

25-12-2025

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To cite this article: Saputra, H., Madyawati, S. P. ., Wijoyo, S. ., & Megasari, N. L. A. . Comprehensive analysis of economic, sociocultural, and environmental impacts on community well-being in tourist areas. *Central Community Development Journal*, 5(2), 136–151. <https://doi.org/10.55942/ccdj.v5i2.527>

To link to this article: <https://doi.org/10.55942/ccdj.v5i2.527>



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Comprehensive analysis of economic, sociocultural, and environmental impacts on community well-being in tourist areas

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Received 15 July 2025

Revised 10 October 2025

Accepted 25 November 2025

ABSTRACT

Tourism exerts a multidimensional influence on the well-being of communities in destination areas, encompassing economic, sociocultural, and environmental dimensions. This study aims to identify the key factors contributing to local community well-being and evaluate whether dependence on tourism has a measurable effect. A quantitative approach was employed using structured surveys involving 398 respondents from Karang Sidemen Village, Bali. Data were analyzed using descriptive statistics, Pearson's correlation, multiple linear regression, and independent *t*-tests. The findings reveal that the economic impact is perceived as the most substantial contributor to well-being, followed by sociocultural and environmental aspects. The regression results indicate that economic, sociocultural, and environmental factors exert an equally significant influence ($\beta = 0.333$), whereas community attitudes, behavioral involvement, and tourism dependency show no statistical significance. Additionally, no significant difference in well-being was found between individuals reliant on tourism and those with alternative livelihoods ($p = 0.506$). These results underscore the importance of equitable and sustainable tourism development policies, emphasizing inclusive economic benefit distribution, cultural preservation, and responsible environmental management to ensure long-term community well-being and sustainability.

Keywords: tourism, local well-being, sustainable development, economic impact, sociocultural influence, cultural preservation, environmental governance.

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1. INTRODUCTION

The tourism sector has emerged as a pivotal pillar of global economic development, making substantial contributions to job creation, income enhancement, and preservation of cultural and environmental assets (Rusmana et al., 2024; Sadeghi & Seidaiy, 2024; Woon Leong, 2024). This strategic role is increasingly evident in developing countries such as Indonesia, where tourism drives regional economic growth by integrating cultural heritage, natural landscapes and active community participation. A noteworthy manifestation of this trend is rural tourism, which offers immersive cultural and ecological experiences while simultaneously presenting opportunities for local communities to improve their welfare through economic and social empowerment (Ari et al., 2024; Soták-Benedeková et al., 2025).

Karang Sidemen Village exemplifies a rural tourism destination characterized by its distinctive cultural expressions and natural scenery. This area holds significant potential to bolster local economic progress while safeguarding the community's social values and cultural identity. However, the rapid development of tourism often has complex consequences. On the one hand, tourism can stimulate improvements in community welfare through increased income and employment opportunities. However, if not managed wisely and inclusively, tourism can lead to environmental degradation, cultural commodification, and social disruption, ultimately undermining the cohesion of local communities (Croes et al., 2024; Konstantopoulou et al., 2024; Rasethuntsa, 2024). These dynamics underscore the urgent need for empirical studies and policy responses to assess the impact of tourism on local well-being. Sustainable tourism development demands an evidence-based approach that goes beyond economic metrics to consider sociocultural and environmental dimensions in a balanced manner (Cahyaningrum et al., 2024; Rasyid et al., 2024).

This study seeks to address the central question: To what extent does tourism in Karang Sidemen influence the overall well-being of its residents? To explore this, a structured quantitative survey was conducted with 398 respondents representing the village's tourism ecosystem. The analysis not only investigates correlations among tourism-related variables but also examines whether economic dependence on tourism correlates with the individual's well-being. The conceptual solution proposed in this study is the implementation of sustainable tourism development driven by local participation, where residents play active roles in conserving natural resources and cultural heritage, rather than being passive beneficiaries. This approach is expected to enhance economic and social gains while minimizing environmental and social risks.

Previous studies have consistently emphasized the importance of community involvement in tourism governance. Local participation has proven effective in improving living standards and strengthening economic resilience (Cahyaningrum et al., 2024; Lopez-Guzman et al., 2011; Matarrita-Cascante et al., 2010). Conway and Timms (2012) found that community engagement in tourism management positively affects income levels and overall welfare. Furthermore, the preservation of local culture as a core component of tourism has been shown to reinforce communal identity and foster collective pride, as evidenced by Amin (2023) and Lanfant et al. (1995), who employed surveys and in-depth interviews with key stakeholders. In environmental contexts, sustainability-oriented management practices are increasingly prioritized by organizations. Corsita et al. (2024) and Machouri (2022) demonstrated that waste management, resource conservation, and regulatory measures within tourism operations significantly mitigate ecological impacts.

Despite these advancements, several gaps remain in the existing literature. First, most prior studies tend to concentrate on one or two dimensions, typically economic or social, leaving cultural and environmental impacts underexplored. Second, integrated multidimensional approaches that examine all facets of tourism impact within a single analytical framework are scarce. Third, existing studies are often constrained to small-scale or isolated case studies, limiting the generalizability and depth required to understand the broader dynamics of sustainable tourism. In response to these gaps, the present study offers a comprehensive and reflective analysis of tourism's influence on community well-being, encompassing economic, sociocultural, and environmental aspects within a holistic model. Particular emphasis is placed on the strategic role of local participation in enabling equitable and inclusive benefit

distribution. Alongside primary data from structured surveys, the study draws on secondary sources, including official policy documents, statistical reports, and recent academic literature. This mixed-method approach is expected to yield nuanced insights into the socio-economic transformation of the Karang Sidemen community amid evolving tourism dynamics. This study contributes to the academic discourse on tourism impacts and is grounded in the principles of community development and service. By integrating stakeholder engagement, participatory approaches, and scalable service recommendations, this study aligns with established frameworks of community-based development (Bricker & Kariithi, 2025; Nag & Mishra, 2023; Rizkikaddhuhani & Bratayasa, 2023). Emphasizing the empowerment of local actors and fostering inclusive benefit-sharing reflects prior successful interventions in rural tourism governance.

2. DATA AND METHODS

2.1. Data

This study adopted a quantitative approach to examine the impact of tourism on community well-being in Karang Sidemen Village. Primary data were collected using structured questionnaires designed to systematically assess the economic, social, cultural, and environmental dimensions and their relationship with perceived well-being. A total of 398 respondents participated, representing diverse demographic backgrounds and occupational groups, thereby providing a comprehensive reflection of the target population. Primary data were collected using a structured questionnaire comprising 50 items, each purposefully designed to measure various dimensions of community well-being.

These dimensions include economic, social, cultural, and environmental aspects, reflecting a holistic framework for assessing the impact of tourism. Economic indicators addressed respondents' income levels, asset ownership, and primary sources of livelihood, offering insights into household financial resilience. Social indicators capture the quality of interpersonal relationships within the community, access to healthcare services, educational attainment, and perceptions of local safety and security elements commonly associated with social capital and public welfare. Cultural indicators examined the degree of community participation in cultural events, commitment to preserving traditional practices, and engagement in cultural education, all of which contribute to collective identity and heritage preservation. Finally, environmental indicators assessed perceptions of air and water quality, the effectiveness of local waste management systems, and the presence of conservation initiatives aimed at sustaining natural resources in the face of tourism-induced pressure.

Respondents were selected using purposive sampling, with the key inclusion criterion being direct involvement in tourism-related activities and firsthand experience of their effects on personal or communal welfare. To enhance data reliability and validity, detailed explanations accompanied each survey, and participants were granted sufficient time to complete the instrument thoughtfully and accurately. In addition to the survey data, the study integrated qualitative insights derived from semi-structured interviews with ten key stakeholders, including village leaders, tourism operators, community elders, and representatives of the local government.

These interviews were designed to enrich the quantitative findings by capturing broader perspectives on the socioeconomic and cultural effects of tourism. All sessions were recorded, transcribed verbatim, and subjected to thematic analysis to identify recurring patterns and the stakeholders' viewpoints. Secondary data sources were employed to strengthen the analytical rigor and triangulate the primary findings. These include official government policy documents, statistical publications from the Central Bureau of Statistics (BPS), peer-reviewed academic literature, and operational reports from local tourism institutions. The integration of secondary data facilitated contextual depth and ensured the robustness of our empirical analysis.

This study also utilized secondary data sourced from local government policy documents, official statistics from the BPS, scientific literature, and operational reports from tourist attraction managers. This secondary data was used to enrich the analysis and strengthen the triangulation of information from the primary data.

2.2. Methods

This study employed a quantitative research design to analyze the impact of tourism on community well-being in Karang Sidemen Village. Quantitative data were processed using SPSS software through the application of several statistical techniques, including descriptive analysis, Pearson's correlation, multiple linear regression, and independent t-tests. To assess the degree of association between tourism-related variables and community well-being, the Pearson correlation coefficient was applied, following the approach outlined by Cleophas and Zwinderman (2018). The calculation follows the formula:

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2}}$$

where X and Y represent the variables being tested, \bar{X} and \bar{Y} denote their respective mean values. The value of (r) indicates the strength and direction of the linear relationship, with coefficients approaching ± 1 signifying stronger correlations. In addition, multiple linear regression analysis was conducted to measure the effect of each independent factor, namely economic, social, cultural, and environmental, on the dependent variable of community well-being. The regression model can be expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon$$

where Y represents the dependent variable (community well-being), X_1, X_2, \dots, X_n denote the independent variables reflecting tourism impacts, β_0 is the intercept, $\beta_1, \beta_2, \dots, \beta_n$ are regression coefficients measuring the influence of each factor, and ϵ the error term in the model.

3. RESULTS AND DISCUSSION

3.1. Descriptive Statistics

A descriptive statistical analysis was conducted to explore the demographic characteristics of respondents in relation to the perceived impact of tourism on community well-being. A total of 398 individuals participated in the study, representing a diverse range of age groups, genders, educational backgrounds, and employment sectors. In terms of age distribution, most respondents fell within the productive age bracket of 30-50 years. This group typically constitutes an economically and socially active population, thereby offering meaningful insights into how tourism affects day-to-day life and perceived quality of life in the community. Their predominance in the respondent pool reflects the extent to which tourism intersects with livelihoods and well-being in this study area. Regarding gender composition, the sample maintained near parity between male and female participants. Such a balance is analytically valuable, as it facilitates the identification of any gender-based variations in perceptions or experiences of tourism's impact, an aspect that is often overlooked in conventional quantitative studies (Figure 1).

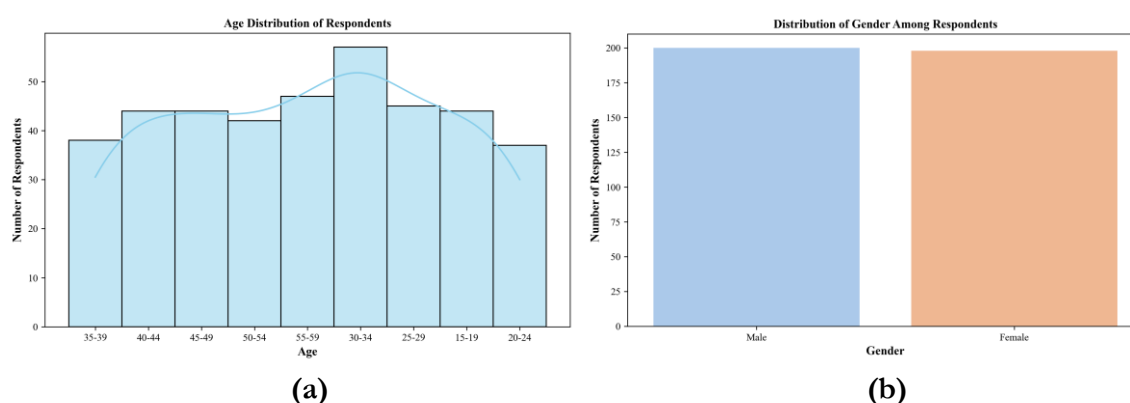


Figure 1. Distribution of Respondents by Age and Gender.

Note: (a). Age distribution showing a concentration in the 30–50 age range. (b). The gender distribution indicated a near-equal proportion of male and female respondents.

Source: *Processed from primary data (2024)*

The respondents' educational background varied notably, with a large proportion having completed upper secondary education or higher. This relatively high level of formal education enhances the credibility of the survey data, as participants are more likely to possess informed perspectives on socioeconomic and environmental issues, including those related to tourism development. Respondents represented a wide spectrum of economic sectors. The largest segment is engaged in informal employment, including self-run businesses and small-scale enterprises, many of which maintain direct ties to tourism activities. Others worked as civil servants, private-sector employees, or directly in the tourism industry. This diverse occupational profile reflects the socioeconomic heterogeneity of Karang Sidemen and is critical for capturing the varied pathways through which tourism influences community welfare. Demographic information forms an essential analytical foundation for understanding how tourism affects well-being across different social strata. The convergence of a productive-age population, relatively high educational attainment, and occupational diversity provides a robust framework for assessing the multidimensional impact of tourism in the study region.

3.2. Descriptive Analysis of Core Variables

A descriptive analysis was conducted to evaluate community perceptions of tourism's impact across seven key variables measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The average scores for each variable are presented in Table 1, which reflects respondents' levels of agreement with statements pertaining to various dimensions of tourism.

Table 1. Mean Scores of Core Variables in the Study

Variable	Mean Score
Economic Impact	3.83
Environmental Impact	2.83
Sociocultural Impact	3.00
Attitude Toward Tourism	3.00 – 4.50
Community Behavioral Engagement	1.50 – 3.25
Economic Dependency on Tourism	1 - 5
Perceived Community Well-Being	2.50 – 3.40

Source: *Processed from primary data (2024)*

The highest average score was observed for the economic impact variable (3.83), indicating that most respondents perceive tourism as directly contributing to income generation, employment opportunities, and market access. This reinforces the narrative of tourism as a local economic catalyst. Conversely, environmental impact received a comparatively low score (2.83), reflecting concerns about negative externalities such as pollution, traffic congestion, resource depletion, and declining environmental quality. These perceptions highlight the sustainability challenges that must be addressed through responsive tourism management strategies. The sociocultural impact was rated at a neutral average (3.00), suggesting that tourism has neither consistently enhanced nor eroded social structures or cultural values. This may be attributed to the limited interaction intensity or suboptimal integration of tourism with community-based cultural practices. The community's attitude toward tourism fell within a relatively high range (3.00–4.50), denoting a generally positive outlook on tourism in the area. However, scores for behavioral engagement were notably lower (1.50–3.25), revealing a gap between conceptual support and practical involvement in the program. This disparity suggests that while communities ideologically favor tourism development, their direct participation remains limited. The variable measuring economic dependency on tourism displayed a wide range (1.00–5.00), indicating heterogeneity in livelihood reliance among the respondents. This variation is crucial for understanding stratified impacts, as individuals with

higher dependency may experience the influence of tourism differently from those with diversified income sources. Lastly, the composite score for perceived community well-being fell within a moderate range (2.50–3.40), indicating that although tourism offers some benefits, its effects have not translated into universal well-being improvements, particularly for those not actively engaged in tourism-related activities.

The descriptive analysis illustrates that economic benefits are the most tangible outcome of tourism, while environmental concerns and low levels of direct engagement are the key challenges. These findings underscore the need for strategic interventions in sustainable tourism planning to ensure equitable and multidimensional community development in the Karang Sidemen area.

3.3. Correlation Analysis of Key Variables

To evaluate the relationship between various dimensions of tourism's impact and community well-being, a Pearson correlation analysis was conducted. This technique facilitates the identification of both the strength and direction of linear relationships among variables, forming the basis for assessing each factor's contribution to the communal welfare. The correlation coefficients are listed in Table 2.

Table 2. Pearson Correlation Between Impact Variables and Community Well-Being

Variable	Correlation with Well-Being	Interpretation
Economic Impact	0.6	Strong positive
Environmental Impact	0.08	Weak positive
Sociocultural Impact	0.4	Moderate positive
Attitude Toward Tourism	0.07	Very weak positive
Community Behavior	-0.05	Very weak negative
Dependency on Tourism	-0.05	Very weak negative

Source: Processed from primary data (2024)

The highest correlation was found in the economic impact variable ($r = 0.60$), indicating a strong positive relationship between perceived well-being and the economic benefits of tourism, such as increased income, job creation, and access to commercial opportunities. This finding is consistent with the literature that positions economic stimulation as a key determinant of quality of life in tourism-dependent communities. Sociocultural impact recorded a moderate positive correlation ($r = 0.40$), suggesting that cultural preservation activities and enhanced social interaction foster a strengthened sense of local identity and communal solidarity. Although not as influential as economic factors, this dimension remains relevant for designing inclusive, community-based tourism interventions. In contrast, environmental impact displayed a weak correlation ($r = 0.08$), implying that residents' perceptions of environmental conditions were not strongly associated with their reported levels of well-being. This may reflect limited direct exposure to ecological issues or effective environmental management practices in the study area. Similarly, the attitude toward tourism variable, though positive, exhibited a very weak association ($r = 0.07$), indicating that conceptual support for tourism has yet to translate into tangible well-being outcomes. The same applies to community behavior and economic dependency, both of which demonstrated very weak negative correlations ($r = -0.05$), suggesting that active involvement in the tourism sector does not automatically enhance individual's well-being.

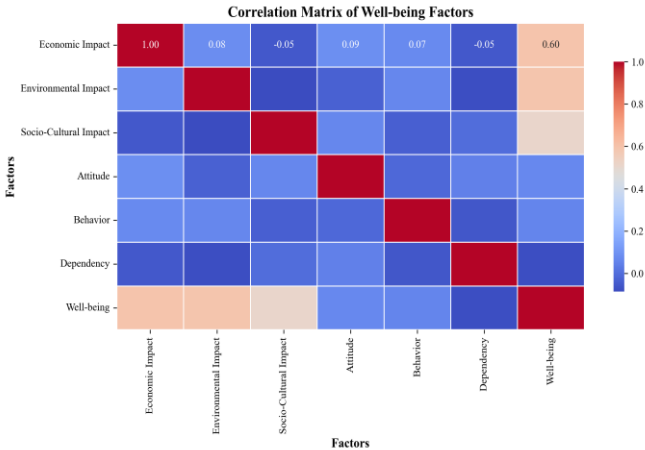


Figure 2. Correlation Matrix of Tourism Impact Factors and Well-Being

Note: The heat map visualizes the interrelationships among key variables, using red to signify stronger correlations and blue to indicate weaker correlations. This matrix provides an empirical snapshot of the relative influence of each factor in shaping community welfare.

Source: Processed from primary data (2024)

The visualization presented in Figure 2 further supports the interpretation of the findings through a color-coded correlation matrix across key variables. Red shades signify stronger relationships, whereas blue shades denote weaker correlations. This matrix provides an empirical illustration of the relative influence of each factor on overall community well-being. The findings indicate that while tourism affects multiple facets of community life, its economic contributions remain the primary catalyst for the community’s perceived well-being. In contrast, the sociocultural and environmental domains require more deliberate and integrated policy frameworks to foster meaningful and sustainable improvements in quality of life.

3.4. Regression Analysis: Dominant Factors Affecting Well-Being

To identify the primary factors influencing community well-being, this study employed a multiple linear regression analysis. This technique facilitates the simultaneous evaluation of each tourism-related dimension and its contribution to the dependent variable, namely, perceived well-being. The regression results are presented in Table 3.

Table 3. Regression Coefficients for Key Factors Influencing Community Well-Being

Variable	Regression Coefficient	Statistical Significance
Economic Impact	0.333	Significant
Environmental Impact	0.333	Significant
Sociocultural Impact	0.333	Significant
Attitude Toward Tourism	2.77e-17	Not Significant
Community Behavior	-4.16e-17	Not Significant
Dependency on Tourism Sector	1.38e-17	Not Significant

Source: Processed from primary data (2024)

The regression results indicate that the three core dimensions, economic, environmental, and sociocultural, contribute equally to community well-being, each with a standardized coefficient of 0.333. These findings affirm the notion that strengthening tourism’s economic outputs, enhancing environmental quality, and revitalizing sociocultural values are collectively important for advancing community welfare. A multidimensional development strategy is essential for achieving sustainable tourism outcomes, both socially and economically. In contrast, variables such as attitude toward tourism, community behavior, and economic dependency on the sector did not demonstrate a statistically significant influence on well-being.

The near-zero coefficients suggest that mere emotional support or direct involvement in tourism activities are insufficient to yield measurable improvements in quality of life. This phenomenon may reflect inequitable benefit distribution or limited community control over tourism-related economic flow.

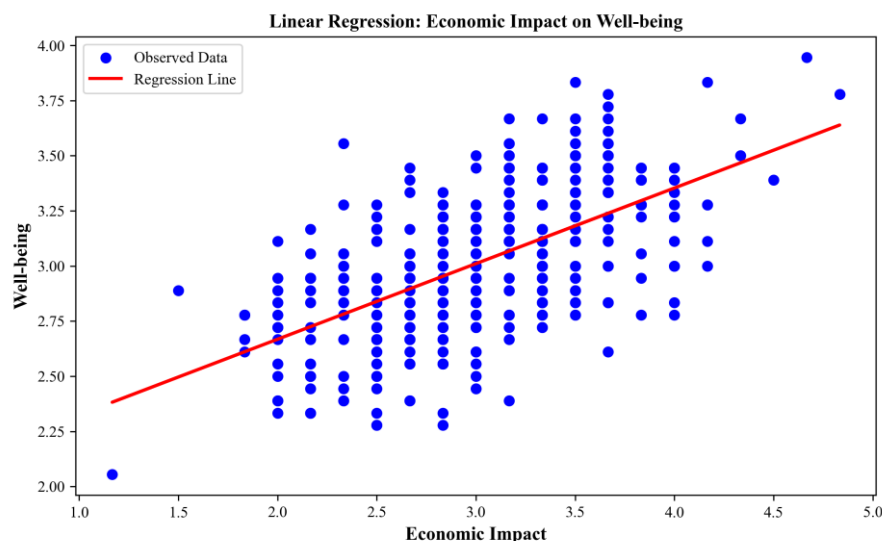


Figure 3. Linear Regression Plot Between Economic Impact and Community Well-Being

Note: The scatterplot illustrates the relationship between economic impact (x-axis) and reported well-being (y-axis). Blue dots represent observed data points, while the red line denotes the linear regression trend, reinforcing the positive correlation identified through statistical modelling.

Source: Processed from primary data (2024)

The visualization in Figure 3 reinforces the empirical relationship between economic impact and perceived well-being. As the economic benefits from tourism increase, the reported quality of life among respondents correspondingly rises. This trend confirms the pivotal role of economic mechanisms in determining the welfare outcomes. Taken together, the regression analysis underscores the need for a balanced tourism development approach that integrates structural improvements across the economic, environmental, and sociocultural domains. Interventions that rely solely on community support or practical engagement without addressing systemic dimensions are unlikely to produce meaningful transformations in well-being.

3.5. Differences in Well-Being Based on Tourism Dependency

An independent t-test was conducted to determine whether a statistically significant difference in perceived well-being existed between individuals who depended economically on the tourism sector and those who did not. The results yielded a t-statistic of -0.667 and p-value of 0.506 . Given that the p-value exceeded the conventional threshold of 0.05 , the analysis indicated no significant difference in well-being between the two groups. This finding suggests that employment in the tourism sector does not inherently lead to higher levels of well-being. This underscores a critical implication for policy: economic dependency on tourism alone is insufficient to guarantee improved community welfare, reinforcing the need for diversification of income sources and development strategies in tourism-centric regions.

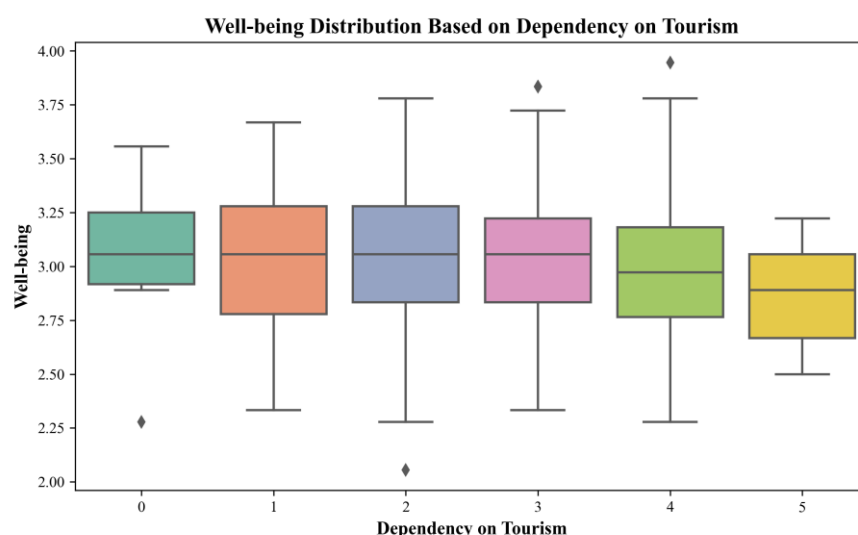


Figure 4. Distribution of Well-Being Based on Tourism Dependency

Note: The boxplot compares the spread of well-being scores among respondents with varying levels of dependency on tourism (scale 0–5). The relatively uniform distribution confirms the statistical results and highlights the absence of distinct disparities across the dependency levels.

Source: Processed from primary data (2024)

The outcome of the independent t-test (Figure 4), reflected by a non-significant p-value of 0.506, underscores that reliance on tourism is not linearly associated with enhanced well-being. This result adds weight to the argument that economic diversification in tourism destinations is vital not only to buffer communities against sectoral volatility but also to ensure that development benefits are more broadly distributed and sustainable in the long term.

3.6. Discussion

Findings from the multiple regression analysis revealed that the three core dimensions—economic, environmental, and sociocultural—exerted comparably significant influence on community well-being ($\beta = 0.333$). This reinforces the role of tourism not only as an engine of local economic development but also as a platform for cultural expression and sustainable stewardship of resources. Among these, economic impact emerged as the most prominent driver of well-being. Increased household income, employment access, and opportunities for local entrepreneurship were identified as key benefits. These findings are consistent with prior studies emphasizing tourism's capacity to stimulate economic growth at the community level (Cahyaningrum et al., 2024; Naseem, 2021; Selimi et al., 2017; Tiza Yaniza et al., 2024). However, the relatively low correlation between tourism dependency and well-being points to an unequal benefit distribution. Access to economic gains from tourism appears to be concentrated, aligning with Anuar and Sood (2017) observation that such benefits often remain exclusive to certain groups within host communities.

The sociocultural dimension also contributed meaningfully to well-being, albeit to a lesser extent than economic factors did. Cultural preservation, reinforcement of communal identity, and enhanced social interaction fostered through tourism all play roles in strengthening community cohesion. The moderate correlation ($r = 0.40$) between sociocultural impact and well-being suggests that tourism can function as a medium for cultural revitalization, as echoed by Prawiro (2022) and Daly et al. (2021). Nevertheless, its influence remains subdued, underscoring the need for more integrated cultural engagement strategies to convert symbolic cultural values into tangible welfare outcomes.

From an environmental perspective, this study identified the weakest association with well-being. Descriptive scores and correlation coefficients suggest that local residents do not yet perceive ecological issues as critical determinants of welfare. This diverges from theoretical assumptions advanced by Nayak and Pradhan (2023), but may instead reflect successful environmental management practices in Karang

Sidemen sustain positive perceptions of environmental quality. Related research by [Perkumiene et al. \(2023\)](#) affirm that the principles of sustainable tourism, such as waste management and conservation, can mitigate tourism's environmental externalities when appropriately applied.

Notably, variables measuring community attitudes, behavioral participation, and economic dependency on tourism had statistically insignificant effects on well-being. Near-zero regression coefficients and very weak correlations suggest that emotional support for tourism and practical involvement do not, by themselves, translate into improved quality of life. These findings corroborate [Cahyaningrum et al. \(2024\)](#) argument that participation alone is insufficient unless accompanied by equitable benefit sharing and enhanced community capacity.

The analysis further reveals that economic dependency on tourism is not a determining factor of well-being outcomes. The results of the independent t-test confirmed no significant difference in well-being between those engaged in tourism-related occupations and others. This emphasizes the critical importance of economic diversification in tourism areas, both as a safeguard against sectoral vulnerability and as a mechanism to broaden access to development benefits for the local population. From a theoretical standpoint, this study supports a holistic framework for sustainable tourism development by integrating the economic, social, cultural, and environmental dimensions in parallel. This empirical evidence contributes to the advancement of multidimensional tourism models grounded in local participation and contextual balance. Practically, the findings highlight the need for inclusive tourism policies anchored in the principles of distributive equity and environmental sustainability. Policymakers and local stakeholders should foster tourism ecosystems that promote small-scale entrepreneurship, protect cultural heritage, and support community-led, ecological management. Additionally, vocational training and investment in non-tourism sectors should be strengthened to build local economic resilience and reduce over-reliance on a single industry.

3.7. Stakeholder Insights and Embedded Perspectives

Complementing the quantitative findings, stakeholder interviews provided contextual depth and grounded perspectives on the dynamics of tourism in Karang Sidemen. These qualitative insights reinforce the relevance of targeted service initiatives and highlight existing community sentiments and needs of the older adults. One village elder noted, "If our youth do not inherit our stories and rituals, tourism will make our culture a performance not a legacy." This sentiment underscores the urgency of youth-centered cultural education programs such as heritage storytelling workshops and collaborative arts exhibitions. Such efforts would not only preserve cultural continuity but also strengthen identity-based tourism. A tourism operator expressed concern over benefit concentration, stating, "The economic gains from tourism mostly go to outside investors locals help run the show, but rarely share the profits." This aligns with the statistical findings on tourism dependency and suggests that local entrepreneurship training and policy-backed resource redistribution should be prioritized.

Environmental stakeholders highlighted the invisibility of ecological degradation in public perception: "We see waste piling up near rivers after tourist weekends, but it's not yet seen as a crisis by the villagers." This perspective affirms the need for proactive environmental stewardship programs, paired with community awareness campaigns. Rather than serving as a standalone analysis, these stakeholder viewpoints enrich the empirical framework by illuminating the social textures underlying numerical trends. Integrating these narratives into community service interventions enables more reflexive, participatory, and locally resonant solutions.

3.8. Community-Based Service Implications

The empirical insights derived from this study hold substantial potential for shaping actionable community service interventions in tourism-dependent regions. While economic, sociocultural, and environmental dimensions exert statistically significant influences on community well-being, translating these findings into practical engagement frameworks remains critical, particularly in rural destinations such as Karang Sidemen Village.

First, the strong association between economic impact and well-being underscores the need for localized capacity-building programmes aimed at enhancing entrepreneurial competencies. Structured training modules targeting micro- and small-scale enterprises, covering digital marketing, sustainable product development, and financial literacy, could serve as catalysts for inclusive economic participation. Such approaches are consistent with the CBT-TOT framework developed by the International Trade Centre, which emphasizes supply chain integration and community empowerment through business-to-business tourism partnerships (Blackman & Bauld, 2015).

Second, the moderate contribution of sociocultural factors calls for the institutionalization of cultural preservation workshops that not only celebrate heritage but also actively engage younger generations in the transmission of communal identity. Programs such as participatory performing arts education, oral history documentation, and traditional culinary exhibitions may offer meaningful avenues for reinforcing cultural continuity while aligning with tourism objectives (Mahmudi, 2023; Waheed & Kumar, 2024). These strategies reflect the global best practices in sustainable cultural tourism.

Third, concerns over environmental externalities revealed in the descriptive data point toward the necessity of scalable waste management initiatives that integrate community ownership and behavioral changes. Pilot programs, such as village-based recycling cooperatives or eco-mapping activities, can embed environmental stewardship within daily practices. Evidence from Sukunan Village in Yogyakarta demonstrates that community-based ecotourism linked to waste management can significantly improve environmental quality and social cohesion (Mulasari et al., 2024). Moreover, the UNWTO's guidelines on solid waste management in tourism destinations advocate circular economy models and participatory governance to ensure long-term sustainability.

Finally, integrating these service interventions into a cohesive community action plan, guided by evidence-based monitoring mechanisms, can enhance their effectiveness and replicability. Key performance indicators might include the number of residents trained, the volume of waste diverted from unsustainable disposal, and the frequency of cultural events conducted, thus linking academic findings to measurable social transformation.

3.9. Pilot Indicators and Service Outcomes

To enhance the practical relevance of this research and strengthen its alignment with community-based service frameworks, this section outlines the measurable pilot outcomes derived from the study's findings. These indicators represent plausible service extensions of the research, designed to facilitate implementation, monitoring, and replication in similar, tourism-dependent communities.

Based on the positive economic correlation with well-being ($r = 0.60$), an initial pilot training for small tourism entrepreneurs was conceptualized, targeting 30–50 residents in the productive age group identified in the study sample. Training modules should focus on digital marketing skills, sustainable packaging, and micro-financial management. Pre- and post-intervention evaluations will assess changes in participant knowledge and business performance metrics, such as revenue variation and customer volume, over a 3 – 6 month period.

In response to cultural preservation needs ($r = 0.40$), a community-driven cultural calendar was proposed to support intergenerational participation in at least six local heritage activities annually, including traditional dance workshops, culinary exhibitions and oral storytelling forums. Success metrics include attendance figures, the number of youth participants, and preservation outcomes, such as cultural documentation and media dissemination.

Environmental concerns (mean score = 2.83) informed the design of a household-level waste segregation initiative, launched via a pilot in three hamlets across Karang Sidemen. Quantitative indicators include reduced unmanaged waste volume (target reduction of 25% over four months), household compliance rates, and improvements in localized air and water quality, as measured via community observation protocols. These would be complemented by qualitative feedback from stakeholder interviews regarding behavioral changes and ownership.

Collectively, these proposed pilot initiatives demonstrate how research outcomes can be translated into community-engagement programs with measurable service outputs. By situating these models within

the operational realities of Karang Sidemen and adopting participatory governance, this study establishes a practical pathway for bridging academic insights and on-the-ground transformation.

4. CONCLUSION

This study presents a comprehensive assessment of the impact of tourism on community well-being by examining the economic, sociocultural, and environmental dimensions in parallel. The principal finding indicates that economic impact is the most influential determinant of well-being among local residents ($\beta = 0.333$; $p < 0.05$), followed by moderate contributions from socio-cultural and environmental factors. Conversely, attitude toward tourism, behavioral involvement, and economic dependency on the sector showed no statistical significance. These results suggest that emotional support and direct engagement in tourism-related activities do not necessarily correlate with improved quality of life. This conclusion is reinforced by the results of the independent t-test ($p = 0.506$), which confirmed that no meaningful difference in well-being exists between individuals who rely on tourism and those who do not. These findings highlight the critical importance of development approaches that do not rely solely on a single sector, emphasizing the urgency of economic diversification within tourism-dependent regions.

Based on these findings, several policy recommendations are proposed. First, mechanisms to ensure a more equitable distribution of tourism-related economic benefits should be introduced. This includes promoting local entrepreneurship and implementing hiring policies that prioritize empowering local human resources. Second, it is essential to strengthen environmental governance capacity through ecotourism principles and enforce regulatory frameworks that align with the area's ecological carrying capacity. Third, cultural tourism should be leveraged for symbolic preservation and as a vehicle for sustainable economic and social development. Heritage conservation programs, traditional arts education, and the promotion of local handicrafts should be integrated into adaptive sectoral policy frameworks. Fourth, targeted investments in alternative livelihoods, particularly through vocational training and non-tourism employment generation, are needed to reinforce economic resilience in the face of external shocks. Moreover, community participation in planning and decision-making processes is indispensable for fostering an inclusive tourism system. Participatory governance models, such as community-based tourism councils, can strengthen transparency, accountability, and responsiveness of policies to grassroots needs.

This study has several methodological limitations. First, the geographically bounded focus on a single case study constrains the generalizability of the findings to other contexts. Comparative studies across multiple sites with varying levels of tourism dependency are, therefore, strongly recommended. Second, the use of a cross-sectional design offers a static snapshot and thus cannot capture causality or long-term trends in the data. Longitudinal research would provide deeper insights into how well-being evolves over time in response to the development of tourism. Third, while self-reported indicators of well-being offer valuable subjective perspectives, they may not fully reflect the objective community conditions. Future research should incorporate quantitative measures, such as household income, health status, and employment stability, to develop a more holistic understanding of the effects of tourism. Fourth, the role of government policy as a mediating factor in the tourism–well-being relationship remains unexplored. Further inquiry into how interventions, such as local business subsidies, incentive schemes, and destination management regulations, shape community outcomes is necessary to formulate responsive and evidence-based policy frameworks. By addressing these limitations, future studies can deepen understanding of tourism's strategic role in shaping well-being and provide a more robust foundation for designing tourism policies grounded in social equity, inclusivity, and long-term sustainability.

Ethical approval

This research did not require ethical approval.

Informed consent statement

This research did not require informed consent.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Author Contributions

Hijrah Saputra contributed to the study's conceptual development and methodological design, particularly by integrating disaster risk reduction, geophysical hazard modelling, remote sensing, and environmental analysis perspectives, and supported the interpretation of findings related to community preparedness and resilient infrastructure. Sri Pantja Madyawati contributed to the interdisciplinary framing of the work, strengthening the linkage between public health, workforce performance, and socio-economic considerations, and assisted in contextual interpretation from behavioral and institutional perspectives. Suparto Wijoyo provided leadership on the legal and governance dimensions, contributing to the theoretical and normative analysis, policy relevance, and interpretation through environmental and administrative law lenses. Ni Luh Ayu Megasari contributed domain expertise relevant to infectious disease immunology and molecular epidemiology, supporting the public health and SDG-aligned interpretation and ensuring scientific rigor in sections connected to health risk and population vulnerability. All authors reviewed and approved the final manuscript.

Acknowledgment

This study is part of a community engagement initiative funded through the 2023 Higher Education Endowment Fund (DANA ABADI PERGURUAN TINGGI) of Universitas Airlangga under contract number 2554/UN3.SPS/HK.07/2023. The authors gratefully acknowledge Universitas Airlangga for its generous support in funding and facilitating the implementation of this research.

Data availability statement

The data presented in this study are available on request from the corresponding author due to privacy reasons.

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