles within natural or outdoor environments to address psychological and relational concerns (Mattsson et al., 2022; Fernee et al., 2023). Nature

connectedness, in contrast, refers to an individual's psychological and emotional relationship with the natural environment and may develop through repeated experiences with nature (Chen et al., 2026; Tam et al., 2026). Psychoeducation involves structured learning and reflective activities designed to increase knowledge, awareness and practical skills.

Accordingly, the present Eco-Parenting programme is positioned as a nature-based, family-centred psychoeducational approach rather than an established therapeutic intervention. It draws upon principles of nature-based family therapy but primarily aims to promote environmental awareness, parent-child engagement, reflective parenting, and positive family practices through accessible nature-based activities.

Therefore, this preliminary study was conducted to achieve the following objectives:

- i. To examine the overall level and dimensions of psychological well-being among parents participating in the Eco-Parenting: Nature-Based Family Therapy programme.
- ii. To explore parents' experiences and reflections on nature-based parenting practices, family interactions, emotional experiences, and environmental responsibility through Parenting Journaling.
- iii. To integrate quantitative and qualitative findings to develop a holistic understanding of parental psychological well-being and family experiences within the Eco-Parenting framework.

## LITERATURE REVIEW

The growing integration of nature-based, experiential, and outdoor approaches into family therapy reflects a broader shift towards therapeutic practices that extend beyond conventional verbal and clinic-based interventions. These approaches are particularly relevant to families experiencing complex interactional difficulties because shared experiences in natural environments can provide alternative pathways for communication, emotional expression, relational engagement and collaborative problem-solving. Within this emerging field, mentalization-based family therapy, family rehabilitation, adventure therapy, wilderness therapy and systemic outdoor therapy demonstrate how experiential encounters may complement established family therapeutic processes. Adventure-based interventions, for example, provide families with opportunities to encounter manageable challenges, negotiate roles, solve problems collaboratively and experience collective accomplishment, thereby creating conditions that may strengthen communication and family cohesion (Mattsson et al., 2022).

The Nordic model of outdoor family therapy provides a particularly useful illustration of this integration by combining adventure, outdoor experiences, and systemic therapeutic principles. Rather than conceptualising nature merely as the physical location in which an intervention occurs, this approach positions the outdoor environment as an active component of therapeutic engagement. Mattsson et al. (2022) argue that the concrete and embodied qualities of adventure experiences may be especially valuable for families who experience difficulties with verbal communication or executive functioning. Shared outdoor activities enable relational patterns that might remain abstract or difficult to articulate during conventional therapy to become observable through action. Consequently, therapeutic work can occur through both verbal reflection and direct family experiences involving cooperation, decision-making, emotional responses and problem-solving.

This perspective is reinforced by emotion-focused approaches to nature-based family therapy, which emphasise the family's inherent capacity for relational healing. From this standpoint, families can be understood as dynamic relational ecosystems in which existing emotional and interpersonal resources may be reactivated to foster greater harmony, responsiveness and connectedness. Fernee et al. (2023), drawing upon the Gibsonian concept of affordances, suggest that therapeutic possibilities emerge through interactions among the natural environment, participating families, and facilitators. Nature therefore does not necessarily produce therapeutic outcomes independently rather, its therapeutic potential depends upon how environmental opportunities are perceived, experienced, and incorporated into facilitated therapeutic processes. Within emotion-focused therapy specifically, nature may support four interrelated therapeutic processes which is emotion awareness, emotion regulation, reflection on emotional experiences and emotion transformation (Fernee et al., 2023). This

framework provides a potential theoretical explanation for how nature-based experiences may contribute to changes in family emotional functioning.

A similar conceptual development can be observed within systemic practice. Santin (2021) describes the movement of therapeutic practice outdoors as a process of “rewilding” systemic therapy with individuals, couples and families. Based on this perspective, nature moves beyond functioning as a passive therapeutic setting and assumes a more participatory role within the therapeutic system. The natural environment may function metaphorically as a co-therapist by stimulating reflection, disrupting habitual interactional patterns and creating spontaneous opportunities for relational insight and change. Although this conceptualisation expands conventional understandings of the therapeutic environment, it also raises an important empirical question concerning which aspects of nature-based experiences are responsible for therapeutic change. Distinguishing the effects of the natural environment from those of facilitator support, physical activity, novelty, family interaction and structured therapeutic exercises remains an important direction for research.

The potential significance of nature-based family interventions is further supported by research on nature connectedness and human development. Childhood experiences with nature have been associated with subsequent environmental concern, psychological well-being and stewardship behaviours, suggesting that early family-based experiences with the natural environment may have implications extending beyond the immediate therapeutic context (Chawla, 2020). Developmental differences are particularly relevant because children's connection with nature may change across age. Keith et al. (2021), for example, found that children aged 8–11 demonstrated stronger nature connectedness than those aged 12–14 and that environmental behaviours declined with increasing age. These findings highlight the importance of introducing meaningful nature experiences during childhood and suggest that parents may occupy an influential role in facilitating and sustaining children's relationships with the natural environment. Accordingly, nature-based family interventions may potentially generate dual benefits by strengthening family relationships while simultaneously cultivating environmental awareness and environmentally responsible behaviour.

Emerging empirical evidence provides further support for the relational benefits of these approaches. Souza and Downey (2025), in a mixed-methods study involving 131 caregivers representing 113 emerging adults who participated in an intensive family therapy component within outdoor behavioural healthcare, identified significant improvements in caregiver perceptions of family problem-solving, organisation and emotional climate. Qualitative findings further revealed increased interdependence, improved communication and meaningful relational connections associated with experiential and nature-based activities. Particularly noteworthy was the shift towards greater caregiver–young adult interdependence, challenging assumptions that healthy transition to adulthood necessarily requires increasing relational independence (Souza & Downey, 2025). These findings suggest that nature-based family therapy may provide a relational context in which autonomy and connectedness can be negotiated simultaneously rather than treated as opposing developmental goals.

Evidence at the review level is generally consistent with these findings, although methodological limitations remain evident. In their scoping review, Stea et al. (2022) found that family-based outdoor therapy for children and adolescents experiencing mental health difficulties was associated with positive outcomes across several domains, including family and peer relationships, adolescent behaviour, psychological health, self-concept, academic functioning, social engagement and delinquency. The breadth of these outcomes indicates that outdoor family interventions may influence multiple dimensions of individual and systemic functioning. However, substantial heterogeneity was identified in participant characteristics, research designs, intervention components and delivery methods, limiting direct comparisons across studies (Stea et al., 2022). Thus, although the evidence base is promising, conclusions regarding intervention effectiveness and mechanisms of change should remain cautious.

Findings from wilderness-based interventions provide additional evidence for the psychological and relational potential of experiential outdoor treatment. Johnson et al. (2020), in a pilot study involving 816 adolescents aged 13–17 participating in trauma-informed wilderness therapy, reported improvements in adolescents' psychological and family functioning as well as psychophysiological functioning, measured through heart-rhythm coherence. Caregivers similarly perceived improvements in family functioning and their children's psychological well-being. The inclusion of both adolescent and caregiver perspectives strengthens the evidence

that changes may extend beyond individual symptom improvement to the broader family system. Nevertheless, the intensive and specialised characteristics of wilderness therapy distinguish it from community-based nature interventions, highlighting the need to examine whether similar therapeutic principles can be translated into shorter, accessible, and culturally appropriate family programmes.

The potential benefits of nature-based interventions have also been observed across culturally and clinically diverse populations. Poulsen et al. (2016), for instance, examined a 10-week nature-based therapy programme involving eight Danish veterans in a forest therapy garden. Qualitative findings suggested that participants developed practical strategies for managing stressful situations and perceived improvements in symptoms associated with post-traumatic stress disorder. Similarly, Ritchie et al. (2014) evaluated an outdoor adventure leadership programme involving 73 First Nations adolescents from Wikwemikong and identified a significant improvement in resilience one month following the programme ( $p = .011$ ). However, resilience scores returned to approximately baseline levels at the one-year follow-up. Participants experienced several intervening circumstances, including changes in family living arrangements, bereavement, and other life stressors, illustrating that improvements generated through short-term outdoor interventions may be difficult to sustain when participants return to challenging social and family environments.

Collectively, the literature suggests that nature-based and outdoor therapeutic approaches may operate through several interconnected mechanisms: experiential learning, emotional regulation, shared problem-solving, embodied interaction, strengthened family communication, relational connectedness, and increased engagement with the natural environment (Ferneer et al., 2023; Mattsson et al., 2022; Souza & Downey, 2025; Stea et al., 2022). Importantly, the literature increasingly conceptualises nature not simply as the setting for intervention but as an active therapeutic resource that can facilitate reflection, emotional processing, family interaction and relational change. This distinction provides an important theoretical foundation for integrating nature-based activities into family-focused interventions.

Despite these promising findings, several limitations in the existing literature warrant further investigation. First, considerable heterogeneity exists in the conceptualisation and implementation of nature-based family interventions, ranging from wilderness and adventure therapy to forest therapy, systemic outdoor practice and structured family programmes. Second, much of the existing research focuses on clinical populations, adolescents with behavioural or mental health difficulties, veterans or intensive therapeutic settings. Comparatively less attention has been given to preventive and psychoeducational interventions involving parents and young children in community settings. Third, relatively limited research has examined the simultaneous contribution of nature-based family activities to parental psychological well-being, family connectedness and environmental awareness. Finally, the sustainability of intervention effects remains insufficiently understood, particularly given evidence that positive short-term outcomes may diminish when participants return to stressful family and social environments (Ritchie et al., 2014).

These limitations point to the need for a broader conceptualisation of eco-parenting as a preventive, family-centred and nature-based approach rather than solely as an environmental parenting practice. Integrating principles from family therapy, nature connectedness, experiential learning and parental well-being may provide a framework through which everyday nature-based activities become opportunities for strengthening parent–child relationships, supporting parental psychological functioning and cultivating environmental responsibility within the family. Such an approach may be particularly relevant for community-based interventions involving parents of young children, where nature can be incorporated into accessible family routines rather than confined to specialised therapeutic settings. Examining these interrelated dimensions can therefore extend the existing literature by positioning eco-parenting at the intersection of family well-being, relational functioning and environmental stewardship.

## METHODOLOGY

The Eco-Parenting programme was implemented as a nature-based, family-centred psychoeducational programme integrating environmental awareness, parent–child interaction, experiential activities, and reflective parenting. Participants engaged in shared activities such as planting, plant care, environmental cleanliness, and

sustainable practices. These activities were designed to encourage family participation, communication, environmental responsibility and the integration of simple nature-based practices into everyday family routines.

Parenting Journaling was used as a structured reflective component of the programme. Parents documented their experiences, emotional responses, family interactions, environmental practices, challenges, and future commitments. The journal covered environmental awareness, family communication, behavioural practices, sustainable routines, and reflections on the overall Eco-Parenting experience.

Quantitative and qualitative data were integrated to provide a more comprehensive understanding of participants' experiences. As the study did not include a control group or pre-post assessment, it was not intended to determine programme effectiveness or establish causal relationships. Instead, it provided preliminary evidence to support the development and future evaluation of the Eco-Parenting approach.

A total of 33 parents participated in the quantitative component. The sample consisted of 24 females (72.7%) and nine males (27.3%). Most participants were aged 31–40 years (72.7%), followed by 20–30 years (21.2%) and above 40 years (6.1%). Participants represented different educational and socioeconomic backgrounds. Participants were purposively recruited from parents involved in the Eco-Parenting: Nature-Based Family Therapy programme. Therefore, the sample was programme-specific and was not intended to represent the wider Malaysian parent population.

The Eco-Parenting: Nature-Based Family Therapy programme integrates parenting, family interaction, environmental awareness, and nature-based experiential activities. The programme encourages parents and children to participate in shared activities involving nature and environmentally responsible practices while strengthening family relationships. Parenting Journaling was incorporated as a reflective activity. Participants documented their experiences, emotions, family interactions, environmental practices, challenges, and future commitments. The journal activities covered areas such as environmental awareness, family communication, behavioural changes, sustainable practices and overall reflection on Eco-Parenting experiences.

Parental psychological well-being was examined based on Ryff's multidimensional model of psychological well-being, which consists of six dimensions which is autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. These dimensions represent important aspects of positive psychological functioning, including independent decision-making, effective management of everyday life, personal development, meaningful relationships, life direction and positive self-evaluation.

Parental psychological well-being was assessed using the 18-item Psychological Well-Being Scales (PWB) adapted by SPARQTools.org based on the multidimensional model of psychological well-being developed by Ryff and Keyes (1995). The instrument assesses six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. Each dimension comprises three items, resulting in a total of 18 items.

Responses were measured using a seven-point Likert scale, ranging from 1 (strongly agree) to 7 (strongly disagree). Ten positively worded items (Items 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18) were reverse-scored using the formula  $8 - \text{original response score}$  to ensure consistency in score interpretation. Following reverse scoring, higher scores indicated higher levels of psychological well-being. Scores for each dimension were calculated by summing the three corresponding items, with higher scores reflecting more positive psychological functioning within the respective dimension.

To strengthen the content and linguistic appropriateness of the instrument, an expert review was conducted before its use in the study. Expert review is important for assessing whether the content, structure, wording, and relevance of an instrument are appropriate for the intended research objectives and target population. Accordingly, one expert with experience in the field of counselling was appointed to provide professional evaluation and recommendations for improving the instrument. The review aimed to ensure that the items were relevant, clearly expressed, appropriate for the target population and aligned with the objectives of the study.

Specifically, the expert reviewed the Psychological Well-Being Scales with particular attention to the suitability of the English-to-Malay translation. The review considered the clarity of meaning, consistency with the original psychological well-being constructs, cultural appropriateness within the Malaysian context and comprehensibility of the translated items. The expert also examined whether the items were suitable for the characteristics and background of the study population. Relevant feedback was considered in refining the instrument prior to its administration. This process provided support for the content relevance and linguistic appropriateness of the Malay-language instrument while maintaining the conceptual meaning of the original scale.

Following the expert review, a pilot study involving 30 participants with characteristics similar to the target population was conducted to examine the internal consistency of the instrument. Reliability was assessed using Cronbach's alpha. The analysis yielded an overall Cronbach's alpha coefficient of  $\alpha = .875$ , indicating good internal consistency. This finding suggests that the 18-item PWB demonstrated satisfactory reliability for assessing psychological well-being in the present study.

Overall, the expert review and pilot reliability analysis provided preliminary support for the content appropriateness, linguistic suitability and internal consistency of the instrument within the study context. However, because the present study did not undertake a comprehensive psychometric validation of the Malay-language PWB, the expert review should not be interpreted as evidence of full construct validity. Future studies with larger samples may employ additional psychometric procedures, such as confirmatory factor analysis, to further establish the validity and dimensional structure of the instrument within the Malaysian population.

Qualitative data were obtained from participants' written reflections in the Parenting Journals. The journals captured experiences related to nature-based parenting, family communication, shared activities, emotional responses, environmental responsibility, sustainable practices and challenges in applying Eco-Parenting practices. Reflective journaling allowed participants to describe their experiences in their own words and provided contextual information that complemented the quantitative findings.

Quantitative data were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Internal consistency of the psychological well-being measure was examined using Cronbach's alpha. Where appropriate, 95% confidence intervals were calculated to provide additional information on the precision of the estimated mean scores. Inferential tests of programme effectiveness were not conducted because the study did not include baseline measurements or a comparison group.

Parenting Journal entries were analysed using thematic analysis. The analysis involved two stages which is familiarisation with the journal entries, developing themes and subthemes and reviewing and refining the themes to ensure consistency with participants' reflections. The analysis focused on experiences related to environmental awareness, family relationships, emotional experiences, parenting practices, family routines and implementation challenges.

The quantitative and qualitative findings were integrated during interpretation. Psychological well-being scores were considered alongside themes emerging from the Parenting Journals to provide a broader understanding of parental well-being, family relationships, environmental awareness and Eco-Parenting experiences. However, qualitative experiences were not used to claim that the programme caused changes in psychological well-being. Instead, both datasets were used to provide complementary insights into participants' experiences.

Participation was voluntary, and participants were informed about the purpose of the study and confidentiality of their information. Informed consent was obtained before data collection, and participants' identities were protected during data analysis and reporting. As a pilot study involving a small purposive sample without pre-post measurements or a control group, the findings should be interpreted as preliminary and exploratory. Nevertheless, the study provides useful initial evidence for refining the Eco-Parenting framework and informing future research using larger samples and more rigorous research designs.

## FINDINGS

Table 1 Demographic Characteristic of the participants

| Variable             | Categories                          | n  | %    |
|----------------------|-------------------------------------|----|------|
| Gender               | Female                              | 24 | 72.7 |
|                      | Male                                | 9  | 27.3 |
| Age                  | 20–30 years old                     | 7  | 21.2 |
|                      | 31–40 years old                     | 24 | 72.7 |
|                      | >40 years old                       | 2  | 6.1  |
| Education Level      | Malaysian Certificate of Education  | 18 | 54.5 |
|                      | Malaysian Higher School Certificate | 2  | 6.1  |
|                      | Diploma                             | 6  | 18.2 |
|                      | Bachelor's Degree                   | 6  | 18.2 |
|                      | Others                              | 1  | 3.0  |
| Employment Status    | Employed                            | 14 | 43.8 |
|                      | Unemployed                          | 18 | 56.3 |
| Socioeconomic Group  | B40                                 | 24 | 75.0 |
|                      | M40                                 | 7  | 21.9 |
|                      | Others                              | 1  | 3.1  |
| Duration of marriage | 1–5 years                           | 8  | 25.0 |
|                      | 6–10 years                          | 18 | 56.3 |
|                      | 11–15 years                         | 4  | 12.5 |
|                      | 16–20 years                         | 2  | 6.3  |

Table 1 presents the demographic characteristics of the study participants. Of the 33 participants, 24 (72.7%) were female and nine (27.3%) were male. The majority were aged between 31 and 40 years (72.7%), while 21.2% were aged between 20 and 30 years and 6.1% were older than 40 years.

A total of 33 parents participated in the study. Of these, 24 (72.7%) were female and nine (27.3%) were male. In terms of age, the majority of participants were between 31 and 40 years old (72.7%), followed by those aged 20–30 years (21.2%) and those aged above 40 years (6.1%). Regarding educational attainment, 54.5% of the participants had completed the Malaysian Certificate of Education, 18.2% held a diploma, 18.2% held a bachelor's degree, 6.1% had completed Malaysian Higher School Certificate, and 3.0% reported other educational qualifications.

In terms of socioeconomic background, 75.0% of the participants were classified within the B40 income group, while 21.9% were categorised within the M40 income group. The majority of participants (56.3%) had been married for between six and ten years. Overall, the sample was predominantly composed of female participants aged 31–40 years, with SPM-level educational attainment and a B40 socioeconomic background.

Table 2 Overall Levels of Psychological Well-Being Among Participants

| Level    | n         | %            |
|----------|-----------|--------------|
| Low      | 1         | 3.0          |
| Moderate | 32        | 97.0         |
| High     | 0         | 0.0          |
| Total    | <b>33</b> | <b>100.0</b> |

As shown in Table 2, the majority of participants ( $n = 32$ , 97.0%) were classified as having a moderate level of psychological well-being. Only one participant (3.0%) was classified within the low category, while none were classified as having a high level of psychological well-being.

The concentration of participants within the moderate category suggests that moderate psychological well-being was characteristic of this particular sample. Given the descriptive nature of the study, however, these findings should not be interpreted as evidence of psychological impairment or as demonstrating a need for intervention. Rather, they provide a preliminary profile of participants' psychological well-being that can be used to identify specific dimensions warranting further examination.

Table 3mDescriptive Statistics for the Dimensions of Psychological Well-Being

| Dimension                         | Mean        | SP           | Level    |
|-----------------------------------|-------------|--------------|----------|
| Positive Relationship with Others | 4.97        | 0.891        | Moderate |
| Self-Acceptance                   | 4.87        | 1.00         | Moderate |
| Purpose of Life                   | 4.78        | 0.710        | Moderate |
| Environmental Mastery             | 4.29        | 0.803        | Moderate |
| Personal Growth                   | 3.84        | 0.778        | Moderate |
| Autonomy                          | 2.10        | 1.01         | Low      |
| Overall Psychological Wellbeing   | <b>4.14</b> | <b>0.430</b> | Moderate |

As presented in Table 3, the overall psychological well-being score was classified at a moderate level ( $M = 4.14$ ,  $SD = 0.430$ ). Among the six dimensions, positive relations with others recorded the highest mean score ( $M = 4.97$ ,  $SD = 0.891$ ), followed by self-acceptance ( $M = 4.87$ ,  $SD = 1.000$ ), purpose in life ( $M = 4.78$ ,  $SD = 0.710$ ), environmental mastery ( $M = 4.29$ ,  $SD = 0.803$ ), and personal growth ( $M = 3.84$ ,  $SD = 0.778$ ). All five dimensions were classified at a moderate level.

In contrast, autonomy recorded the lowest mean score ( $M = 2.10$ ,  $SD = 1.010$ ) and was the only dimension classified at a low level. The descriptive pattern therefore indicates a marked difference between participants' scores for positive relations with others and autonomy. Within this sample, participants demonstrated relatively

stronger scores in the relational domain, particularly their capacity to establish and maintain positive relationships with others, whereas autonomy represented the comparatively weakest dimension.

### Thematic Analysis of the Parenting Journaling Data

The qualitative themes concerning family communication, cooperation, shared activities and quality time were considered alongside the quantitative relational profile. Importantly, this integration was used to provide contextual interpretation rather than to establish causal relationships between programme participation and psychological well-being.

#### Theme 1: Increased environmental awareness and responsibility

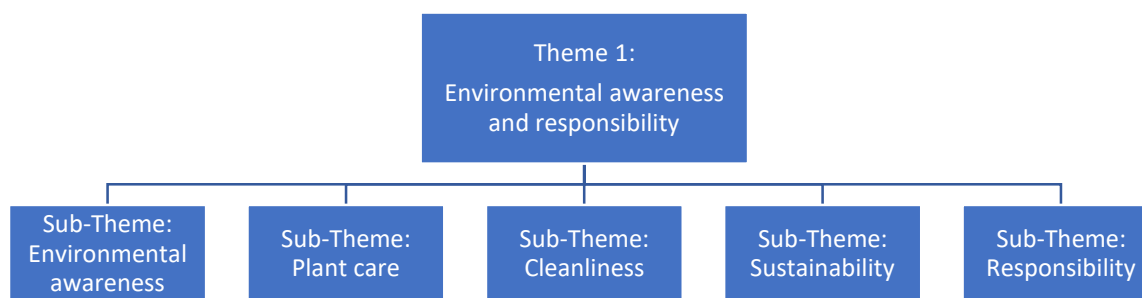


Figure 1: Theme 1-Increase environmental awareness and responsibility

Participants increasingly perceived environmental care as part of family education and as a responsibility that could be cultivated among children through everyday activities. The first theme reflects a developing awareness among participants that engagement with the natural environment can form part of the parenting process. At the initial stage, participants associated Eco-Parenting with environmental sustainability, family harmony, and parent-child activities. Subsequent reflections indicated that this conceptual understanding was translated into concrete practices, including planting, watering plants, cleaning gardening areas, observing plant growth, and utilising rainwater.

For example, one participant described Eco-Parenting as contributing to the development of a harmonious family, while another associated the approach with responsibility for environmental sustainability and family well-being. Participants' reflections further suggested a progression from conceptual environmental awareness towards pro-environmental practices, particularly as plant care became a shared family activity. This pattern can be conceptualised as:

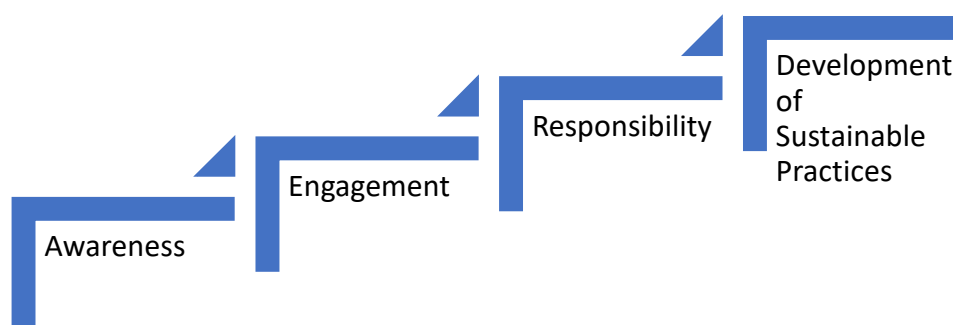


Figure 2: Pattern of Environmental Practices

This pattern suggests that journaling did more than document participants' knowledge. It also captured how environmental awareness was translated into everyday family practices.

## Theme 2: Strengthened family relationships and communication

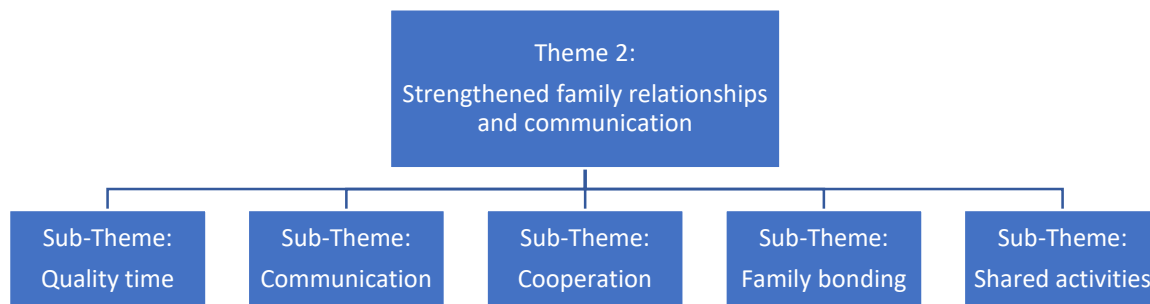


Figure 3: Theme 2-Strengthened family relationships and communication

Nature-based activities provided opportunities for parents and children to engage in shared experiences, communicate with one another, and strengthen family interactions. The second prominent theme concerned family relationships and communication. Several participants indicated that plant-care and nature-based activities created opportunities for parents and children to participate in activities together. Their reflections highlighted communication, cooperation, shared experiences, and quality time as important aspects of these activities.

One participant specifically described the activities as contributing to the “quality of family relationships with nature” and providing opportunities for parents and children to communicate, cooperate, and construct shared experiences. Another participant identified positive relationships, greater emotional stability, and peace of mind as meaningful outcomes of the experience. Elsewhere in the journals, participants reported improvements in parent–child communication and described the activities as creating additional opportunities to spend time with their children. The emerging pattern can therefore be represented as:

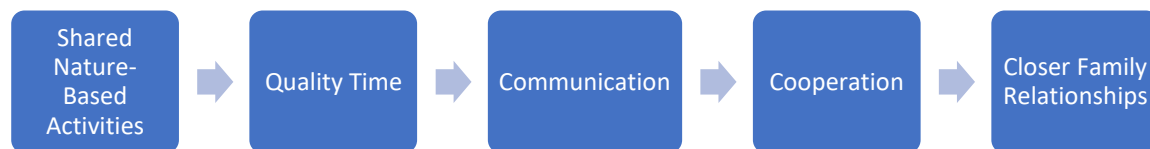


Figure 4: Pattern of Family Interaction

Accordingly, nature-based activities documented through Parenting Journaling appeared to function not only as environmental activities but also as a medium for family interaction and shared engagement.

## Theme 3: Positive emotional experiences and perceived family well-being

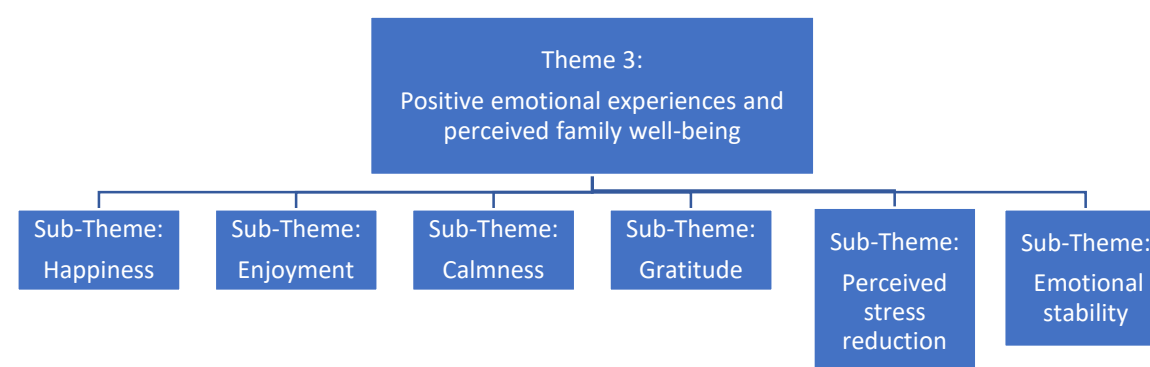


Figure 5: Theme 3: Positive emotional experiences and perceived family well-being

Participants associated engagement in plant-care and nature-based activities with positive emotions, feelings of calmness, and enjoyable family experiences. A further recurring theme involved participants' positive emotional experiences. Parents used expressions such as "*enjoyable*," "*happy*," "*grateful*," "*calm*," and "*responsible*" when describing experiences shared with their families. For example, one reflection described the experience using the expressions:

*"Enjoyable – happy ... meaningful – grateful"*

In subsequent reflections, participants similarly characterised family experiences as enjoyable, exciting, happy, and associated with a sense of responsibility. Some participants also perceived nature-based activities as helping to reduce stress and anxiety, promote emotional stability, and assist children in recognising and managing their emotions. In the overall evaluation, participants described outdoor family activities as contributing to perceived mental and physical well-being while simultaneously creating opportunities for family members to participate in activities together.

These findings should, however, be interpreted cautiously because the journal entries represent participants' subjective reflections, they are more appropriately understood as participants' perceptions of emotional and well-being benefits rather than clinical or causal evidence that Eco-Parenting reduced stress or improved psychological well-being.

#### Theme 4: Development of discipline, responsibility, and experiential learning among children

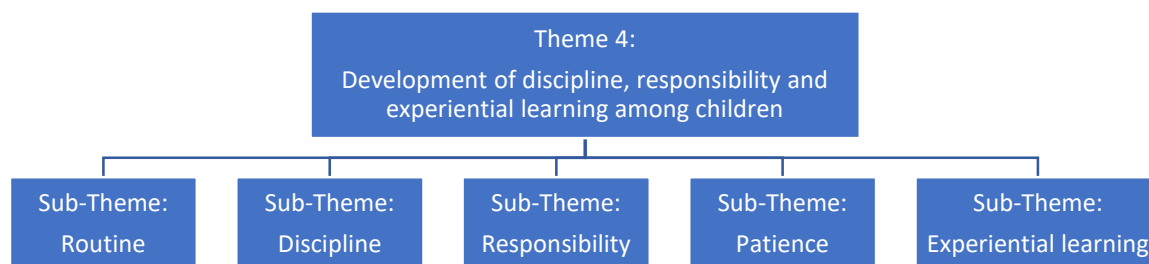


Figure 6: Theme 4 – Development of discipline, responsibility and experiential learning among children

Plant-care activities served as an experiential learning medium through which parents sought to cultivate discipline, consistency, patience, and responsibility among their children. Parents also perceived plant-care activities as a medium for children's learning and development. Values and behaviours that emerged from the journal reflections included responsibility, discipline, patience, consistency, cleanliness, appreciation of nature, and cooperation. For example, participants highlighted the importance of teaching children to maintain cleanliness and develop discipline within their daily routines. Other reflections suggested that caring for plants encouraged children to become more disciplined and responsible for completing assigned tasks.

In journal sections containing parents' messages of appreciation and encouragement to their children, participants emphasised caring for plants, appreciating the natural environment, and maintaining cleanliness. One participant encouraged children to "*care for plants and trees*" and to "*love the environment*" while also linking environmental stewardship to the well-being of future generations.

These findings suggest a process of intergenerational learning, whereby parents functioned as role models and facilitators in cultivating pro-environmental values and responsible behaviours among their children.

## Theme 5: Integration of Eco-Parenting practices into family routines

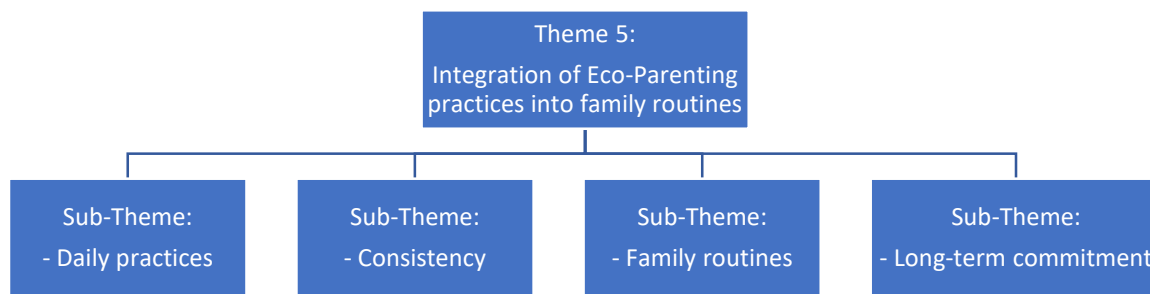


Figure 7: Theme 5 – Integration of Eco-Parenting practices into family routine

Activities were not perceived solely as programme-related tasks but began to be incorporated into family routines, including watering plants, maintaining cleanliness and continuing gardening activities. The journaling data further indicated a transition from participation in temporary programme activities towards an intention to sustain Eco-Parenting practices within everyday family life.

Examples of participants' commitments included continuing to care for plants, watering them consistently, maintaining the cleanliness of gardening areas, and planting additional trees or plants. One participant, for instance, planned to establish a daily plant-watering routine and expressed the intention for the family to plant more fruit trees in the future. This finding is noteworthy because behavioural development was reflected not only through increased awareness but also through participants' expressed intentions to maintain Eco-Parenting practices. Conceptually, the pattern can be represented as:

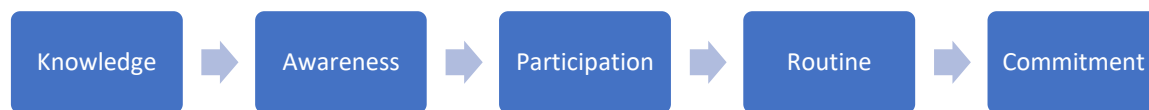


Figure 8: Pattern of integration in everyday routine

This progression represents an important qualitative finding because it illustrates how relatively simple nature-based activities may become incorporated into everyday family routines rather than remaining isolated programme activities.

## Theme 6: Challenges in sustaining Eco-Parenting practices

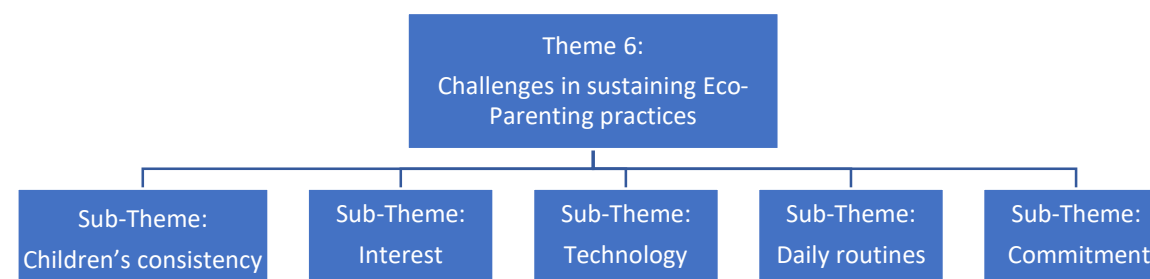


Figure 9: Theme 6 – Challenges in sustaining Eco-Parenting practices

Despite generally positive experiences, participants reported challenges in maintaining children's consistency and interest and integrating nature-based activities into the demands of everyday family life. The journal data did not exclusively reflect positive experiences. Participants also identified challenges associated with sustaining Eco-Parenting practices. These included difficulties in maintaining children's consistency, sustaining their

interest in environmental activities, and incorporating such practices into established family routines. For example, one participant identified a major challenge as:

*“children easily become bored and are less consistent”*

Participants also described difficulties in transforming sustainable practices into consistent daily routines. Other reflections referred to the challenge of balancing everyday responsibilities with nature-based activities and managing the influence of technology within family life. This theme is important because it demonstrates that environmental awareness alone may not necessarily translate into sustained behavioural practices. Maintaining Eco-Parenting practices may require activities that are accessible, enjoyable, flexible, developmentally appropriate, and sufficiently adaptable to the realities of everyday family life. Based on the overall patterns identified in the parenting journaling, the qualitative findings can be conceptually represented as follows:



Figure 10: Overall pattern

At the same time, this process appears to be shaped by several implementation challenges, particularly consistency, children’s interest, established family routines, and competing demands of everyday life. The thematic analysis of the Parenting Journaling reflections identified six interrelated themes which is increased environmental awareness and responsibility, strengthened family relationships and communication, positive emotional experiences and perceived family well-being, development of discipline, responsibility, and experiential learning among children, integration of Eco-Parenting practices into family routines, and challenges in sustaining Eco-Parenting practices.

Overall, participants’ reflections suggested a progression from awareness of the importance of the natural environment towards active engagement in plant-care and other nature-based activities, followed by attempts to incorporate these practices into everyday family routines. Nature-based activities were described as providing opportunities for quality time, communication, cooperation, and positive emotional experiences between parents and children. Participants also perceived these activities as opportunities to cultivate responsibility, discipline, and environmental values among their children. At the same time, challenges related to consistency, children’s sustained interest, technology, and the integration of nature-based activities into everyday family routines were evident.

## DISCUSSION

The findings provide preliminary insights into how Eco-Parenting experiences intersect with parental psychological well-being, family relationships, and environmental responsibility. Although participants reported a moderate overall level of psychological well-being, their reflections indicated that nature-based family activities provided meaningful opportunities for positive emotions, stronger family interactions, environmental

awareness, and sustainable family practices. Given the exploratory design, these findings do not demonstrate a direct therapeutic effect but suggest potential relational, emotional, behavioural, and ecological pathways through which nature-based family engagement may support family well-being.

The first theme demonstrated a progression from environmental awareness to environmental responsibility. Participants translated their understanding of environmental sustainability into everyday practices such as planting, watering plants, gardening, recycling, and using rainwater. This suggests that Eco-Parenting may facilitate the integration of environmental awareness into practical family routines while providing opportunities for parents to model environmentally responsible behaviour to their children.

This finding is consistent with Chen et al. (2026), who identified the family as an important context for developing nature connectedness through shared experiences and reciprocal parent–child interactions. Similarly, Tam et al. (2026), based on 2,357 parent–child dyads, demonstrated an intergenerational pathway linking parents’ childhood nature experiences and current nature connectedness with the nature experiences provided to their children. The present findings extend this literature by illustrating how simple family activities, such as caring for plants, may enable parents to model environmental responsibility while actively involving children in sustainable practices. Accordingly, the process emerging from the findings may be conceptualised as



Figure 11: Pathway of sustainable practices

This pathway should be interpreted as a thematic pattern rather than a causal model. Consistent with Chen et al. (2026), family–nature relationships may be transactional, with parents and children mutually influencing each other’s environmental attitudes and behaviours. A key finding was the strengthening of family relationships and communication. Participants described nature-based activities as opportunities for quality time, communication, cooperation, and shared responsibility. This finding aligns with the quantitative results, where positive relations with others was the highest-rated dimension of psychological well-being ( $M = 4.97$ ,  $SD = 0.891$ ). Together, these findings highlight relational functioning as an important aspect of the Eco-Parenting experience.

Activities such as planting, watering, observing plant growth, and maintaining garden spaces provided opportunities for parents and children to work towards shared goals. This finding is consistent with Armour et al. (2026), who reported that nature-focused interventions may support parental well-being and parent–child relationships, although stronger theoretical frameworks and rigorous evaluations remain necessary. Thus, the value of nature-based family activities may extend beyond exposure to nature itself. Nature may provide a relational context that encourages shared attention, communication, cooperation, and meaningful parent–child interaction. Based on the qualitative findings, this process may be conceptualised as

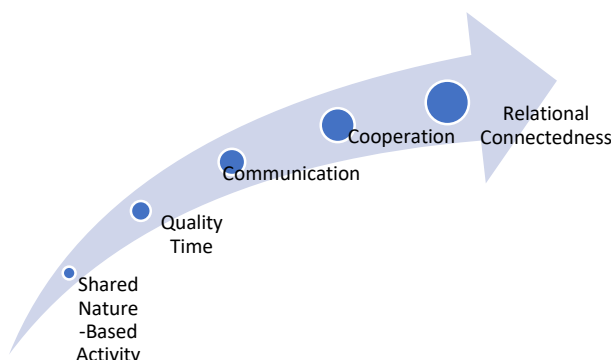


Figure 12: Process towards parental psychological well-being

The relational findings are also relevant to parental psychological well-being. Previous research has linked positive parent–child relationships and parental warmth with better parental mental health, while parental stress

and self-efficacy are associated with depression and anxiety. Similarly, Albanese et al. (2019) highlighted the importance of parental self-efficacy for parental well-being, parent–child relationships, and child developmental outcomes. However, the present study cannot determine whether Eco-Parenting improved family relationships. The relatively high score for positive relations may have existed before programme participation. Therefore, the findings indicate how parents experienced relational connectedness during Eco-Parenting activities, rather than demonstrating a direct programme effect.

The third theme reflected positive emotional experiences and perceived family well-being. Participants frequently described feelings of happiness, enjoyment, calmness, gratitude, excitement, and meaningfulness. Some participants also perceived nature-based activities as helpful in reducing stress and anxiety and promoting emotional stability. These findings are consistent with evidence linking nature engagement with psychological well-being. Arola et al. (2023) identified generally positive associations between nature connectedness and children’s well-being, although considerable variation existed in how these concepts were measured. Similarly, recent evidence from nature-based interventions suggests potential benefits for depression, anxiety, and stress, but methodological heterogeneity and risk of bias remain important limitations.

The emotional experiences reported in this study, however, may not result from nature exposure alone. Eco-Parenting involved several interconnected experiences, including spending time with children, participating in purposeful activities, observing tangible outcomes such as plant growth, and experiencing shared accomplishment. Eco-Parenting may therefore be understood as a multi-component experiential approach, in which nature engagement interacts with family relationships, meaningful activities, reflection, and shared experiences. Importantly, the reported feelings of calmness, happiness, and reduced stress were based on participants’ subjective reflections rather than clinical measures. These findings should therefore be interpreted as perceived emotional benefits rather than evidence of therapeutic effectiveness.

The fourth theme highlighted experiential learning and the development of positive values. Parents viewed nature-based activities as opportunities to foster responsibility, discipline, patience, consistency, cooperation, and environmental values among their children. Children learned these values through direct participation in activities such as watering plants, maintaining cleanliness, monitoring plant growth, and caring for the environment. This finding reflects experiential learning, whereby knowledge, skills, and values are developed through active participation and reflection. Johnstone et al. (2022) similarly found that nature-based early childhood education was positively associated with outcomes such as self-regulation, social skills, social-emotional development, nature relatedness, and environmental awareness, although the certainty of evidence was low. The present findings extend this perspective to the family context, where parents act as role models and facilitators of environmental learning. Rather than simply teaching children about environmental responsibility, parents engaged them directly in meaningful environmental practices. This process may be conceptualised as

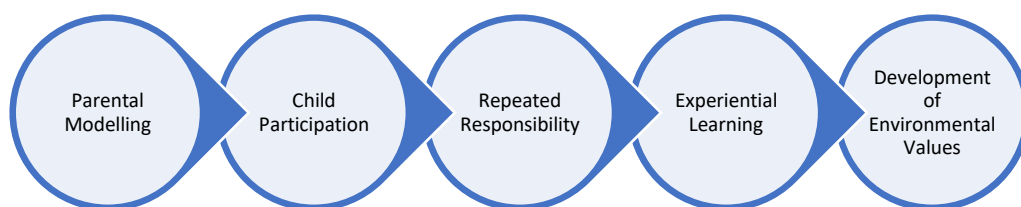


Figure 13: Process of intergenerational role of Eco-Parenting

This pattern also highlights the intergenerational role of Eco-Parenting. Parents can influence children’s opportunities for nature engagement and the development of nature connectedness (Tam et al., 2026). Repeated parent–child activities in nature may therefore provide meaningful opportunities for parents to model and transfer environmental values across generations. The fifth theme reflected the integration of Eco-Parenting into everyday family routines. Participants expressed intentions to continue activities such as caring for plants,

maintaining regular watering schedules, managing garden areas, and planting additional vegetation. These reflections suggest that Eco-Parenting practices were perceived as activities that could be incorporated into daily family life. However, intentions to continue these practices should not be interpreted as evidence of sustained behavioural change. Long-term maintenance requires further investigation through follow-up assessment.

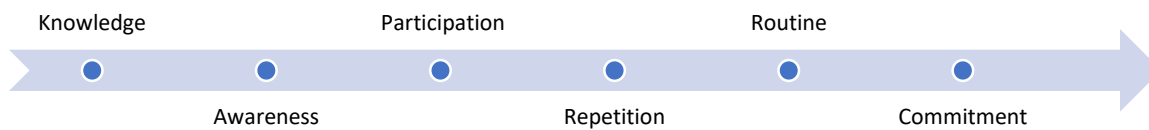


Figure 14: Process of sustained behavioral changes

The emerging literature highlights the importance of shared and repeated family experiences in nature. Chen et al. (2026) identified family-based nature activities as an important factor associated with nature connectedness, while Tam et al. (2026) demonstrated that children's nature experiences contribute to the intergenerational pathway between parental and child nature connectedness. These findings support the potential value of Eco-Parenting in integrating simple nature-based activities into everyday family life rather than limiting nature engagement to occasional recreational experiences. However, the journal reflections primarily captured short-term practices and behavioural intentions, rather than sustained behavioural change. Longitudinal research is therefore needed to determine whether these intentions develop into regular family routines and contribute to changes in nature connectedness, environmental behaviour, family functioning, and psychological well-being.

Importantly, participants also reported challenges in maintaining Eco-Parenting practices, including children's inconsistent interest, competing family responsibilities, difficulty maintaining routines, and technology-related distractions. These challenges suggest an awareness-behaviour gap, whereby environmental awareness does not necessarily translate into consistent practice. Similarly, Armour et al. (2026) identified accessibility and implementation barriers in nature-focused interventions for parents and caregivers. Eco-Parenting activities should therefore be accessible, low-cost, flexible, enjoyable, and adaptable to different family circumstances, including variations in living environment, socioeconomic resources, children's developmental needs, and available time.

The quantitative findings provided additional insight into participants' psychological well-being. Overall psychological well-being was moderate ( $M = 4.14$ ,  $SD = 0.430$ ). Positive relations with others recorded the highest score ( $M = 4.97$ ,  $SD = 0.891$ ), followed by self-acceptance ( $M = 4.87$ ,  $SD = 1.000$ ) and purpose in life ( $M = 4.78$ ,  $SD = 0.710$ ). Autonomy recorded the lowest score ( $M = 2.10$ ,  $SD = 1.010$ ). The high score for positive relations is consistent with qualitative accounts of communication, cooperation, shared activities, and family bonding, demonstrating convergence between the quantitative and qualitative findings. While the quantitative results identified positive relationships as a relative strength, the journal reflections illustrated how relational experiences occurred through shared nature-based activities. This interpretation is consistent with evidence highlighting the close relationship between parental psychological well-being and parent-child relationships (Risi et al., 2021).

In contrast, the low autonomy score requires cautious interpretation. Within Ryff's framework, autonomy reflects self-determination and independent judgement. The qualitative findings emphasised family cooperation, shared responsibilities, and interdependence rather than individual independence. However, these findings cannot directly explain the lower autonomy score. Further research is needed to examine whether this pattern reflects psychological functioning, cultural understandings of autonomy and family interdependence, measurement characteristics, or other contextual factors. Overall, the contribution of this pilot study lies not in demonstrating the effectiveness of Eco-Parenting, but in identifying potential processes connecting nature-based parenting with family relationships, environmental responsibility, and psychological experiences. The integration of findings suggests that shared nature activities may provide opportunities for communication, cooperation, emotional engagement, parental modelling, and environmental learning. Based on these findings, a preliminary pathway may be proposed as follows:

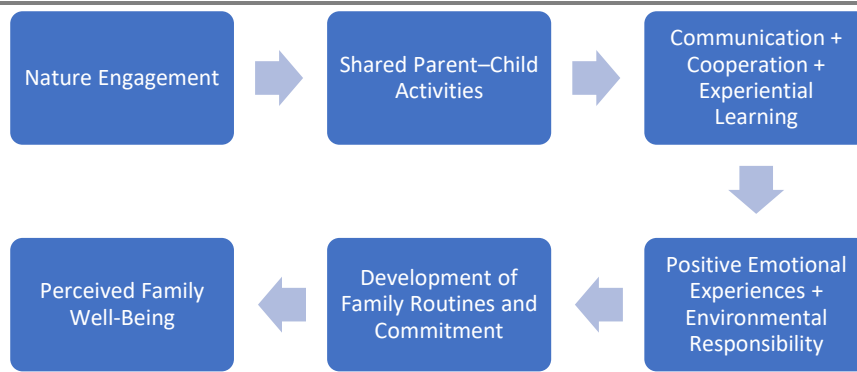


Figure 15: Preliminary pathway of Eco-Parenting concept

The proposed pathway may be influenced by factors such as children's interest, consistency, technology use, accessibility, family routines and competing demands. This supports a systemic perspective in which parents, children, and their environments interact reciprocally rather than through a one-way parent-to-child process (Chen et al., 2026). It also responds to the need for clearer theories of change in nature-focused family interventions (Armour et al., 2026). The findings suggest that Eco-Parenting may be conceptualised as a family-centred, nature-based psychoeducational approach integrating three interconnected domains: environmental engagement, family relationships, and psychological well-being. This perspective is consistent with evidence that family experiences contribute to nature connectedness, pro-environmental behaviour, and well-being across generations (Chen et al., 2026; Tam et al., 2026).

Practically, Eco-Parenting programmes could incorporate shared parent-child nature activities, environmental responsibility tasks, communication exercises, reflective Parenting Journaling, and strategies for integrating these activities into daily family routines. Journaling may support reflection on family interactions, emotional experiences, challenges, and future practices. However, the term Nature-Based Family Therapy should be used cautiously until therapeutic effectiveness is established. At this stage, describing Eco-Parenting as a nature-based, family-centred psychoeducational approach provides a more appropriate representation of the available evidence. Several limitations should be acknowledged. First, the small sample of 33 parents limits the generalisability of the findings. Second, the absence of pre-post measurements, a comparison group, and randomisation prevents causal conclusions about programme effectiveness. Third, Parenting Journaling relied on subjective reflections that may be influenced by social desirability and individual differences in written expression. Finally, the structured journal prompts may have influenced the themes identified. These limitations are consistent with previous reviews calling for more rigorous, longitudinal, and culturally diverse research on nature-based and family-focused interventions (Armour et al., 2026; Chen et al., 2026; Johnstone et al., 2022).

Future studies should employ larger and more diverse samples, controlled pre-post designs, validated measures, and longitudinal follow-up. Outcomes should include parental psychological well-being, parenting stress and burnout, parenting self-efficacy, family functioning, parent-child relationships, nature connectedness, and pro-environmental behaviour. Longitudinal assessment is particularly important to determine whether participants' reported intentions develop into sustained behavioural and family routines.

## CONCLUSION

Family-based outdoor therapy has shown promising outcomes for family and peer relationships, adolescent behaviour, mental health, self-perception, social engagement and academic functioning. However, the limited number of studies and substantial methodological heterogeneity prevent firm conclusions regarding its effectiveness (Stea et al., 2022). Potential therapeutic mechanisms include improved emotion regulation, greater autonomy, enhanced family communication and stronger relational connectedness. Despite these promising findings, nature-based family interventions require more rigorous empirical evaluation. Future research should also address implementation barriers and consider broader family systems. Existing interventions have largely focused on mother-child relationships with limited attention to fathers and other family or caregiving systems (Fuller-Tyszkiewicz et al., 2026). Greater inclusion of diverse caregivers may provide a more comprehensive understanding of how nature-based approaches support family functioning. Overall, nature-based family

approaches offer a promising framework for promoting family relationships, psychological well-being and resilience. However, stronger theoretical frameworks, inclusive family participation, and rigorous intervention studies are needed to establish their effectiveness and long-term benefits.

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