



Determinants of Young Catholics Participation in the Eucharist in the Diocese of Manado: An AHP and Fuzzy-AHP Analysis

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Abstract: Eucharistic participation among Catholic youth is increasingly influenced by complex, multi-dimensional motivations that cannot be accurately captured through conventional qualitative surveys. This study aims to quantify and hierarchically prioritize the fundamental factors motivating young Catholics in the Diocese of Manado to attend the Eucharistic celebration. This research employs a quantitative approach utilizing Operations Research models, specifically integrating the Analytic Hierarchy Process (AHP) and Fuzzy-AHP. Data were collected through purposive sampling from 147 active young Catholics (aged 15–35 years). The integration of Buckley's Fuzzy-AHP method was utilized to mitigate linguistic ambiguity in spiritual perception and to ensure mathematical consistency in pairwise comparisons. The synthesis reveals that the belief in the "Real Presence of Christ" is the strongest empirically identified motivation for Eucharistic participation, surpassing institutional compliance, familial habits, and communal peer influence. These findings provide an evidence-based diagnostic framework for diocesan pastoral planning. Rather than focusing solely on communal social gatherings, youth catechesis programs must strategically pivot towards profound liturgical formation, as theological depth is the most critical factor sustaining long-term youth engagement in the Church.

Keywords: Eucharist; Catholic Youth; Participation; AHP and Fuzzy-AHP; Diocese of Manado.

Introduction

The young Catholics' participation in the Eucharist is increasingly shaped by complex challenges arising from changing patterns of contemporary religiosity, including secularization, digital distractions, shifting forms of religious belonging.¹ In the specific context of the Diocese of Manado, Indonesia, a region with a strong history of communal religious customs, there is a noticeable shift in the spiritual dynamics of young people. Attendance at the Eucharist is now influenced not only by religious obligations or adherence to Church structures, but by a complex interplay of personal spiritual satisfaction, social connections, and family traditions. This empirical reality underscores the need for a thorough, evidence-based examination of the driving forces behind young people's participation in the Eucharist.

Previous studies in pastoral theology and liturgical studies have explored youth participation in the Eucharist, mostly using qualitative perspectives, theological speculations, or descriptive sociological

¹ Pablo Echeverría Esparza, Enrique Carretero Pasín, and Celso Sánchez Capdequi, "The Journey of Youth Religiosity: From Socialisation in Uncertainty to the New Forms of Fulfilment," *Religions* 16, no. 7 (2025), <https://doi.org/10.3390/rel16070880>.

surveys.² While these approaches effectively discuss the doctrinal significance of the Eucharist, such as the concept of Jesus Christ's true presence³, they face a significant limitation: the inability to quantitatively assess and prioritize the key motivating factors.

This gap highlights a crucial multidimensional research deficiency. There is a theoretical disparity between outlined doctrinal priorities and the actual, measurable priorities of young individuals. Methodologically, the utilization of robust mathematical models, particularly Multi-Criteria Decision Making (MCDM), is exceedingly rare in pastoral and liturgical studies. To bridge this void, this study introduces a substantial methodological innovation by integrating Operations Research techniques into pastoral theology. Specifically, the research utilizes the Analytic Hierarchy Process (AHP) and Fuzzy-AHP. AHP facilitates a systematic pairwise comparison to elicit expert opinions (in this case, active Catholic youth), while Fuzzy-AHP is employed to address and mathematically translate the nuanced ambiguity of human spiritual perceptions into precise quantitative values.⁴

Previous research has shown the effectiveness of AHP and Fuzzy-AHP as valuable tools for strategic decision-making in Catholic religious institutions. Ohoitumur et al. conducted a pioneering study on the use of the Analytic Hierarchy Process (AHP) for strategic planning in the Vicariate Episcopal of Tonsea, Diocese of Manado.⁵ In a related study, Ohoitumur et al. investigated the application of strategic management tools within a Catholic religious congregation by combining SWOT analysis with Buckley's Fuzzy Analytic Hierarchy Process to identify strategic priorities for the Missionaries of the Sacred Heart (MSC).⁶ Nonetheless, their utilization has primarily been directed towards institutional and programmatic strategic planning, with limited exploration into discerning the key influencers on young Catholics' engagement in the Eucharistic celebration.

These limitations point to a significant research gap. While the effectiveness of AHP in prioritizing overall pastoral efforts has been proven, there is a lack of insight into how AHP and Fuzzy-AHP can be employed to identify the key determinants that motivate young Catholics to participate in the Eucharistic

² Andrea Casavecchia, Alba Francesca Canta, and Benedetta Turco, "The Active and Critical Participation: A Study on Belonging and Believing Among Young Catholics in Rome," *Religions* 15, no. 11 (2024), <https://doi.org/10.3390/rel15111389>; Doris Žuro, Jadranka Garmaz, and Sanja Stanić, "Exploring Youth Religiosity: Research Among Catholic Confirmands in the Metropolitan Archdiocese of Split-Makarska (Croatia)," *Religions* 15, no. 12 (2024), <https://doi.org/10.3390/rel15121533>; Cecilia Galatolo, "Young People and Faith in Italy: Between Nostalgia for God and the Push towards Secularisation," *Church, Communication and Culture* 10, no. 3 (2025), <https://doi.org/10.1080/23753234.2025.2584653>; Racheal Adebayo, "Church Attendance: Its Influences on the Churchgoing Teenagers of the Redeemed Christian Church of God in the UK," *Journal of Religion and Health*, 2025, <https://doi.org/10.1007/s10943-025-02422-3>; Norberto González Gaitano et al., "An International Survey about Young People, Faith and Religion: Framework of the Research and Overall Results," *Church, Communication and Culture* 10, no. 3 (2025), <https://doi.org/10.1080/23753234.2025.2584662>.

³ Edmund Michael Lazzari, "Is Jesus Physically Present in the Eucharist? Or How Not to Teach Berengarius," *Religions* 16, no. 12 (2025), <https://doi.org/10.3390/rel16121497>.

⁴ Qhairani Frilla F. Safiesza et al., "Using Analytic Hierarchy Process (AHP) and Fuzzy Analytic Hierarchy Process (F-AHP) Methods in Criteria and Alternative Perspectives for Ranking," *IJATIS: Indonesian Journal of Applied Technology and Innovation Science* 1, no. 2 (2024), <https://doi.org/10.57152/ijatiss.v1i2.1137>.

⁵ Johanis Ohoitumur et al., "Analysis of the Pastoral Strategic Planning Priorities of the Vicariate Episcopal of Tonsea of the Diocese of Manado," *International Journal of the Analytic Hierarchy Process* 11, no. 3 (2019), <https://doi.org/10.13033/ijahp.v11i3.674>.

⁶ Johanis Ohoitumur et al., "Strategic Management Study Based on Buckley's Fuzzy-AHP and SWOT: Example of the Congregation of the Missionaries of the Sacred Heart," *International Journal of the Analytic Hierarchy Process* 13, no. 2 (2021), <https://doi.org/10.13033/ijahp.v13i2.871>.

ceremony. This research endeavors to fill this void by broadening the application of AHP and Fuzzy-AHP to the area of youth Eucharistic engagement, thereby enriching evidence-based pastoral planning and cultivating a sacramental ministry centered on youth within the Diocese of Manado.

Literature Review

Conceptual Framework

The present study advances a conceptual framework aimed at identifying and validating the primary factors that motivate the young Catholics' participation in the Eucharistic celebration. The framework is grounded in the assumption that the frequency of Eucharistic participation among young Catholics is influenced not by a single factor, but rather by the interaction of sociological, pastoral, spiritual, and theological elements.⁷ Hence, attendance at the Eucharist is understood as a multifaceted religious ritual that encompasses ingrained customs, affiliation with the Church, active participation in liturgical celebration, spiritual significance, and doctrinal belief.

Based on data obtained from surveys completed by young Catholics in Diocese of Manado, eight criteria were determined to be significant motivational factors for participating in the Eucharistic celebration. Subsequently, these criteria were categorized into three interconnected conceptual dimensions, namely socio-cultural motivation, liturgical-spiritual motivation, and theological-doctrinal motivation.

The first dimension, which is socio-cultural motivation, pertains to external and communal factors that influence the participation of young Catholics in the Eucharist. The sociocultural aspect of motivation is reinforced by the investigation conducted by Žuro, Garmaz, and Stanić on the religiosity of Catholic youth.⁸ Their study illustrates that the religious practices of young individuals are influenced by factors such as religious self-identification, the significance attributed to faith, attendance at Mass, personal prayer, and family prayer.

The second dimension, the liturgical-spiritual motivation, refers to the experiential and formative significance of the Eucharistic celebration. This dimension encompasses the perceived relevance of the Mass in the life of the Church, active participation in liturgical acts, and the experience of solidarity and love. The dimension of liturgical-spiritual motivation is based on the theoretical foundations established by Benini, who highlight liturgical formation as a progressive undertaking that enhances the active involvement, spiritual mindset, comprehension of rituals, and involvement in the ecclesiastical aspects of the liturgy among believers.⁹

The third dimension, theological-doctrinal motivation, pertains to the specifically Catholic doctrinal convictions that form the most profound theological basis for participation in the Eucharist. Montecel's theological explanation of the Eucharist as the central ritual and theological foundation of

⁷ Žuro, Garmaz, and Stanić, "Exploring Youth Religiosity: Research Among Catholic Confirmands in the Metropolitan Archdiocese of Split-Makarska (Croatia)."

⁸ Žuro, Garmaz, and Stanić.

⁹ Marco Benini, "The Emmaus Account as a Paradigm for Liturgical Formation of Families: Principles and Pastoral Applications with Reference to Pope Francis' Desiderio Desideravi," *Religions* 15, no. 1 (2024), <https://doi.org/10.3390/rel15010111>.

ecclesial life provides support for the theological-doctrinal aspect of motivation.¹⁰ This dimension encompasses the comprehension of the Eucharist as the origin and pinnacle of Christian existence, the belief in the actual presence of Christ in the Eucharist, and the acknowledgment of the Eucharist as the sacramental manifestation of Christ's sacrifice.

The conceptual framework of this research therefore positions Eucharistic participation as the outcome of three mutually reinforcing motivational dimensions. Socio-cultural factors create the conditions for participation through family influence, religious formation, and communal belonging. Liturgical-spiritual factors sustain participation by making the Eucharist experientially meaningful and spiritually transformative. Theological-doctrinal factors deepen participation by grounding it in the central beliefs of Catholic Eucharistic theology. Collectively, these dimensions offer a thorough framework for comprehending the motivating factors behind the attendance of young Catholics at Eucharist.

Theoretical Validation

Before implementing the AHP and Fuzzy-AHP weighting procedures, an analysis was conducted to validate the eight criteria. The purpose of this validation was to confirm that the proposed criteria were firmly rooted in the official documents of the church and in Catholic theological, liturgical, and sociological-pastoral literature, and accurately reflected the motivational aspects that influence young Catholics' attendance at the Eucharist.

The validation of habitual and parental influence as a criterion is established theoretically through the concept of religious socialization.¹¹ In this regard, the transmission of religious practice commonly occurs within family constructs, most notably through parents who introduce their children to prayer, worship, moral values, and engagement in religious communities. Under this paradigm, the family plays a pivotal role as the primary setting in which young Catholics are first exposed to the Eucharist, assimilate the tradition of Sunday worship, and cultivate behaviors of religious dedication.¹² This criterion is also validated by the official doctrine of the Catholic Church regarding the family as the paramount milieu for Christian education. The Second Vatican Council characterizes the Christian family as the domestic Church, within which parents, by way of their words and actions, serve as the primary evangelists of faith to their offspring (*Gravissimus Educationis* 3).

The relevance of the Eucharist in ecclesial life is theoretically supported by the Catholic belief in the Eucharist as the source and summit (*fons et culmen*) of Christian life.¹³ *Lumen Gentium* defines the Eucharistic sacrifice as the fount and apex of the whole Christian life (LG 11). Viewed through a liturgical-theological lens, the Eucharist is not merely a religious activity; rather, it is the primary ecclesial event

¹⁰ Xavier M. Montecel, "Eucharist, Synodality, and Ethics: Making Connections," *Religions* 14, no. 11 (2023), <https://doi.org/10.3390/rel14111379>.

¹¹ Maria Klingenberg and Sofia Sjö, "Theorizing Religious Socialization: A Critical Assessment," *Religion*, 2019, <https://doi.org/10.1080/0048721X.2019.1584349>.

¹² Mateusz Marek and Ewa Gurba, "Family Determinants of Religiosity of People in Emerging Adulthood in Poland," *Religions* 15, no. 1 (2024), <https://doi.org/10.3390/rel15010136>.

¹³ Francis Appiah-Kubi, "The Reciprocal Causation of the Eucharist and the Church: A Critical Analysis from Catholic Theological Perspective," *E-Journal of Religious and Theological Studies*, 2020, <https://doi.org/10.38159/erats.2020096>.

through which the Church assembles, listens to the Word of God, gives thanks, and participates in the mystery of Christ.¹⁴ When young Catholics perceive the Mass as meaningful, they acknowledge its ability to address their spiritual needs, offer religious significance, and maintain their ecclesial identity.¹⁵ This criterion is further reinforced by pastoral theology, which stresses that religious engagement is enhanced when individuals find worship to be significant, spiritually enriching, and relevant to their everyday experiences.¹⁶ Thus, the perceived relevance of the Mass serves as a valid criterion as it underscores the link between ecclesial worship and the personal-spiritual development of young Catholics.

The criterion of community and social interaction is validated theoretically by the ecclesiological and sociological understanding of the Eucharist as a communal act. The Second Vatican Council validates this criterion by referring to the teaching of *Lumen Gentium* 3, which affirms that the Church is gathered and continually nourished through the Eucharist as the Sacrament of unity. In the discourse on the Eucharistic ecclesiology, the Eucharist is more than just a personal act of devotion; it is the assembling of the People of God that constitutes the Church as one body.¹⁷ This communal aspect can be particularly significant for young Catholics, as religious engagement is often sustained through friendships, peer support, and a sense of belonging to a vibrant faith community. From a sociological perspective on religion, religious communities offer social connections, common interpretations, and supportive relationships that reinforce religious dedication. The Mass provides a platform for young Catholics to meet fellow believers, establish connections, share their spiritual journey, and receive mutual encouragement.¹⁸

The criterion of active participation in the liturgy is theoretically validated by the Constitution on Sacred Liturgy, *Sacrosanctum Concilium*. This document affirms that the faithful should be led to full, conscious, and active participation in the liturgy, because such participation is demanded by the very nature of the liturgy and is rooted in the baptismal dignity of the people of God (SC 14; 19; 30). This criterion is further supported by contemporary liturgical scholars. The motivation of young Catholics to join and actively engage in the Eucharistic celebration is not solely a matter of personal choice, but rather a reflection of their ecclesial responsibility to participate in the communal worship of the Church.¹⁹ This criterion remains valid as it aligns with the theological principle that the faithful are not mere spectators in the liturgy, but active participants in the worship of the Church and the sacramental commemoration of Christ's paschal mystery.

The theoretical validation of the criterion of solidarity and love can be found in the ethical and communal implications of the Eucharist. Pope Benedict's apostolic exhortation *Sacramentum Caritatis* validates this criterion by affirming the Eucharist as "sacrament of charity", in which Christ's self-gift

¹⁴ Edward Foley, *Synodality through a Eucharistic Lens*, *MST Review*, vol. 25, 2023, <https://www.vatican.va/archive/>.

¹⁵ XV Ordinary General Assembly, *Young People, The Faith and Vocational Discernment. Final Document* (Vatican, October 27, 2018).

¹⁶ Gaitano et al., "An International Survey about Young People, Faith and Religion: Framework of the Research and Overall Results," 2025.

¹⁷ David L. Cann, "The Eucharist as a 'True Ontology' of the Person: A Study of the Eucharistic Ecclesiology of John Zizioulas," *International Journal for the Study of the Christian Church* 21, no. 1 (2021), <https://doi.org/10.1080/1474225X.2021.1931780>.

¹⁸ Foley, *Synodality through a Eucharistic Lens*.

¹⁹ Matthew Dell and Aidan Cottrell-Boyce, "Active Participation in Catholic School-Based Liturgy," *International Studies in Catholic Education* 16, no. 1 (2024), <https://doi.org/10.1080/19422539.2022.2146391>; Casavecchia, Canta, and Turco, "The Active and Critical Participation: A Study on Belonging and Believing Among Young Catholics in Rome."

reveals God's infinite love and forms the faithful to live in communion, charity and service.²⁰ The Eucharist, therefore, fosters a community characterized by charity, mutual responsibility, and solidarity. This criterion is further supported by Catholic social thought and contemporary Eucharistic theology, which underscore the importance that participation in the Eucharist must manifest itself in practical love for others, particularly the less fortunate, the vulnerable, and the suffering.²¹ Consequently, solidarity and love stand as valid criteria as they epitomize the ethical outcome of Eucharistic communion: those who partake of Christ are called to exemplify Christ's love in their interactions and societal engagement.

The criterion asserting the Eucharist as the source and summit of Christian life is formally validated by a fundamental teaching of Catholic ecclesiology and sacramental theology. According to *Lumen Gentium* 11 the Eucharistic sacrifice is the fount and apex of Christian life. In this regard, *Sacrosanctum Concilium* 10 says that liturgy is summit toward which the Church's activity is directed and the font from which her power flows. The works of some contemporary authors support the criterion that the Eucharist is the sacramental center of ecclesial existence, nourishing the faithful, and forming communion.²² For young Catholics, this particular criterion establishes a theological basis for comprehending the imperative nature of Mass attendance for Christian identity. This criterion remains valid as it elucidates the doctrinal centrality of the Eucharist within Catholic life and clarifies why participation in the Eucharist is deemed a core manifestation of Christian existence.

Criterion concerning the real presence of Christ in the Eucharist is validated by official Catholic teaching, especially *the Catechism of the Catholic Church*, *Mysterium Fidei*, *Ecclesia de Eucharistia* and *Sacramentum Caritatis*. These documents affirm that Christ is genuinely, actually, and essentially present in the Eucharist. Belief in the real presence serves as a motivating factor, giving Eucharistic participation a profound spiritual and doctrinal significance.²³ Some studies show that young Catholics who hold the conviction that Christ truly resides in the Eucharist may view their attendance at Mass as a direct encounter with Christ.²⁴ This criterion remains valid as it encompasses a fundamental doctrinal belief that molds Catholic Eucharistic spirituality and provides a theological foundation for the rationale behind attending Mass.

²⁰ Benedict XVI, "Sacramentum Caritatis. Post Synodal Apostolic Exhortation of the Holy Father Benedict XVI to the Bishops, Clergy, Consecrated Persons and the Lay Persons on the Eucharist as the Source and Summit of the Church's Life and Mission," 2006, https://www.vatican.va/content/benedict-xvi/en/apost_exhortations/documents/hf_ben-xvi_exh_20070222_sacramentum-caritatis.html?utm_source=chatgpt.com.

²¹ Daniel G. Groody, "Cup of Suffering, Chalice of Salvation: Refugees, Lampedusa, and the Eucharist," *Theological Studies* 78, no. 4 (2017), <https://doi.org/10.1177/0040563917731745>; Anthony J. Stiff, "Keeping the Feast: The Socializing Dynamics of the Eucharist, 1 Corinthians 11:17-34, and Enabling Boundaries for Individuals with Disabilities#," *Journal of Disability and Religion* 26, no. 3 (2022), <https://doi.org/10.1080/23312521.2021.1981793>.

²² Laura Upenieks, "Occupational Stressors and Flourishing among Roman Catholic Priests: The Eucharist as the 'Source and Summit,'" *Review of Religious Research* 66, no. 4 (2024), <https://doi.org/10.1177/0034673X241255058>; Benini, "The Emmaus Account as a Paradigm for Liturgical Formation of Families: Principles and Pastoral Applications with Reference to Pope Francis' Desiderio Desideravi," 2024; Montecel, "Eucharist, Synodality, and Ethics: Making Connections."

²³ Samuel French, "The Real Presence of Christ in the Eucharist," *Aristos: A Biannual Journal Featuring Excellent Student Works* 1, no. 2 (2015), <https://doi.org/10.32613/aristos/2015.1.2.8>.

²⁴ Lazzari, "Is Jesus Physically Present in the Eucharist? Or How Not to Teach Berengarius"; Edward DeLaquil, "John Henry Newman on the Presence of God in the Eucharist; an Inspiration for Reflecting on the Truth of Dogma1," *Heythrop Journal - Quarterly Review of Philosophy and Theology* 64, no. 3 (2023), <https://doi.org/10.1111/heyj.14203>; French, "The Real Presence of Christ in the Eucharist."

The criterion of the Eucharist as the sacrifice of Christ is theoretically validated by Sacrosanctum Concilium (SC 47) affirming that Christ instituted the Eucharistic sacrifice of His Body and Blood to perpetuate the sacrifice of the cross throughout the centuries. The liturgical document of Pope Francis, *Desiderio Desideravi*, also validates this criterion while identifying the broken bread with the cross of Jesus and his sacrifice of obedience out of love to the Father (*Desiderio Desideravi* 7).²⁵ Criterion of the Eucharist as the sacrifice of Christ is supported by recent theological scholarship on Eucharistic sacrifice.²⁶ Contemporary authors argue that the Eucharist does not simply replicate the sacrifice of Christ, but rather sacramentally presents the one sacrifice of Christ that was made once and for all. Through the Mass, the Church partakes in Christ's self-offering to the Father and receives the benefits of redemption through communion with his body and blood. This criterion holds theological significance as it places Eucharistic participation within the realm of salvation's mystery.

In sum, the conceptual framework and validation of criteria illustrate that the motivation of young Catholics to attend Holy Mass is influenced by a multifaceted interplay of family structure, sense of belonging to a community, involvement in liturgical practices, spiritual encounters, and understanding of Eucharistic teachings. The eight criteria established in this research are deemed theoretically significant, empirically supported, internally consistent, and methodologically suitable for prioritized assessment through the utilization of Analytic Hierarchy Process (AHP) and Fuzzy-AHP.

Methodology

This study employed the Analytic Hierarchy Process (AHP) and Fuzzy Analytic Hierarchy Process (Fuzzy-AHP) to identify and prioritize the factors influencing the Eucharistic experience among Catholic youth. The selection of these methods was based on the complex nature of the research problem, which involves multiple criteria, multiple objectives, and numerous interrelated factors.²⁷ The Eucharistic experience is not a single-dimensional phenomenon but rather a multidimensional construct encompassing spiritual, liturgical, communal, educational, and personal dimensions.²⁸ Consequently, a methodological approach capable of decomposing complexity into manageable components and generating priority rankings was required.

AHP was selected as the primary analytical framework because it is widely recognized as an effective multi-criteria decision-making (MCDM) method for analyzing complex problems involving both qualitative and quantitative considerations. The method allows researchers to structure a problem

²⁵ Thomas Eddy Susanto, trans., *Desiderio Desideravi. Surat Apostolik Paus Fransiskus Tentang Formasio Liturgi Umat Beriman* (Jakarta: Dokpen KWI, 2022).

²⁶ Lazzari, "Is Jesus Physically Present in the Eucharist? Or How Not to Teach Berengarius"; French, "The Real Presence of Christ in the Eucharist."

²⁷ Jozef Richard Raco et al., "Soft Skills of Higher Education in Industry 4.0 Era Using Buckley's Fuzzy-AHP," *International Journal of the Analytic Hierarchy Process* 14, no. 1 (2022), <https://doi.org/10.13033/IJAHF.V14I1.943>.

²⁸ A. Mohamed Nusaf and R. Kumaravel, "Assessment of Polluted Region Using an Integrated Weighting Approach and Fuzzy VIKOR Method," *Journal of Intelligent and Fuzzy Systems* 46, no. 1 (2024), <https://doi.org/10.3233/JIFS-233593>; Elhadj Mokhtari et al., "Integrated Analytic Hierarchy Process and Fuzzy Analytic Hierarchy Process for Sahel Watershed Flood Susceptibility Assessment, Algeria," *Water Practice and Technology* 19, no. 2 (2024), <https://doi.org/10.2166/wpt.2024.012>; Arianit Peci, Blerina Dervishaj, and Adis Puška, "Using Fuzzy Analytic Hierarchy Process and Technique for Order of Preference by Similarity to the Ideal Solution in Performance Evaluation in the Albanian Banking Sector," *Journal of Risk and Financial Management* 18, no. 3 (2025), <https://doi.org/10.3390/jrfm18030116>.

hierarchically, compare factors systematically, and derive priority weights that reflect the relative importance of each criterion. Previous studies have demonstrated that AHP is particularly useful for evaluating subjective perceptions and experiential phenomena because it transforms qualitative judgments into quantitative priorities through a mathematically rigorous procedure. Furthermore, AHP provides a transparent framework that enables researchers to understand how different dimensions contribute to an overall experience.

In addition to AHP, this study employed FAHP as a complementary method. Although AHP is highly effective in structuring and prioritizing factors, human judgments are often characterized by uncertainty, ambiguity, and imprecision. This challenge becomes even more evident when investigating spiritual and experiential phenomena such as Eucharistic participation. FAHP extends the conventional AHP framework by incorporating fuzzy logic into pairwise comparisons, thereby allowing respondents to express preferences using linguistic judgments that better reflect the uncertainty inherent in human decision-making. The comparison between AHP and FAHP results provides an additional robustness check and enables the researchers to evaluate the stability of the priority rankings under conditions of uncertainty.²⁹

The first step of the methodology involved defining the research objective. The study sought to determine the relative importance of factors influencing the Eucharistic experience among Catholic youth and to identify the most significant dimensions contributing to their appreciation and participation in the Eucharist.

The second step consisted of an extensive literature review. Relevant theological, pastoral, psychological, and youth ministry literature was examined to identify the criteria and sub-criteria associated with the Eucharistic experience. The identified factors were subsequently organized into a hierarchical structure consisting of the overall goal, criteria, and sub-criteria. Hierarchical decomposition is a fundamental feature of AHP because it enables complex phenomena to be broken down into smaller and more manageable components. Through this process, the complexity of Eucharistic experience could be systematically analyzed and understood.³⁰

The third step involved constructing a pairwise comparison questionnaire. Following Saaty's fundamental scale, respondents were asked to compare two factors at a time and indicate which factor was

²⁹ Mohamed Nusaf and Kumaravel, "Assessment of Polluted Region Using an Integrated Weighting Approach and Fuzzy VIKOR Method"; Mokhtari et al., "Integrated Analytic Hierarchy Process and Fuzzy Analytic Hierarchy Process for Sahel Watershed Flood Susceptibility Assessment, Algeria"; Rakesh Kumar Sarmah and Santanu Sarma, "Delineation of Potential Groundwater Zones Using GIS-Based Fuzzy AHP Technique for Urban Expansion in the Southwestern Fringe of Guwahati City, India," *Nature Environment and Pollution Technology* 24, no. 2 (2025), <https://doi.org/10.46488/NEPT.2025.v24i02.B4233>; Monzer Alharairi et al., "Fuzzy Analytic Hierarchy Process: A Comprehensive Literature Review," *International Journal of the Analytic Hierarchy Process* 17, no. 3 (2025), <https://doi.org/10.13033/ijahp.v17i3.1311>.

³⁰ Mohamed Nusaf and Kumaravel, "Assessment of Polluted Region Using an Integrated Weighting Approach and Fuzzy VIKOR Method"; Mokhtari et al., "Integrated Analytic Hierarchy Process and Fuzzy Analytic Hierarchy Process for Sahel Watershed Flood Susceptibility Assessment, Algeria"; Fahad M. Alqahtani and Mohammed A. Noman, "An Integrated Fuzzy Delphi and Fuzzy AHP Model for Evaluating Factors Affecting Human Errors in Manual Assembly Processes," *Systems* 12, no. 11 (2024), <https://doi.org/10.3390/systems12110479>; Fatemeh Mokhtariyan Sorkhan et al., "The Impact of Indoor Environmental Quality on Occupant Satisfaction in Commercial Buildings: A Comparison of Building Expert Opinions and Residents' Experiences," *Energies* 17, no. 6 (2024), <https://doi.org/10.3390/en17061473>; Sarmah and Sarma, "Delineation of Potential Groundwater Zones Using GIS-Based Fuzzy AHP Technique for Urban Expansion in the Southwestern Fringe of Guwahati City, India."

more important and to what extent. The pairwise comparison format was selected because it simplifies the decision-making process for respondents. Rather than evaluating numerous factors simultaneously, respondents only needed to compare two factors in each question. This approach reduces cognitive burden and improves the quality of judgments. The use of Saaty's scale also ensures compatibility with established AHP procedures and facilitates the calculation of priority weights (2).

The fourth step concerned respondent selection. Conventional AHP studies frequently rely on a relatively small number of experts, often ranging from five to fifteen individuals. Such studies typically focus on technical or professional expertise in specialized fields. However, the present study differs conceptually from traditional expert-based AHP applications. The objective of this research was to understand the Eucharistic experience among Catholic youth. Therefore, expertise was defined not in terms of academic qualifications or professional specialization but in terms of direct experience and active participation in the phenomenon under investigation.

A total of 147 active Catholic youth participated in this study. All respondents were actively involved in Church activities and regularly attended Eucharistic celebrations. Consequently, they possessed substantial experiential knowledge regarding Eucharistic participation, including its meanings, motivations, challenges, and personal significance. In this context, respondents were considered experiential experts rather than technical experts. This approach is consistent with Patton's concept of information-rich cases, which emphasizes selecting participants who possess relevant lived experience concerning the phenomenon being studied.³¹

The use of 147 respondents offers several methodological advantages. First, it enhances the representation of diverse youth perspectives and captures a broader range of Eucharistic experiences. Second, aggregating judgments from a larger number of experiential experts increases the stability and robustness of the resulting priority weights. Third, because the study aims to understand collective perceptions within the Catholic youth community rather than elite expert opinions, a larger sample provides a more accurate representation of the target population. Contemporary AHP and FAHP studies increasingly recognize the legitimacy of stakeholders, community members, users, and participants with direct experiential knowledge as valid sources of expert judgment.

The fifth step involved data analysis. Individual pairwise comparison judgments were aggregated using the geometric mean method. The aggregated matrix was then used to calculate priority weights, maximum eigenvalues, the Consistency Index (CI), and the Consistency Ratio (CR). Consistency assessment constitutes a crucial component of the AHP methodology because human judgments are inherently subjective and therefore susceptible to inconsistency. The CR evaluates the logical coherence of respondents' pairwise comparisons and determines whether the resulting priority structure can be

³¹ Mokhtari et al., "Integrated Analytic Hierarchy Process and Fuzzy Analytic Hierarchy Process for Sahel Watershed Flood Susceptibility Assessment, Algeria"; Alharairi et al., "Fuzzy Analytic Hierarchy Process: A Comprehensive Literature Review"; Alqahtani and Noman, "An Integrated Fuzzy Delphi and Fuzzy AHP Model for Evaluating Factors Affecting Human Errors in Manual Assembly Processes."

considered reliable for decision-making purposes. Following Saaty's recommendation, judgments were considered acceptable when the CR value did not exceed 0.10.³²

It is important to emphasize that AHP does not employ validity and reliability tests in the conventional psychometric sense. Validity and reliability originate from measurement theory and are commonly used to evaluate research instruments such as Likert-scale questionnaires. Validity assesses whether an instrument accurately measures the intended construct, whereas reliability evaluates the consistency of measurements across repeated applications. In contrast, AHP does not measure latent constructs through rating scales. Instead, it relies on pairwise judgments regarding the relative importance of factors. Consequently, the principal concern in AHP is not validity or reliability but logical consistency. The Consistency Ratio serves as the methodological mechanism for evaluating the coherence of judgments and ensuring that the derived priorities are not based on contradictory evaluations.³³

The sixth step involved comparing the results generated by AHP and FAHP. This comparison was conducted to determine whether the introduction of fuzzy logic substantially altered the priority rankings. Consistent findings across both methods would strengthen confidence in the results, whereas significant differences would indicate the presence of uncertainty requiring further interpretation. Such cross-method validation contributes to the methodological rigor of the study.

The final step consisted of sensitivity analysis. Sensitivity analysis, often referred to as a "what-if analysis," examines the extent to which changes in criterion weights influence the final ranking of factors. This procedure is essential because decision-making outcomes may be affected by variations in judgment or weighting assumptions. By systematically varying the weights of criteria, researchers can evaluate the robustness and stability of the results. If the rankings remain unchanged despite modifications in criterion weights, the findings can be considered highly robust. Conversely, substantial ranking changes would indicate sensitivity to specific assumptions. Therefore, sensitivity analysis provides an additional layer of validation and strengthens confidence in the final conclusions regarding the factors that most significantly influence the Eucharistic experience among Catholic youth.³⁴

Overall, the integration of AHP, FAHP, consistency testing, and sensitivity analysis provides a comprehensive methodological framework capable of addressing complexity, uncertainty, and robustness simultaneously. This combination ensures that the resulting priorities are not only logically consistent but also stable and reliable representations of the experiential realities of Catholic youth participating in the Eucharist.

³² Peci, Dervishaj, and Puška, "Using Fuzzy Analytic Hierarchy Process and Technique for Order of Preference by Similarity to the Ideal Solution in Performance Evaluation in the Albanian Banking Sector"; Alharairi et al., "Fuzzy Analytic Hierarchy Process: A Comprehensive Literature Review"; Sarmah and Sarma, "Delineation of Potential Groundwater Zones Using GIS-Based Fuzzy AHP Technique for Urban Expansion in the Southwestern Fringe of Guwahati City, India."

³³ Peci, Dervishaj, and Puška, "Using Fuzzy Analytic Hierarchy Process and Technique for Order of Preference by Similarity to the Ideal Solution in Performance Evaluation in the Albanian Banking Sector"; Sarmah and Sarma, "Delineation of Potential Groundwater Zones Using GIS-Based Fuzzy AHP Technique for Urban Expansion in the Southwestern Fringe of Guwahati City, India."

³⁴ Mohamed Nusaf and Kumaravel, "Assessment of Polluted Region Using an Integrated Weighting Approach and Fuzzy VIKOR Method"; T. Varshney et al., "Fuzzy Analytic Hierarchy Process Based Generation Management for Interconnected Power System," *Scientific Reports* 14, no. 1 (2024), <https://doi.org/10.1038/s41598-024-61524-2>.

Results

The primary aim of this research is to identify the key factors that motivate young Catholics to engage in the observance of the Eucharist, employing the AHP and Fuzzy-AHP methods. The participants in this study were 147 young Catholics from the Diocese of Manado, who were involved in various religious activities. Based on the findings from the literature review, the researcher developed a set of eight primary criteria and 24 sub-criteria.

Weighting of Criteria and Sub-criteria in Using AHP and Fuzzy-AHP

The weighting of criteria and sub-criteria in the AHP and fuzzy-AHP methods was calculated using equations 1A – 7A in appendix. The Weight of the criteria is presented in the table 1.

Table 1. AHP and F-AHP criteria weight calculation results

Criterion	Weight	
	AHP	FAHP
A. Attending Mass (Eucharist) has been a habit for a long time	0.028	0.028
B. Mass is a Church service that benefits me	0.074	0.073
C. In Mass, we meet and interact with others	0.038	0.039
D. In the Mass, everyone is actively involved and not just watching the show	0.048	0.048
E. The Eucharist has aspects of solidarity and love	0.089	0.086
F. The Eucharist is the source and peak of Christian life	0.203	0.202
G. Christ is truly present in the Eucharist	0.284	0.288
H. Eucharist is a sacrifice	0.235	0.236

The table above shows that criterion G, which is that young Catholics are very confident that Christ is truly present in the Eucharist, received the highest point for AHP and Fuzzy-AHP. The results are also shown in Figure 1,

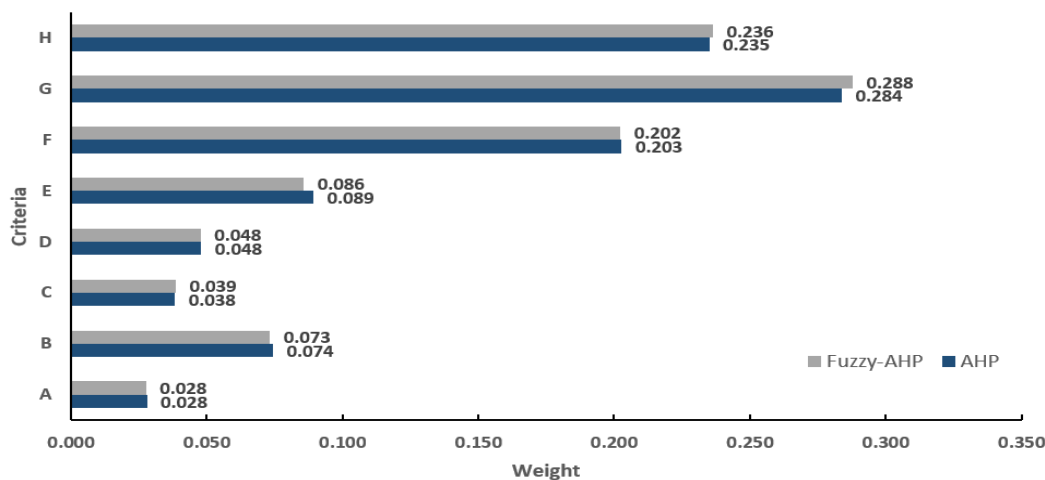


Figure 1. Results of AHP and F-AHP criteria weight calculations

Tables 2--10 present the results of data analysis for sub-criteria.

Table 2. Weight of Sub-criterion A

Criterion	Weight	
	AHP	FAHP
A1. Attending Mass is a regular Sunday habit	0.115	0.118
A2. Attending Mass is mandatory for parents	0.154	0.157
A3. I was interested in attending Mass seriously	0.731	0.725

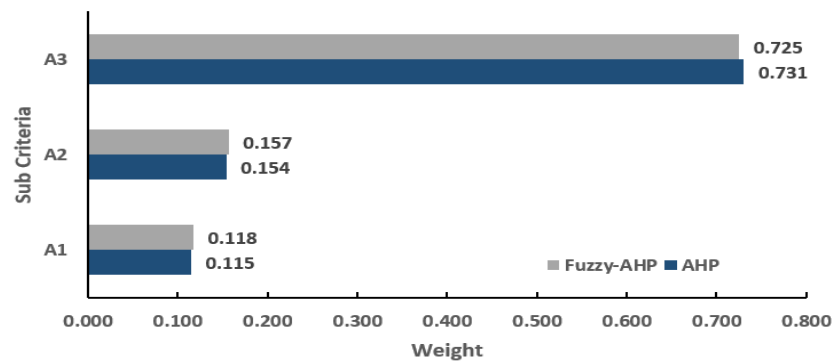


Figure 2. Weight of Sub-criterion A

Table 3. The Weight of Sub-criterion B

Criterion	Weight	
	AHP	FAHP
B1. Mass is the Church's service to the faithful	0.340	0.340
B2. Satisfying my spiritual desires	0.537	0.536
B3. The sermons and songs are interesting	0.123	0.124

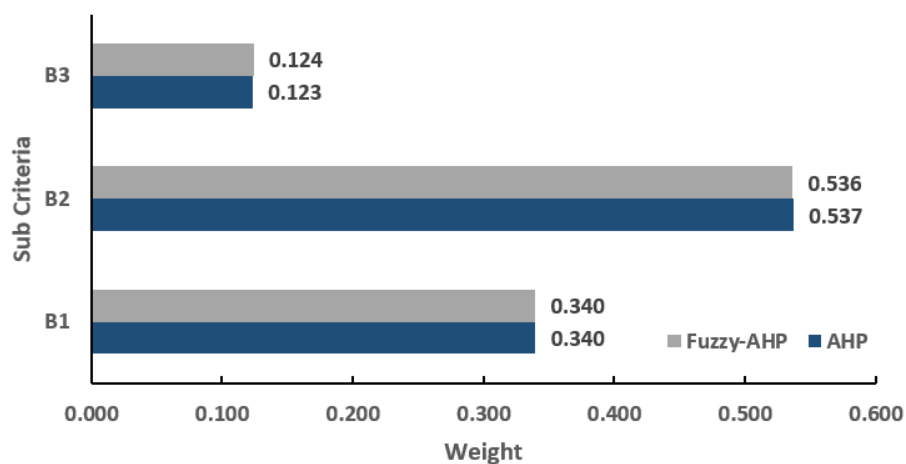


Figure 3. Weight of Sub-criterion B

Table 4. Weight of Sub-criterion C

Criterion	Weight	
	AHP	FAHP
C1. Meet up with friends and acquaintances	0.127	0.130
C2. Be actively involved in singing and praying	0.437	0.435
C3. Developing social brotherhood, especially in difficult times	0.436	0.435

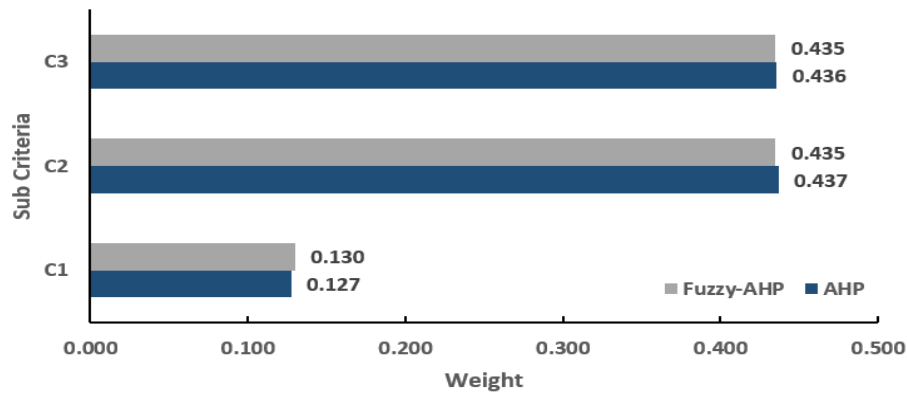


Figure 4. Weight of Sub-criterion C

Table 5. Weight of Sub-criterion D

Criterion	Weight	
	AHP	FAHP
D1. The people are involved with sound and movement	0.298	0.297
D2. Mass has rules and guidelines	0.423	0.425
D3. I feel part of all the worshippers	0.280	0.279

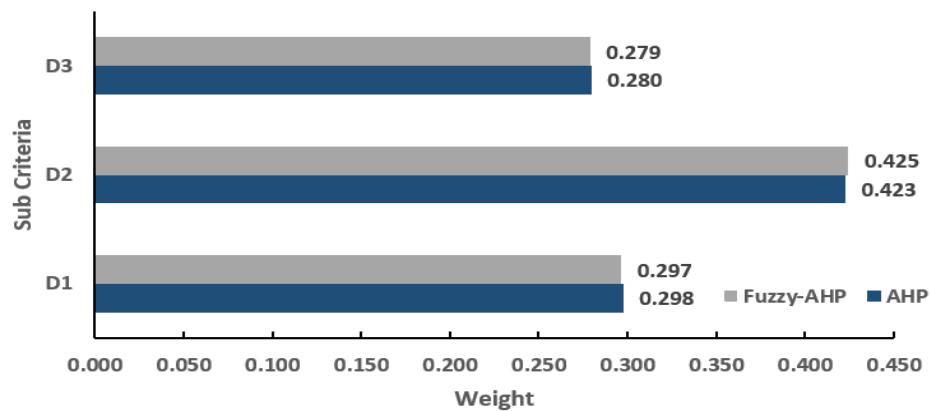


Figure 5. Weight of Sub-criterion D

Table 6. Weight of Sub-criterion E

Criterion	Weight	
	AHP	FAHP
E1: The Eucharist encourages me to be a good person	0.353	0.353
E2: I feel like I am a brother to others regardless of social status and position	0.258	0.259
E3: All people receive the same body of Christ	0.389	0.388

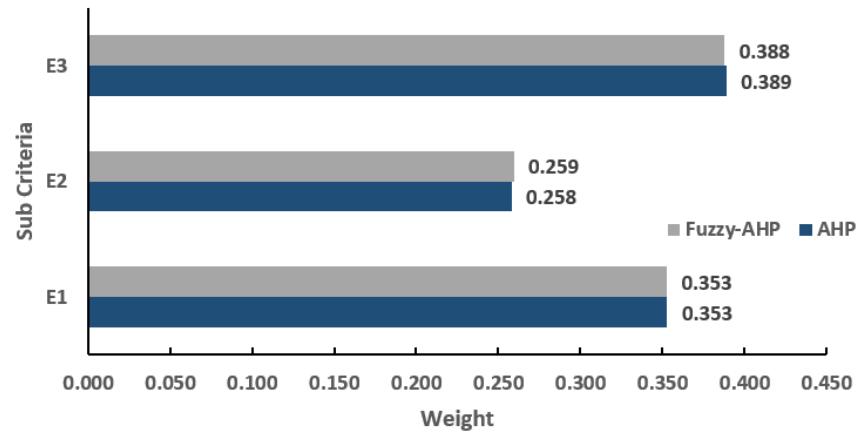


Figure 6. Weight of Sub-criterion E

Table 7. Weight of Sub-criterion F

Criterion	Weight	
	AHP	FAHP
F1: I have a personal encounter with Christ	0.323	0.324
F2: Through the Eucharist, I gain spiritual strength that motivates me in daily life	0.493	0.490
F3: The priest who presides over the Mass represents Christ Himself	0.184	0.186

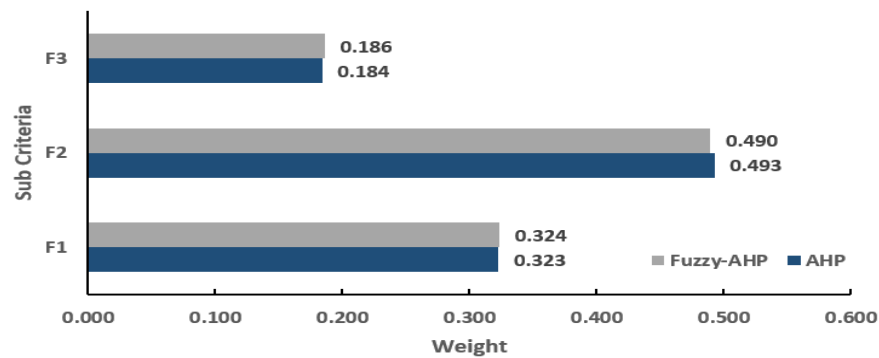


Figure 7. Weight of Sub-criterion F

Table 8. Weight of Sub-criterion G

Criterion	Weight	
	AHP	FAHP
G1: In the form of bread and wine as His Body and Blood	0.647	0.647
G2: In the form of a people gathered together in His name	0.190	0.190
G3: Through Scripture Reading	0.163	0.163

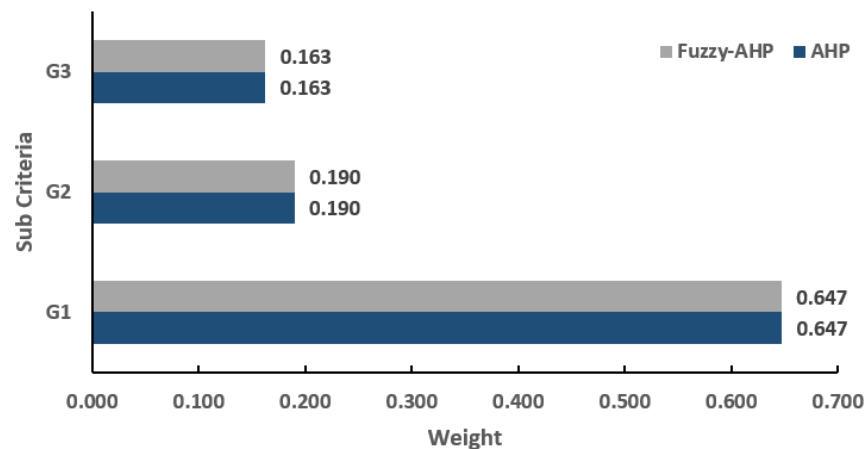


Figure 8. Weight of Sub-criterion G

Table 9. Weight of Sub-criterion H

Criterion	Weight	
	AHP	FAHP
H1: In the Eucharist, we celebrate the sacrifice of Christ on the cross	0.281	0.281
H2: We take part in Christ's sacrifice through service to others	0.300	0.300
H3: The Eucharist unites our sacrifice with the sacrifice of Jesus on the cross	0.419	0.419

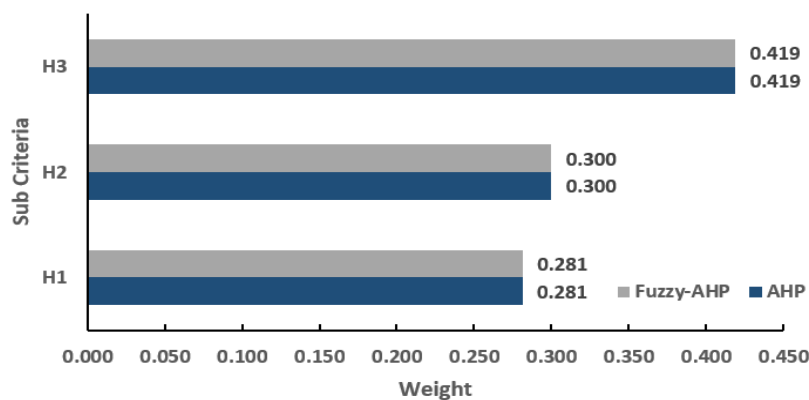


Figure 9. Weight of Sub-criterion H

Table 10. Weight, index consistency and ratio consistency for each sub-criterion

	Criteria	Sub Criteria	Weight	λ_{max}	CI	CR
A	Attending Mass (Eucharist) has been a habit for a long time	A.1.Attending Mass is a regular Sunday habit	0.115	3..001	0.001	0.001
		A.2.Attending Mass is mandatory for parents	0.154			
		A.3 I was interested in attending Mass seriously	0.731			
B	Mass is a Church service that benefits me	B1. Mass is the Church's service to the faithful	0.340	3.044	0.022	0.038
		B2. Satisfying my spiritual desires	0.537			
		B.3. The sermons and songs are interesting	0.123			
C	In Mass, we meet and interact with others	C1. Meet up with friends and acquaintances	0.127	3.002	0.001	0.001
		C2. Be actively involved in singing and praying	0.437			
		C3. Developing social brotherhood, especially in difficult times	0.436			
D	In the Mass, everyone is actively involved and not just watching the show	D1. The people are involved with sound and movement	0.298	3.092	0.046	0.079
		D2. Mass has rules and guidelines	0.423			
		D3. I feel part of all the worshippers	0.280			
E	The Eucharist has aspects of solidarity and love	E1. The Eucharist encourages me to be a good person	0.353	3.006	0.003	0.005
		E2. I feel like I am a brother to others regardless of social status and position	0.258			
		E3. All people receive the same body of Christ	0.389			
F	The Eucharist is the source and peak of Christian life	F1. I have a personal encounter with Christ	0.323	3..001	0.001	0.001
		F2. Through the Eucharist, I gain spiritual strength that motivates me in daily life	0.493			
		F3. The priest who presides over the Mass represents Christ Himself	0.184			
G	Christ is truly present in the Eucharist	G1. In the form of bread and wine as His Body and Blood	0.647	3.050	0.025	0.043
		G2. In the form of a people gathered together in His name	0.190			
		G3. Through Scripture Reading	0.163			

H	Eucharist is a sacrifice	H1. In the Eucharist, we celebrate the sacrifice of Christ on the cross	0.281	3.044	0.022	0.038
		H2. We take part in Christ's sacrifice through service to others	0.300			
		H3. The Eucharist unites our sacrifice with the sacrifice of Jesus on the cross	0.419			

The consistency value of the ratio of the sub-criterion $< 10\%$, this means that the response from experiential experts is consistent, so that the weight value of the sub-criteria produced is valid.

Table 11. Global Weight

Criteria / Sub Criteria		Local Weight		Global Weight	
		AHP	FAHP	AHP	FAHP
Attending Mass (Eucharist) has been a habit for a long time	A			0.028	0.028
Mass is a Church service that benefits me	B			0.074	0.073
In Mass, we meet and interact with others	C			0.038	0.039
In the Mass, everyone is actively involved and not just watching the show	D			0.048	0.048
The Eucharist has aspects of solidarity and love	E			0.089	0.086
The Eucharist is the source and peak of the Christian life	F			0.203	0.202
Christ is truly present in the Eucharist	G			0.284	0.288
The Eucharist is a sacrifice	H			0.235	0.236
			SUM	1.000	1.000
Attending Mass is a regular Sunday habit	A1	0.115	0.118	0.003	0.003
Attending Mass is mandatory for parents	A2	0.154	0.157	0.004	0.004
I was interested in attending Mass seriously	A3	0.731	0.725	0.020	0.020
	SUM	1.000	1.000	0.027	0.027
Mass is the Church's service to the faithful	B1	0.340	0.340	0.025	0.025
Satisfying my spiritual desires	B2	0.537	0.536	0.040	0.039
The sermons and songs are interesting	B3	0.123	0.124	0.009	0.009
	SUM	1.000	1.000	0.074	0.073
Meet up with friends and acquaintances	C1	0.127	0.130	0.005	0.005
Be actively involved in singing and praying	C2	0.437	0.435	0.017	0.017
Developing social brotherhood, especially in difficult times	C3	0.436	0.435	0.017	0.017
	SUM	1.000	1.000	0.038	0.039
The people are involved with sound and movement	D1	0.298	0.297	0.014	0.014
Mass has rules and guidelines	D2	0.423	0.425	0.020	0.020
I feel part of all the worshippers	D3	0.280	0.279	0.013	0.013
	SUM	1.000	1.000	0.048	0.048
The Eucharist encourages me to be a good person	E1	0.353	0.353	0.032	0.030

I feel like I am a brother to others regardless of social status and position	E2	0.258	0.259	0.023	0.022
All people receive the same body of Christ	E3	0.389	0.388	0.035	0.033
	SUM	1.000	1.000	0.089	0.086
I had a personal encounter with Christ	F1	0.323	0.324	0.066	0.066
Through the Eucharist, I gain spiritual strength that motivates me in daily life	F2	0.493	0.490	0.100	0.099
The priest who presides over the Mass represents Christ Himself	F3	0.184	0.186	0.037	0.038
	SUM	1.000	1.000	0.203	0.202
In the form of bread and wine as His Body and Blood	G1	0.647	0.647	0.184	0.186
In the form of a people gathered in His name	G2	0.190	0.190	0.054	0.055
Through Scripture Reading	G3	0.163	0.163	0.046	0.047
	SUM	1.000	1.000	0.284	0.288
In the Eucharist, we celebrate the sacrifice of Christ on the cross	H1	0.281	0.281	0.066	0.067
We take part in Christ's sacrifice through service to others	H2	0.300	0.300	0.070	0.071
The Eucharist unites our sacrifice with the sacrifice of Jesus on the cross	H3	0.419	0.419	0.098	0.099
	SUM	1.000	1.000	0.235	0.236

The outcomes of the global calculation results are acquired in the sequence of criteria, commencing with those that are displaced in the following order:

- Criterion G holds that Christ is present in the Eucharist with a weight of 28.4% (AHP) and 28.8% (FAHP).
- Criterion H states that the Eucharist is a sacrifice with a weight of 23.5% (AHP) and 23.6% (FAHP).
- Criterion F affirms that the Eucharist is the source and peak of the Christian life, weighing 20.3% (AHP) and 20.2% (FAHP).
- Criterion E posits that the Eucharist encompasses aspects of solidarity and charity, with a weight of 8.9% (AHP) and 8.3% (FAHP).
- Criterion B: Mass is a Church service that benefits me with a weight of 7.4% (AHP) and 7.3% (FAHP).
- Criterion D: In the Mass, everyone is actively involved, not just watching the show, weighing 4.8% (AHP) and 4.8% (FAHP).
- Criterion C: In Mass, we meet and interact with others at a weight of 3.8% (AHP) and 3.9% (FAHP).
- Criterion A: Attending Mass (Eucharist) has been a habit for a long time, with a weight of 2.8% (AHP) and 2.8% (FAHP).

The most significant global Weight of the sub-criteria is Sub-criterion G1, which is bread and wine, such as His Body and Blood, weighing 18.4% (AHP) and 18.6% (FAHP).

Sensitivity Analysis

Sensitivity analysis was carried out to validate the stability of the priority of the resulting decision, considering that AHP is a method based on subjective expert assessment. As emphasized by Saaty³⁵, validation through sensitivity analysis is an integral step in AHP to test the extent to which decision results can be maintained in the midst of fluctuations in the weight of criteria.

This study applied the *One-at-a-Time* (OAT) method as part of *Local Sensitivity Analysis*. The OAT method was chosen because of its parsimony principle that allows the isolation of the impact of a single parameter change on the output of the system without creating unnecessary variable interaction complexity.³⁶ This procedure is crucial to ensure that the decision model built has a high level of *robustness* to minor fluctuations in respondents' assumptions.³⁷

The simulation was carried out by systematically perturbing the weight of Criterion G (*Christ is truly present in the Eucharist*) as the criterion with the highest global weight in the basic model. The simulation was carried out through four scenarios: a reduction in the weight of Criterion G by 10% and 20%, and an increase in weight by 10% and 20%. In the calculation, the local weights of the sub-criteria are maintained as constants, while the global weight adjustment is carried out proportionally to ensure the integrity of the total weights (sum = 1,000). This decomposition approach follows the axiom of the axiom of the AHP hierarchy synthesis, in which changes at the level of the main criteria are systematically transmitted to the sub-criterion level to maintain systemic consistency. The results of the simulation are listed in the table 12.

Table 12. Simulation Results of the One-at-a-Time (OAT) Sensitivity Analysis on Criteria and Sub-criteria

Kriteria/ Sub Kriteria		Weight				
		Original (Base)	Simulation 1 (G - 20%)	Simulation 2 (G - 10%)	Simulation 3 (G + 10%)	Simulation 4 (G + 20%)
Attending Mass (Eucharist) has been a habit for a long time	A	0.028	0.030	0.029	0.027	0.026
Mass is a Church service that benefits me	B	0.074	0.080	0.077	0.072	0.069
In Mass, we meet and interact with others	C	0.038	0.041	0.040	0.037	0.035
In the Mass, everyone is actively involved and not just watching the show	D	0.048	0.052	0.050	0.046	0.044
The Eucharist has aspects of solidarity and love	E	0.089	0.096	0.093	0.086	0.082

³⁵ T. L. Saaty, "Decision Making with the Analytic Hierarchy Process," *Scientia Iranica* 9, no. 3 (2002), <https://doi.org/10.1504/ijssci.2008.017590>.

³⁶ D. M. Hamby, "A Review of Techniques for Parameter Sensitivity Analysis of Environmental Models," *Environmental Monitoring and Assessment* 32, no. 2 (1994), <https://doi.org/10.1007/BF00547132>.

³⁷ Andrea Saltelli et al., *Global Sensitivity Analysis. The Primer*, Global Sensitivity Analysis. The Primer, 2008, <https://doi.org/10.1002/9780470725184>.

The Eucharist is the source and peak of the Christian life	F	0.203	0.219	0.211	0.195	0.187
Christ is truly present in the Eucharist	G	0.284	0.227	0.255	0.312	0.341
The Eucharist is a sacrifice	H	0.235	0.254	0.244	0.226	0.216
Sum		1.000	1.000	1.000	1.000	1.000
Attending Mass is a regular Sunday habit	A1	0.003	0.003	0.003	0.003	0.003
Attending Mass is mandatory for parents	A2	0.004	0.005	0.004	0.004	0.004
I was interested in attending Mass seriously	A3	0.020	0.022	0.021	0.020	0.019
Mass is the Church's service to the faithful	B1	0.025	0.027	0.026	0.024	0.023
Satisfying my spiritual desires	B2	0.040	0.043	0.042	0.038	0.037
The sermons and songs are interesting	B3	0.009	0.010	0.010	0.009	0.008
Meet up with friends and acquaintances	C1	0.005	0.005	0.005	0.005	0.005
Be actively involved in singing and praying	C2	0.017	0.018	0.017	0.016	0.015
Developing social brotherhood, especially in difficult times	C3	0.017	0.018	0.017	0.016	0.015
The people are involved with sound and movement	D1	0.014	0.015	0.015	0.014	0.013
Mass has rules and guidelines	D2	0.020	0.022	0.021	0.020	0.019
I feel part of all the worshippers	D3	0.013	0.015	0.014	0.013	0.012
The Eucharist encourages me to be a good person	E1	0.032	0.034	0.033	0.030	0.029
I feel like I am a brother to others regardless of social status and position	E2	0.023	0.025	0.024	0.022	0.021
All people receive the same body of Christ	E3	0.035	0.037	0.036	0.033	0.032
I had a personal encounter with Christ	F1	0.066	0.071	0.068	0.063	0.060
Through the Eucharist, I gain spiritual strength that motivates me in daily life	F2	0.100	0.108	0.104	0.096	0.092
The priest who presides over the Mass represents Christ Himself	F3	0.037	0.040	0.039	0.036	0.034

In the form of bread and wine as His Body and Blood	G1	0.184	0.147	0.165	0.202	0.221
In the form of a people gathered in His name	G2	0.054	0.043	0.049	0.059	0.065
Through Scripture Reading	G3	0.046	0.037	0.042	0.051	0.055
In the Eucharist, we celebrate the sacrifice of Christ on the cross	H1	0.066	0.071	0.069	0.063	0.061
We take part in Christ's sacrifice through service to others	H2	0.070	0.076	0.073	0.068	0.065
The Eucharist unites our sacrifice with the sacrifice of Jesus on the cross	H3	0.098	0.106	0.102	0.095	0.091
Sum		1.000	1.000	1.000	1.000	1.000

Based on the simulation results in table 12, the model shows generally good stability. However, the observation of the scenario of a 20% weight reduction in Criterion G shows the phenomenon of *rank reversal*, where Criterion H (*The Eucharist is a sacrifice*) shifts to become the dominant factor. This phenomenon is not an indicator of model failure, but rather an identification of a "critical point" of system stability. As explained by Triantaphyllou,³⁸ *rank reversal* in the MCDM model often occurs when there is a change in the input data, which in this study confirms that the model has a high sensitivity to Criterion G.

The shift in priority from Criterion G (Christ is truly present in the Eucharist) to Criterion H (The Eucharist is a sacrifice) at this critical point represents the dynamics of the faith of the people who support each other theologically. When the people's awareness or focus on the contemplative dimension of Christ's presence declines (represented by a 20% reduction in weight), their understanding of the Eucharist as a participatory act of sacrifice immediately takes over as the center of spiritual orientation. This proves that the faith of the people is not linear and rigid, but has a resilience mechanism in which aspects of adoration and action fill each other's gaps.

These findings give a profound meaning that the resulting priority structure is not artificial. The stability of the system in other scenarios shows that the evaluation model is *robust*, where the dominance of Eucharistic spirituality is a fundamental core finding. The phenomenon of *rank reversal* that occurs only in extreme scenarios indicates that respondents' perception of the value of the Eucharist has a well-established foundation. The resilience of this model is also strongly reflected at the sub-criterion level, where the G1 (*In the form of bread and wine as His Body and Blood*) *sub-criterion* consistently retains its significance as a key pillar, despite its parent criteria being perturbed. The pastoral significance of this sub-criterion stability is that the central dogma regarding the bread and wine as the Body and Blood of Christ has been deeply internalized in the consciousness of the people. Fluctuations in perception only shift at the macro conceptual level between presence and sacrifice, while the foundations of the basic beliefs of the ummah are not at all shaky. Thus, the priority obtained is not the result of arbitrary judgment, but rather

³⁸ Evangelos Triantaphyllou and Alfonso Sánchez, "A Sensitivity Analysis Approach for Some Deterministic Multi-Criteria Decision-Making Methods," *Decision Sciences* 28, no. 1 (1997), <https://doi.org/10.1111/j.1540-5915.1997.tb01306.x>.

reflects a stable systemic preference. This ultimately provides a factual basis for the Church to design an integrative approach to catechesis, in which pastoral ministry must continue to balance the teaching of worshipping the real presence of Christ while living the spirit of His sacrifice in daily life.

Discussions

The primary findings of the research indicate that the participation of young Catholics in the Eucharist in the Diocese of Manado is primarily shaped by theological-doctrinal motivation rather than purely socio-cultural or institutional elements. The research conducted utilizing both Analytic Hierarchy Process (AHP) and Fuzzy Analytic Hierarchy Process (Fuzzy-AHP) methodologies consistently demonstrate that the belief in the real presence of Christ in the Eucharist is accorded the highest priority, with the beliefs in the sacrificial character of the Eucharist and its significance as the central aspect of Christian life following closely behind. The current results align with prior studies which demonstrated a robust correlation between belief in the Eucharist and attendance at Eucharist. Recent surveys conducted by CARA/McGrath Institute³⁹, Vinea Research⁴⁰, and the Pew Research Center in 2025⁴¹ have revealed that Catholics who attend Eucharist regularly tend to have a higher likelihood of affirming the Real Presence and recognizing the Eucharist as a core value of Catholic identity. According to González Gaitano et al.'s international survey of 4,889 individuals aged 18-29 from eight nations, faith and religion remain influential in shaping the identity, conduct, and ethical beliefs of young people.⁴² Particularly, within the Catholic sample, a substantial proportion accepted Catholic sacramental teachings, with 82% affirming the real presence of Jesus in the Holy Eucharist/Blessed Sacrament.

The prevalence of belief in Christ's real presence can also be interpreted through Briola's perspective on the Eucharistic presence as Christ's invitation to communion.⁴³ According to Briola, the real presence of Christ in the Eucharist instills behaviors of mindfulness and authentic relational presence, challenging the superficiality of attention and relationships in today's digital culture. Similarly, the research conducted by Žuro, Garmaz, and Stanić among Catholic confirmands in Croatia reveals that a heightened religious self-identification correlates with greater participation in religious activities, such as attending Mass regularly.⁴⁴ These discoveries reinforce the notion that the attendance of young Catholics in the

³⁹ "Do Catholics Truly Believe in the Real Presence? An Exploration of the Critical Importance of Word Choice when Asking Questions about the Catholic Faith," Vinea Research, June 2024, <https://static1.squarespace.com/static/615672c8fcfe145084a316ad/t/66606857642af1721bc8bbb4/1717594203679/Catholic+Belief+in+the+Real+Presence+v1.pdf>.

⁴⁰ *Ibid.*

⁴¹ Patricia Tevington and Gregory A. Smith, "47% of U.S. Adults Have a Personal or Family Connection to Catholicism a Closer Look at Catholic Life in the U.S.," *Pew Research Center*, June, 2025, www.pewresearch.org.

⁴² Norberto González Gaitano et al., "An International Survey about Young People, Faith and Religion: Framework of the Research and Overall Results," *Church, Communication and Culture* 10, no. 3 (2025), <https://doi.org/10.1080/23753234.2025.2584662>.

⁴³ Lucas Briola, "Real Presence Amid the Shallows: Eucharist and Friendship in a Digital Age," *Horizons* 50, no. 2 (2023), <https://doi.org/10.1017/hor.2023.40>.

⁴⁴ Doris Žuro, Jadranka Garmaz, and Sanja Stanić, "Exploring Youth Religiosity: Research Among Catholic Confirmands in the Metropolitan Archdiocese of Split-Makarska (Croatia)," *Religions* 15, no. 12 (2024), <https://doi.org/10.3390/rel15121533>; Pam Nilan and Gregorius Ragil Wibowanto, "Challenging Islamist Populism in Indonesia through Catholic Youth Activism," *Religions* 12, no. 6 (2021), <https://doi.org/10.3390/rel12060395>.

Eucharist should not be solely attributed to socio-cultural customs or institutional duties. Instead, it is intricately connected to a theological and doctrinal perspective wherein the Eucharist is viewed as a significant experience of the real presence of Christ.

A notable finding is that various previous studies present a significant contrast to the current research. Baigent's study on the lived Catholicism of Mass-going teenagers in the United Kingdom demonstrates that the participation of young individuals in Eucharist is shaped more by family customs, community involvement, and individual spirituality, rather than by eucharistic doctrine of real presence of Christ.⁴⁵ Likewise, Rymarz and Graham's research on Catholic youth in Australia reveals that adolescents' attendance at Church is heavily influenced by family behavior, with many expecting a decrease in future participation.⁴⁶ On the contrary, the current research demonstrates that Catholic youth within the Diocese of Manado prioritize theological and doctrinal reasons for engaging in the Eucharist, particularly their belief in the actual presence of Christ. This distinction reveals that the motivation behind young Catholics' participation in the Eucharist is influenced by their surroundings, and within the specific context of Manado, belief in the Eucharist continues to be a prominent and clearly articulated drive. While research on Indonesian Catholic youth is somewhat limited, existing studies suggest that the religious participation of young Catholics is influenced by factors such as faith identity, ecclesial belonging, pastoral formation, and digital-cultural contexts. This discovery is in accordance with the sacramental teachings of the Catholic Church, particularly the doctrine that highlights the unique and substantial presence of Christ in the Eucharist. Moreover, it echoes the broader theological assertion made during the Second Vatican Council that the Eucharist is the apex and source of Christian life (LG 11).

Based on the academic dialogue, the dominance of the real presence can be theoretically explained by its integrative function in integrating doctrine and religious experience, liturgy and spirituality, personal encounter and ecclesial identity. The absence of belief in the real presence may result in the perception of the Eucharist as merely a community ritual, a moral symbol, or a religious habit. However, embracing this belief transforms the Eucharist into the primary place of encounter with Christ, the wellspring of spiritual nourishment, and the core of Catholic identity. This elucidates why the Catholic Youth in der Diocese of Manado prioritize it over social, familial, and external liturgical elements.

The high priority assigned to the criterion "the Eucharist is the sacrifice of Christ" aligns with current scholarly insights on the Eucharist, which view the Eucharist not simply as a ritual commemoration of the cross, but as a sacramental participation in Christ's definitive self-giving. Turnbloom's pneumatological explanation of Eucharistic sacrifice⁴⁷, Chase's examination of liturgical anamnesis⁴⁸, and

⁴⁵ Avril Baigent, "Who Is Right? A Lived Catholicism Study of the Mass-Going of Catholic Teenagers," *Ecclesial Practices* 9, no. 1 (2022), <https://doi.org/10.1163/22144471-bja10035>.

⁴⁶ Richard Rymarz and John Graham, "Going to Church: Attitudes to Church Attendance amongst Australian Core Catholic Youth," *Journal of Beliefs and Values* 26, no. 1 (2005), <https://doi.org/10.1080/13617670500047657>.

⁴⁷ David Farina Turnbloom, "A Pneumatological Description of Sacrifice for Mitigating Idolatry," *Studia Liturgica* 50, no. 2 (2020), <https://doi.org/10.1177/0039320720946027>.

⁴⁸ Nathan P. Chase, "The Ascent into Heaven: An Answer to the Problem of Time in Liturgical Anamnesis," *Studia Liturgica* 53, no. 1 (2023), <https://doi.org/10.1177/00393207221118694>.

Belcher's research on sacrifice in Ambrose and the Roman Canon⁴⁹ collectively point towards the concept that Eucharistic sacrifice entails the active integration of believers into Christ's paschal mystery. Within this context, the Eucharist serves not solely as a commemoration of Christ's saving death, but also as the liturgical act where the Church's worship, ministry, and self-sacrifice are combined with Christ's sacrifice. This theological framework reinforces the present conclusion that young Catholics in the Diocese of Manado understand their participation in the Eucharist as a meaningful expression of unity with Christ's sacrificial love as opposed to a mere religious duty. This notion holds significant importance as it allows individuals to integrate their personal challenges, acts of service, moral obligations, and daily sacrifices with the ultimate sacrifice of Christ on the cross. According to Joseph Ratzinger, Eucharist serves as a formative *locus* where faith intersects with real-life experiences, guiding young Catholics to mold their lives into expressions of love, communion, and solidarity.⁵⁰ Hence, the catechesis on the Eucharist for young Catholics should spotlight not only the act of attending Mass, but also the profound significance of partaking in Christ's paschal mystery.

The prioritization of the Eucharist as the source and summit of Christian life, which emerges as the third major criterion, further confirms that the motivation of young Catholics is grounded in a robust theological orientation. The most significant sub-criterion within this domain is the belief that, through the Eucharist, young Catholics receive spiritual strength that sustains and motivates their daily lives. In this regard, the Eucharist is not understood merely as a ritual obligation performed within the Church, but as a transformative encounter that shapes Christian identity, moral commitment, and discipleship beyond the liturgical celebration.

The findings of present study connecting Eucharistic faith with lived spirituality and religious practice are reinforced by González Gaitano et al.'s international survey of young people⁵¹, which indicates that sacramental conviction among Catholic youth correlates closely with prayer, Mass attendance, and the view of the Eucharist as fundamental nourishment for spiritual life. Briola's theological discourse on the Eucharistic real presence further suggests that partaking in the Eucharist fosters habits of attentiveness, relational depth, and commitment to Christian mission.⁵² Similarly, Upenieks' research on the Eucharist as the "source and summit" show that Eucharistic life can function as a spiritual resource that aids in coping with everyday stressors.⁵³ Taken together, these studies reinforce the present finding that young Catholics in the Diocese of Manado do not regard the Eucharist merely as a ritual obligation, but as a source of spiritual strength, Christian identity, and discipleship that shapes their daily lives.

⁴⁹ Kimberly Hope Belcher, "Consecration and Sacrifice in Ambrose and the Roman Canon," *Studia Liturgica* 49, no. 2 (2019), <https://doi.org/10.1177/0039320719865639>.

⁵⁰ Joseph Ratzinger, *Theologie Der Liturgie. Die Sakramente Begründung Christlicher Existenz*, 4th ed. (Freiburg: Herder, 2014), 425–38.

⁵¹ Norberto González Gaitano et al., "An International Survey about Young People, Faith and Religion: Framework of the Research and Overall Results," *Church, Communication and Culture* 10, no. 3 (2025), <https://doi.org/10.1080/23753234.2025.2584662>.

⁵² Lucas Briola, "Real Presence Amid the Shallows: Eucharist and Friendship in a Digital Age," *Horizons* 50, no. 2 (2023), <https://doi.org/10.1017/hor.2023.40>.

⁵³ Laura Upenieks, "Occupational Stressors and Flourishing among Roman Catholic Priests: The Eucharist as the 'Source and Summit,'" *Review of Religious Research* 66, no. 4 (2024), <https://doi.org/10.1177/0034673X241255058>.

Therefore, the finding carries significant pastoral implications for youth ministry and Eucharistic formation in the Diocese of Manado. Youth ministry should be designed as a formation for liturgy and formation through, as recommended by Desiderio Desideravi.⁵⁴ The first one means the Eucharist form the young people while participating in the liturgical celebration. The second can be operationalized through educational programs such as catechesis, homilies, retreats, and youth development initiatives that aim to help young Catholics recognize the correlation between participating in the Eucharist and their daily journey of faith.⁵⁵ By comprehending that the Eucharist equips them for academic pursuits, professional endeavors, interpersonal relationships, acts of service, and ethical dilemmas, young individuals will find their engagement with the Eucharist to be more internalized, enduring, and purposeful. Supported by the liturgical studies of Benini⁵⁶ and Seper⁵⁷, it is essential that Eucharistic education in Manado highlights not only theoretical understanding, but also the life-changing impact of the Eucharist on one's practical Christian life.

Finally, the present study offers a nuanced perspective on previous sociological research concerning youth religiosity, which often emphasizes the influence of various factors, including family, peer networks, community affiliation, and broader processes of secularization.⁵⁸ Research on Catholic youth in various contexts has shown that religious upbringing, parental engagement, peer connections, and the appeal of Church communities significantly impact the religious involvement of young individuals. While these findings remain important, this study show that socio-cultural influences in the Diocese of Manado function more as supportive conditions rather than primary motivational factors. With reference to the study of Klingenberg,⁵⁹ the lower priority assigned to habitual practices and parental guidance suggests that family-based religious instruction may introduce young Catholics to Mass attendance, it is not necessarily the main reason for sustained participation. Likewise, the lower weight given to the community and social interaction indicates that fellowship and belonging are meaningful, but insufficient to explain the strongest motivation for engagement in Eucharistic activities.

Conclusion

This study surpasses normative theological assumptions by offering a structured, empirical quantification of youth motivations related to Eucharistic participation. The Fuzzy-AHP synthesis clearly demonstrates that the belief in the Real Presence of Jesus Christ (*realis praesentia*) is the primary driving

⁵⁴ Susanto, Desiderio Desideravi. *Surat Apostolik Paus Fransiskus tentang Formasio Liturgi Umat Beriman*.

⁵⁵ Gaitano et al., "An International Survey about Young People, Faith and Religion: Framework of the Research and Overall Results," 2025.

⁵⁶ Marco Benini, "The Emmaus Account as a Paradigm for Liturgical Formation of Families: Principles and Pastoral Applications with Reference to Pope Francis' Desiderio Desideravi," *Religions* 15, no. 1 (January 1, 2024), <https://doi.org/10.3390/rel15010111>; Daniel Seper, "Learning from Experience: Liturgical Formation as a Central Component of Religious Education in Schools," *Religions* 14, no. 12 (2023), <https://doi.org/10.3390/rel14121506>.

⁵⁷ Seper, "Learning from Experience: Liturgical Formation as a Central Component of Religious Education in Schools."

⁵⁸ Patricia Tevington and Gregory A. Smith, "47% of U.S. Adults Have a Personal or Family Connection to Catholicism a Closer Look at Catholic Life in the U.S."; Marek and Gurba, "Family Determinants of Religiosity of People in Emerging Adulthood in Poland"; Casavecchia, Canta, and Turco, "The Active and Critical Participation: A Study on Belonging and Believing Among Young Catholics in Rome"; Žuro, Garmaz, and Stanić, "Exploring Youth Religiosity: Research Among Catholic Confirmands in the Metropolitan Archdiocese of Split-Makarska (Croatia)."

⁵⁹ Klingenberg and Sjö, "Theorizing Religious Socialization: A Critical Assessment."

force, significantly overshadowing institutional adherence, peer influence, and familial traditions. This empirical discovery provides three essential contributions to the current knowledge base.

Theoretically, this research enhances pastoral theology and the sociology of religion by illustrating that active Catholic youth in the Diocese of Manado hold a deeply internalized, Christ-centered faith. It challenges the traditional sociological belief that youth involvement in religion in a tightly-knit society is simply a result of conformity. Instead, it proves that their consistent participation in liturgical practices is rooted in a profound, independent doctrinal conviction.

Methodologically, this study leads the way in integrating Operations Research into liturgical and pastoral studies. By utilizing the Analytic Hierarchy Process and Fuzzy-AHP, this research effectively translates the subjective spiritual motivations' linguistic ambiguity into strong, measurable mathematical models. It establishes a new methodological foundation, demonstrating that pastoral phenomena can be quantified with mathematical rigor beyond descriptive qualitative surveys.

Practically and pastorally, the conclusions offer precise, data-driven implications for the Diocese of Manado. Since the youths' primary motivation stems from the sacramental mystery rather than structural regulations, pastoral leaders and catechists must strategically adjust their approaches to youth ministry. Diocesan catechesis should prioritize profound mystagogical formation, deepening the youths' experiential understanding of the Eucharistic sacrifice. Relying solely on administrative enforcement or social gatherings will not suffice to maintain long-term youth engagement. The Church must address their profound intellectual and spiritual hunger for the reality of the Eucharist as the source and summit of Christian life (LG 11).

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