HEALTHCARE MANAGEMENT AS A KEY COMPONENT OF SUSTAINABLE DEVELOPMENT: A COMPARATIVE ANALYSIS OF SERBIA AND SLOVENIA

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ABSTRACT

This study explores the role of health management as a driver of sustainable rural development in Serbia and Slovenia. Using quantitative methods (cluster, correlation, and regression analyses), it compares perceptions of health management and its impact on local communities. Results show that health management is positively perceived and linked to economic diversification, user satisfaction, and infrastructure quality. Slovenia performs better in accessibility and diversity of health services, reflecting its advanced institutional framework, while Serbia emphasizes marketing management, digital literacy, and economic benefits, indicating a growth phase. Strong correlations between health management and sustainable development dimensions confirm that effective health management improves rural well-being. Economic impact and user loyalty are the strongest predictors of development outcomes. Findings highlight the need for tailored policies addressing demographic and ecological challenges and fostering cross-country learning. The study recommends further research to maximize health management's contribution to rural sustainability and inform policymakers and stakeholders.

Introduction

In recent years, healthcare management has become increasingly recognized as a critical driver of sustainable socio-economic development, especially in rural regions. As globalization and demographic shifts intensify the challenges facing rural communities,

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innovative models based on the integration of effective healthcare management and local resources are gaining strategic importance for the future of these areas. Rural development today is not limited to economic revitalization alone - it also encompasses the preservation of cultural heritage, enhancement of living standards, and the creation of new opportunities for local populations.

Within this framework, healthcare management serves as a bridge connecting modern societal needs with the traditional values of rural environments. Efficient management in the healthcare sector enables improved access to medical services, supports healthy lifestyles, and directly contributes to job creation, economic diversification, and modernization of infrastructure in less developed areas. At the same time, such an approach encourages environmental protection and raises awareness of the importance of local resources, which is essential for long-term sustainability.

Slovenia and Serbia offer two distinct but comparable examples of how healthcare management can be integrated into rural development strategies. Slovenia utilizes its natural advantages and strong institutional frameworks to raise the quality of healthcare services in rural regions, while Serbia is currently undergoing an intensive process of economic and infrastructural transformation through the modernization and better management of healthcare systems in its countryside. This comparative analysis provides an opportunity to identify best practices and specific challenges in both countries, with the goal of supporting more effective development policies in the future.

Literature Review

Contemporary scientific literature confirms the significance of tourism management, with a special focus on health tourism, as a driver of sustainable rural development, particularly in Central and Eastern European countries, with Slovenia and Serbia standing out as notable examples. Numerous studies emphasize that health tourism, when managed effectively, serves as a tool for economic diversification and revitalization of rural areas, as well as a strong generator of new jobs and local income (Dwyer, 2023; Hall, 2010). Health tourism management significantly contributes to rural development by diversifying local economies, creating employment opportunities, and fostering entrepreneurship, especially in countries rich in natural therapeutic resources (Ilić & Đukić, 2022).

Modern development strategies in health tourism management focus on the integration of medical, wellness, and recreational services in rural areas, thereby improving residents' quality of life and attracting a growing number of tourists (Park et al., 2019). Health tourism is increasingly recognized as one of the most powerful drivers of rural revitalization, encouraging investments in infrastructure, education, and environmental protection (Jegdic et al., 2016; Yin et al., 2020).

Brand management and strengthening the market visibility of rural health tourism destinations directly contribute to increased tourist flows and economic growth within local communities (Cooper, 2021). Research indicates that networking and regional

cooperation among health and wellness destinations enhance competitiveness and enable the sustainable development of rural communities through shared promotion and resources (Jesus & Franco, 2016). Regional cooperation between the public and private sectors within the framework of health tourism management supports the sustainable development of destinations and enables more efficient utilization of natural and anthropogenic resources in rural areas (Costa et al., 2018). The formation of health tourism clusters, as a management practice, contributes to better positioning of rural destinations on both national and international markets, facilitating knowledge and innovation transfer (Provenzano & Baggio, 2019).

Natural resources, such as mineral waters, favorable climate conditions, and preserved biodiversity, represent a key foundation for the development and management of health tourism in rural areas of Serbia, thereby encouraging the sustainable development of rural settlements (Cvijanović et al., 2019). The development of rural tourism, including managed health and wellness facilities, can contribute not only to population health but also to the long-term sustainability of rural communities in Serbia (Lakićević, 2020).

Among key trends, Grivec (2016) explores the connection between wellness tourism development and rural infrastructure improvement in Slovenia. The creation of sustainable tourist destinations requires the integration of innovative and environmentally responsible management approaches in food and service production, particularly in rural communities, contributing to the enhancement of tourist health, preservation of local biodiversity, and increased community resilience to global crises (Bertella, 2020). The implementation of sustainable management practices and new technologies in rural areas can enhance user satisfaction and contribute to the sustainable development of local communities (Khmaaj et al., 2025). Owing to its preserved nature, high ecological standards, and strong tradition of rural tourism management, Slovenia has developed sustainable models of rural tourism that incorporate health and wellness services, significantly improving the quality of life and socio-economic development of rural areas (Lakićević & Pantić, 2020).

The quality of infrastructure and healthcare management in rural areas, along with the openness and cooperation of local residents with tourists, significantly contributes to the sustainable development of rural tourism, which is particularly relevant for the development of health tourism destinations in Serbia and Slovenia (Petrović et al., 2017). In the case of these two countries, rural and health tourism management represent key drivers of sustainable development. While Slovenia demonstrates a high degree of organization and promotion of wellness and health services in rural areas, Serbia is developing a more diversified offer focused on natural healing resources and traditional practices, thereby supporting the preservation of rural vitality and the local economy (Vujko et al., 2016).

Materials and methods

The research was conducted from March to June 2025 through an online survey designed and developed by the authors. The questionnaire was constructed based on relevant theoretical and empirical sources in the fields of health tourism and sustainable rural development. The aim of the survey was to collect data from respondents of various profiles from Serbia and Slovenia in order to examine their perceptions of health tourism and its impact on local communities. The questionnaire consisted of two parts: a section with general sociodemographic questions and a section with statements related to variables associated with health tourism and sustainable rural development. Responses were collected using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The variables related to health management were grouped into five categories. The first variable, accessibility of health services, included assessments of service affordability, transportation connectivity, and accessibility for individuals with special needs. The second variable, quality management of health services, encompassed the evaluation of service standards, collaboration with professional medical staff, and the implementation of continuous improvement mechanisms to ensure that all programs meet high-quality criteria. The third variable, marketing management and digital literacy, referred to the strategic use of online platforms, social media visibility, the existence of targeted promotional campaigns, as well as the efficiency and reliability of digital booking and information services. The fourth variable, user satisfaction and loyalty, included perceptions of overall service quality and environment, willingness to return to the same provider, and the likelihood of recommending these services to others. The fifth variable, economic impact on the local community, measured the extent to which revenues from health management activities are retained locally, the engagement of local workforce and suppliers, and the stimulation of supporting industries such as restaurants, transport, and retail.

In parallel, the study examined five variables related to sustainable rural development. The first, *demographic sustainability*, referred to the retention of youth in rural areas, the return of urban residents to rural communities, and population growth in tourism-active areas. The second variable, *economic diversification*, included the development of tourism and crafts as a complement to agriculture and the benefits local producers derive from increased tourist demand. The third, *environmental responsibility and resource management,* measured the implementation of recycling practices, use of renewable energy sources, and preservation of the natural environment. The fourth variable, *community participation*, analyzed the involvement of local residents in decision-making processes, participation in forums, and direct benefits through engagement in tourism-related activities. The fifth variable, *quality of life and infrastructure*, observed tourism's effects on the improvement of transportation, healthcare and educational infrastructure, digitalization, and the overall perception of life quality in rural areas.

The main objective of this study was to examine the interdependence between the development of health tourism and sustainable rural development, and to determine

whether there are differences in perception between respondents from Serbia and Slovenia. In accordance with this, two research hypotheses were formulated:

Hypothesis 1 - Variables of health management have statistically significant relationships with variables of sustainable rural development.

Hypothesis 2 - There are significant differences in the perception of the role and impact of health management on sustainable rural development between respondents from Serbia and Slovenia.

A total of 360 respondents participated in the research. Regarding gender structure, 167 respondents (46,3%) identified as male, 170 (47,1%) as female, while 23 (6,6%) did not disclose their gender. By age group, 89 respondents (24,7%) were under the age of 25, 216 (60%) were between 25 and 60 years old, and 55 (15,3%) were over 60.

In terms of roles within the context of health tourism, 71 respondents (19,8%) identified as local residents, 125 (34,7%) as visitors or tourists, 36 (9,9%) were employed in the tourism or healthcare sector, 122 (33,9%) were students or researchers, and 6 respondents (1,7%) selected "other". Regarding educational background, 3 respondents (0,9%) had completed primary school, 59 (16,5%) secondary school, 214 (59,5%) had a college or undergraduate degree, and 83 (23,1%) held a master's degree or higher.

In terms of country of origin, 190 respondents (52,9%) were from Serbia and 170 (47,1%) from Slovenia. Respondents were allowed to select multiple areas of health tourism that interested them. As a result, 152 participants (42,1%) selected spa tourism, 77 (21,5%) medical rehabilitation, 211 (58,7%) wellness/spa centers, 169 (47,1%) fitness and preventive programs, 63 (17,4%) alternative medicine, while 18 respondents (5%) cited other forms.

Motivations for visiting a health tourism destination were distributed as follows: 45 respondents (12,4%) were motivated by medical treatments such as rehabilitation, 196 (54,5%) by relaxation and wellness services, 30 (8,3%) by preventive screenings, 47 (13,2%) by family reasons or tradition, 29 (8,2%) by cost and affordability, and 9 participants (2,4%) mentioned other reasons. Regarding sources of information about the destination, 119 respondents (33,1%) cited recommendations from friends, 125 (34,7%) cited information from the internet or social media, 36 (9,9%) mentioned travel agencies, 33 (9,1%) received information from doctors or health advisors, 33 (9,1%) relied on prior experience, and 15 (4,1%) learned about the destination through other channels.

Results

For the purpose of this research, key dimensions of health management and sustainable rural development were analyzed based on a sample of 360 respondents from Serbia and Slovenia. Each variable was operationalized through multiple statements, with responses measured using a five-point Likert scale ranging from 1 to 5. Table 1 presents the basic descriptive statistical indicators for each variable, including the mean value, standard deviation, and reliability coefficient (Cronbach's Alpha).

Table 1. Descriptive Statistics for Health Management and Sustainable Rural Development Variables

Variable	Mark	N	Min	Max	Mean	Standard Deviation	Cronbach's Alpha
Accessibility of health management services	HM1	360	1	5	3,69	,814	,704
Quality management in health services	HM2	360	1	5	3,97	,796	,632
Marketing management and digital literacy	HM3	360	1	5	3,90	,887	,817
Patient satisfaction and loyalty	HM4	360	1	5	4,10	,664	,541
Economic impact on the local community	HM5	360	1	5	3,92	,825	,735
Demographic sustainability	SRD1	360	1	5	3,44	,993	,844
Economic diversification	SRD2	360	1	5	3,99	,804	,715
Environmental responsibility and resource management	SRD3	360	1	5	3,62	1,039	,843
Community participation	SRD4	360	1	5	3,64	,983	,765
Quality of life and infrastructure	SRD5	360	1	5	3,84	,863	,711

Source: Author's research

Results of the descriptive statistics for the variable Environmental responsibility and resource management indicate that the highest-rated variables are Patient satisfaction and loyalty (HM4, mean value 4,10), followed by Economic diversification (SRD2, mean value 3,99), and Quality management in health services (HM2, mean value 3,97). The high rating of patient satisfaction and loyalty suggests that health management in the analyzed destinations succeeds in meeting user expectations, with patients expressing a willingness to return and recommend the health facilities to others. These findings reflect the stability and attractiveness of the health service offer, which is an important precondition for the sustainable growth of the health sector.

On the other hand, the lowest-rated variable is Demographic sustainability (SRD1, mean value 3,44), followed by Environmental responsibility and resource management (SRD3, mean value 3,62), and Accessibility of health management services (HM1, mean value 3,69). These values indicate existing challenges in retaining young populations in rural areas and achieving a higher level of environmental responsibility and sustainable resource management. Furthermore, the accessibility of health management services, although rated above average, signals room for improvement in terms of affordability and availability for a broader range of users.

The standard deviation values for most variables range from 0,664 to 1,039, indicating relatively consistent opinions among respondents, but also the presence of certain variations in the perception of specific aspects (e.g., environmental responsibility). All variables received ratings above the midpoint of the scale (3), confirming a

predominantly positive attitude of respondents toward the development of health management and sustainable rural development in the analyzed countries.

The reliability of the applied measures was assessed using Cronbach's Alpha coefficient for each dimension individually. All calculated coefficients are above the recommended minimum threshold of 0,60, which, according to relevant literature, represents a satisfactory level of internal consistency (Taber, 2018). The highest coefficient was recorded for the variable Demographic sustainability (SRD1, $\alpha = 0,844$), indicating a high degree of reliability for this scale. Similarly, high values of α were also measured for the variable Environmental responsibility and resource management (SRD3, $\alpha = 0,843$) and Marketing management and digital literacy (HM3, $\alpha = 0,817$), suggesting that respondents answered consistently across the items comprising these scales.

The lowest reliability coefficient was recorded for the variable Patient satisfaction and loyalty (HM4, $\alpha = 0,541$), which falls slightly below the optimal recommended threshold of 0.7, but is still considered acceptable in social research where scales include a small number of items or examine more abstract constructs (DeVellis & Thorpe, 2021). These results suggest that the measurement scales can be considered reliable instruments for assessing the analyzed dimensions in the context of health management and sustainable rural development.

The interrelations and influences between health management variables and sustainable rural development variables were examined using correlation analysis. The obtained correlation values are presented in Table 2.

Table 2. Correlation values between health management variables and sustainable rural development variables

	HM1	HM2	HM3	HM4	HM5
SRD1	,327**	,368**	,438**	,432**	,545**
SRD2	,558**	,469**	,428**	,556**	,472**
SRD3	,485**	,438**	,546**	,580**	,518**
SRD4	,466**	,446**	,459**	,510**	,557**
SRD5	,493**	,476**	,519**	,612**	,587**

**. The correlation is significant at the 0,01 level (2-tailed).

Source: Author's research

The correlation analysis conducted between the dimensions of health management (HM1-HM5) and aspects of sustainable rural development (SRD1-SRD5) indicates the existence of statistically significant and positive relationships among all observed variables, with all Pearson correlation coefficients being significant at the 0,01 level. These results confirm the interdependence between the development of health management practices and the improvement of various aspects of sustainable rural development in the analyzed regions.

Analysis of individual coefficients shows that the strongest positive correlations are observed between the variable Quality of Life and Infrastructure (SRD5) and Patient Satisfaction and Loyalty (HM4), with a correlation coefficient of $r = 0,612$, as well as between Quality of Life and Infrastructure (SRD5) and Economic Impact on the

Local Community (HM5), with r = 0,587. These findings suggest that improvements in the quality of life and infrastructure in rural areas directly contribute to increased patient satisfaction and loyalty, as well as a stronger economic effect of health management on the local community. Additionally, a very high correlation is noted between Environmental Responsibility and Resource Management (SRD3) and Patient Satisfaction and Loyalty (HM4), with r = 0,580, confirming that ecological aspects of development play a significant role in shaping a positive patient experience.

The lowest correlation coefficients were recorded between Demographic Sustainability (SRD1) and Accessibility of Health Management Services (HM1), with r = 0,327, as well as between the same variable (SRD1) and Quality Management of Health Services (HM2), with r = 0,368. This indicates that measures aimed at enhancing demographic sustainability have a relatively weaker connection with aspects of accessibility and service quality management in the health sector, compared to other dimensions. These findings suggest the need for additional programs and policies that more effectively link health management strategies with demographic development in rural areas.

The high correlation values and statistical significance of all correlations confirm that the development of health management is strongly linked to the advancement of rural communities, implying a multidimensional approach in planning and implementing development strategies within this sector. Such findings can serve as a strong rationale for integrated policies that connect the health sector with rural development and the improvement of living conditions in local communities.

Given that the correlation analysis between health management variables and sustainable rural development variables yielded high values, the data are suitable for further analysis through regression. The regression analysis aims to determine the individual impact of independent health management variables on dependent sustainable rural development variables. The regression model of these impacts is presented in Table 3.

Table 3. Regression model of the impact of independent health management variables on dependent sustainable rural development variables (only variables with statistically significant effects are shown)

Dependent	Independent	β	t	Sig.	R^2	F	Sig.
SRD1	HM5	,402	7,426	,000	,337	36,039	,000
SRD2	HM1	,298	4,985	,000	,411	49,355	,000
	HM4	,277	4,487	,000			
	HM5	,195	3,824	,000			
SRD3	HM3	,190	3,247	,001	,429	53,118	,000
	HM4	,264	4,334	,000			
	HM5	,230	4,572	,000			
SRD4	HM4	,173	2,754	,006	,394	46,127	,000
	HM5	,349	6,745	,000			
SRD5	HM4	,320	5,508	,000	,481	65,658	,000
	HM5	,325	6,799	,000			

Source: Author's research

The results of the regression analysis indicate that the economic impact on the local community (HM5) is a statistically significant predictor of demographic sustainability ($\beta = 0,402$; $t = 7,426$; $p < 0,001$). The explained variance (R^2) amounts to 33,7%, suggesting that the economic benefits generated by effective health management practices play a crucial role in population retention and in fostering positive demographic trends in rural areas.

The model shows that economic diversification is significantly influenced by accessibility of health management services (HM1; $\beta = 0,298$; $t = 4,985$; $p < 0,001$), patient satisfaction and loyalty (HM4; $\beta = 0,277$; $t = 4,487$; $p < 0,001$), and the economic impact on the local community (HM5; $\beta = 0,195$; $t = 3,824$; $p < 0,001$). Collectively, these variables explain 41.1% of the variance in the dependent variable ($R^2 = 0,411$). This demonstrates that the development of additional economic activities in rural areas relies on the availability of health management services, patient loyalty, but above all on the local economic effect of health management.

Regarding environmental responsibility and resource management (SRD3), the most significant predictors are marketing management and digital literacy (HM3; $\beta = 0,190$; $t = 3,247$; $p = 0,001$), patient satisfaction and loyalty (HM4; $\beta = 0,264$; $t = 4,334$; $p < 0,001$), and the economic impact on the local community (HM5; $\beta = 0,230$; $t = 4,572$; $p < 0,001$), with R^2 equal to 42,9%. These findings indicate that the development of ecological awareness and the implementation of sustainable practices are largely stimulated by well-executed marketing management activities and high levels of patient satisfaction, as well as economic benefits at the local level.

Community participation (SRD4), as a variable of sustainable rural development, is primarily determined by patient satisfaction and loyalty (HM4; $\beta = 0,173$; $t = 2,754$; $p = 0,006$) and the economic impact on the local community (HM5; $\beta = 0,349$; $t = 6,745$; $p < 0,001$), with an explained variance of 39,4% ($R^2 = 0,394$). These results suggest that high levels of community engagement and involvement in decision-making depend on patient loyalty but predominantly on the economic benefits that health management brings to the community.

The highest degree of explained variance was recorded for quality of life and infrastructure (SRD5) ($R^2 = 0,481$). The key predictors are patient satisfaction and loyalty (HM4; $\beta = 0,320$; $t = 5,508$; $p < 0,001$) and the economic impact on the local community (HM5; $\beta = 0,325$; $t = 6,799$; $p < 0,001$). This implies that the improvement of living standards and infrastructure in rural areas largely depends on the quality of patient experience and the local economic impact of health management.

The regression analysis confirms that the dimensions related to the economic impact of health management (HM5) and patient satisfaction (HM4) consistently exert a significant and positive influence on all aspects of sustainable rural development. These results suggest that strategic enhancement of these dimensions can yield multiple benefits for rural communities, opening avenues for the development of integrated policies focused on sustainability and increasing the competitiveness of health management.

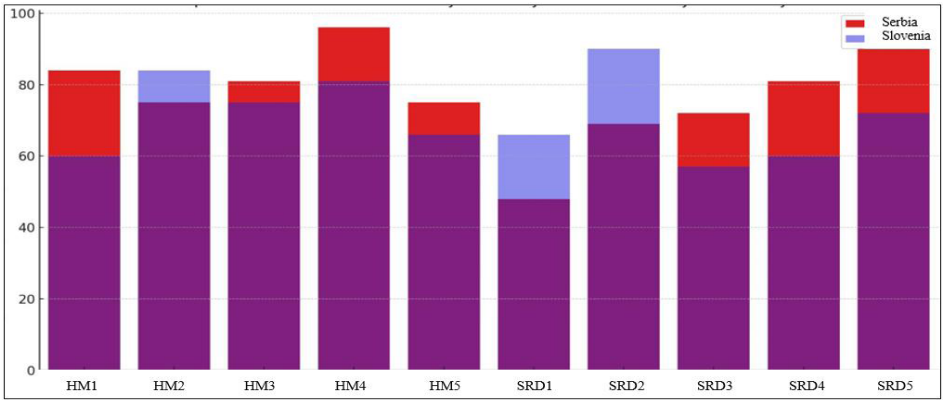
In order to identify and analyze differences in the perception and evaluation of the role of health management and sustainable rural development between Serbia and Slovenia, a hierarchical cluster analysis was conducted. A total of 10 variables were analyzed: five related to the dimensions of health management (HM1-HM5) and five related to sustainable rural development (SRD1-SRD5). Data were collected from respondents in both countries, and Ward's method with squared Euclidean distance was applied. The primary objective of the study was to determine whether statistically significant differences exist in the priorities and assessments of these dimensions between the two countries.

Based on the cluster analysis, two clearly differentiated groups of respondents were identified, corresponding to Serbia and Slovenia. A comparative analysis of mean ratings per variable shows that respondents from Slovenia rate accessibility of health management services (HM1), quality management and diversity of offerings (HM2), as well as economic diversification in rural areas (SRD2), significantly higher. Conversely, respondents from Serbia emphasize marketing management and digital literacy (HM3), economic impact on the local community (HM5), and quality of life and infrastructure in rural areas (SRD5).

The key differences between the countries reflect different stages of development of health management and sustainable rural development, as well as differing priorities at the level of public policies and local perceptions. In Slovenia, dominant ratings focus on availability and quality of offerings, indicating a more developed and institutionalized practice of health management and sustainable rural policies. In contrast, Serbia highlights marketing potential and economic benefits for the local community, which may point to a stronger need for promotion and economic optimization of health management activities.

Figure 1 clearly illustrates the differences in the number of highly rated responses for each variable between respondents from Serbia (red) and Slovenia (blue). For example, Serbia has a significantly higher number of high ratings in variables HM3, HM4, SRD4, and SRD5, whereas Slovenia leads in variables HM2, SRD1, and especially SRD2.

Figure 1. Distribution of Top-Rated Health Management and Rural Development Variables: Serbia vs. Slovenia



The Figure presents a comparative analysis of highly rated variables between Serbia and Slovenia. It is evident that respondents from Slovenia rated the accessibility and quality of health management services significantly higher, whereas respondents from Serbia emphasized the importance of marketing management and digital presence, as well as the economic contribution to the local community. These findings highlight different developmental stages and priorities in the fields of health management and sustainable rural development in the analyzed countries.

The conducted cluster analysis revealed the existence of two dominant clusters, which largely correspond to the national affiliation of respondents (Serbia and Slovenia). Cluster 1 predominantly consisted of respondents from Serbia, while Cluster 2 included respondents from Slovenia. This division was further confirmed by the dendrogram and the sharp increase in agglomeration coefficient values observed in the final stages of the analysis.

Key differences between Serbia and Slovenia were identified through the analysis of highly rated variables. Serbia recorded higher ratings in the domains of marketing management and digital literacy (HM3), patient satisfaction and loyalty (HM4), as well as quality of life and infrastructure (SRD4, SRD5). Conversely, Slovenia received higher ratings regarding the quality management and diversity of health service offerings (HM2), demographic sustainability (SRD1), and economic diversification (SRD2). These results point to differing development strategies and perceptions—while Serbia places emphasis on user satisfaction and infrastructure improvement, Slovenia shifts focus toward diversification and sustainability of local communities.

Discussions

The results of the analysis demonstrate that all examined variables related to health management and sustainable rural development were rated above the midpoint of the scale, reflecting a general recognition and positive attitude of respondents towards these processes in both Serbia and Slovenia. The highest mean scores were observed for the variables Patient satisfaction and loyalty (HM4; mean 4,10), Economic diversification (SRD2; 3,99), and Quality management of health services (HM2; 3,97). Conversely, the lowest ratings were given to Demographic sustainability (SRD1; 3,44) and Environmental responsibility and resource management (SRD3; 3,62). This pattern suggests that economic aspects and the user experience are well developed, while ongoing challenges remain in the domains of demographic trends and environmental responsibility, underscoring the need for targeted interventions in these segments.

Correlation analysis reveals a strong interdependence between all dimensions of health management and sustainable rural development, with all Pearson correlation coefficients being positive and significant at the 0,01 level. On this basis, Hypothesis 1 is confirmed: variables of health management are statistically significantly related to variables of sustainable rural development. Especially notable is the strong association between Quality of life and infrastructure (SRD5) and Patient satisfaction and loyalty

(HM4) (r = 0,612), as well as between Economic impact on the local community (HM5) and Quality of life and infrastructure (SRD5) (r = 0,587). These findings indicate that improvements in infrastructure and living standards directly enhance patient satisfaction and loyalty, while also reinforcing the economic impact of health management on local communities. Conversely, the relatively weaker links between accessibility and demographic sustainability (e.g., SRD1 and HM1; r = 0,327) highlight the need for further measures to support population retention and improve access to healthcare services in rural regions.

Regression analysis provides further confirmation that the Economic impact on the local community (HM5) and Patient satisfaction and loyalty (HM4) are consistently the most significant predictors of all dimensions of sustainable rural development. For instance, regarding Demographic sustainability (SRD1), the economic impact (HM5) has a standardized coefficient $\beta = 0,402$, explaining 33,7% of the variance ($R^2 = 0,337$). For Quality of life and infrastructure (SRD5), the combination of patient satisfaction (HM4) and economic impact (HM5) accounts for as much as 48,1% of the variance. These results affirm that strengthening the local economy and enhancing patient/user experience lead directly to positive outcomes in rural areas, including demographic and environmental dimensions.

These findings support conclusions from prior studies that recognize health management as a powerful driver of economic diversification and revitalization in rural areas, as well as a generator of new employment and local income (Hall, 2010; Dwyer, 2023; Ilić & Đukić, 2022). The advancement of health management, particularly through the integration of medical, wellness, and preventive services, contributes to improved quality of life for local populations and increases the overall attractiveness of rural destinations (Park et al., 2019; Jegdić et al., 2016; Yin et al., 2020).

Comparative cluster analysis distinctly differentiates two respondent groups by nationality (Serbia vs. Slovenia), thereby confirming Hypothesis 2: there are significant differences in perceptions of the role and impact of health management on sustainable rural development between respondents from Serbia and Slovenia. In Slovenia, variables related to the accessibility of healthcare services (HM1), quality management and diversity of services (HM2), and economic diversification (SRD2) were rated significantly higher, pointing to developed and institutionalized models of health management and rural policy. Conversely, Serbian respondents placed greater emphasis on marketing management and digital literacy (HM3), economic benefits to the local community (HM5), and quality of life and infrastructure (SRD5). These findings reflect different developmental phases, priorities, and policy approaches—Slovenia prioritizes accessibility and sustainability, while Serbia is oriented toward promotion, economic outcomes, and enhanced user experience.

The comparative results align with earlier research showing that Slovenia, due to its high level of organization and ecological standards, has implemented a more institutionalized approach to rural health management. Serbia, on the other hand, develops a diversified

offering, strongly leveraging natural resources and traditional attractions (Lakićević & Pantić, 2020; Petrović et al., 2017; Vujko et al., 2016). The quality of infrastructure and collaboration between local stakeholders and service users are confirmed as key factors for the sustainable development and competitiveness of rural destinations in both countries.

Conclusions

The research clearly demonstrates that health management has substantial potential to serve as a key driver of sustainable rural development in both Serbia and Slovenia. Its influence is evident in the strengthening of local economies, the creation of new employment opportunities, the improvement of quality of life, and the preservation of natural and cultural values within rural communities. The identified differences between the two countries offer valuable lessons: Slovenia stands out as a model of institutionalization and quality standardization in health management, while Serbia presents considerable potential for growth through enhanced promotional activities and further investment in infrastructure.

The main limitations of this study stem from the data collection process, which relied on self-reported and subjective perceptions of respondents. This approach may influence the precision and broader applicability of the results. Moreover, the research timeframe did not enable the assessment of long-term effects or the observation of dynamic changes over time, and the selected sample may not fully represent the geographic and demographic diversity of the studied populations.

For future research, it is recommended to undertake longitudinal studies that would track changes over extended periods, providing insights into the sustainability of health management initiatives in rural areas. Incorporating additional qualitative methods, such as in-depth interviews and focus groups, would also enable a richer understanding of the motivations, challenges, and experiences of both local communities and health service users. Comparative analysis with other countries in the region, as well as a focus on particular segments of health management (such as spa services, wellness programs, and rehabilitation), could further support the development of targeted policies and personalized strategies for advancing sustainable rural development.

Conflict of interests

The authors declare no conflict of interest.

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