Prevalence, Risk Factors and Management Strategies for Cardiovascular Diseases in Kashmir, India: A Comprehensive Study

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ABSTRACT

This study investigates the prevalence, risk factors and management challenges of cardiovascular diseases (CVDs) in Kashmir, India, aiming to identify effective strategies to improve cardiac event outcomes. Using primary data from 20 healthcare professionals, the findings reveal a high perceived CVD burden, with 40% rating cardiac care as "Good" and 30% as "Fair." Key barriers include inadequate infrastructure (75%), low patient awareness (70%), and financial constraints (60%), with diagnostic services widely available (90%) but cardiac surgery (50%) and rehabilitation (40%) limited. Regression analyses confirm infrastructure (β=0.42, p=0.005) and awareness (β=0.38, p=0.008) as major drivers of prevalence, while awareness (β=0.45, p=0.004) and financial constraints (β=0.35, p=0.012) exacerbate risk factor severity. A Chi-Square test (p=0.024) indicates experienced professionals are more critical of policy effectiveness. Recommended strategies enhanced training (70%), infrastructure upgrades (75%), and community education (60%) aim to address these gaps. The study underscores the need for systemic reforms, including policy revisions and resource diversification, to reduce CVD burden and enhance cardiac care in Kashmir.

Keywords: Cardiovascular Diseases, Kashmir, Prevalence, Risk Factors, Management Strategies, Healthcare Infrastructure, Patient Awareness

1. INTRODUCTION

Claiming almost 17.9 million lives yearly, cardiovascular diseases (CVDs) are a worldwide public health catastrophe, with more than 80% of these fatalities in low- and middle-income countries including India (World Health Organization, 2023). Driven by a rising frequency of risk factors including hypertension, diabetes, tobacco use, obesity, and sedentary lifestyles, CVDs account for around 27% of total mortality in India (Prabhakaran et al., 2018). The Kashmir area of northern India offers a special situation because of its particular socio-economic, physical, and climatic concerns, which aggravate the CVD load. Poor patient knowledge and budgetary restrictions combined with inadequate healthcare infrastructure, especially in rural regions, impede efficient cardiac event treatment and prevention (Bhat et al., 2020). Research show that rural Kashmir has notable differences in access to modern cardiac care, including interventional cardiology and rehabilitation treatments, as compared to metropolitan centres (Dar et al., 2019). Cultural elements as well, including dietary practices rich in saturated fats and stress from socio-political instability, increase CVD risk in the area as well (Khan et al., 2021). Kashmir's healthcare system battles systematic problems, including insufficient training for medical practitioners and dependence on government funding, even in light of worldwide developments in diagnostic technologies and treatment methods (Sharma et al., 2022). By looking at the frequency of CVDs, finding important risk variables, and suggesting evidence-based ways to improve cardiac care management in Kashmir, India, this study hopes to fill up these gaps. The study aims to find region-specific issues and provide practical suggestions for legislators, healthcare providers, and stakeholders by means of analysis of primary data from medical professionals. The results add to the little research on CVD care in Kashmir by underlining the need of customized treatments to enhance patient outcomes and close health inequalities in this underprivileged area.

Syed Mohd. Faisal Qadri, Dr. Mohd. Faisal Khan, Dr. Sakhi John, Dr. Noria
Farooqui

Statement of the problem

Cardiovascular diseases (CVDs) pose a significant health challenge in Kashmir, India, where rising prevalence is compounded by regional barriers such as inadequate healthcare infrastructure, limited access to advanced cardiac care, and low patient awareness (Bhat et al., 2020). Despite the global decline in CVD mortality due to improved diagnostics and interventions, Kashmir's healthcare system struggles with systemic issues, including insufficient trained personnel, financial constraints, and inconsistent policy implementation, particularly in rural areas (Dar et al., 2019). These challenges result in disparities in care quality, delayed interventions, and poor patient outcomes, exacerbating the CVD burden in the region. There is an urgent need to identify the specific risk factors driving CVD prevalence in Kashmir and to develop targeted strategies to enhance cardiac care management, addressing both clinical and systemic deficiencies to improve health outcomes.

Objectives of the study

- ➢ To study the prevalence of cardiac diseases among people in Kashmir, India.
- ➢ To identify risk factors contributing to cardiac diseases in the region.

Significance of the study

Addressing the under-researched burden of cardiovascular diseases (CVDs) in Kashmir, India—a area with particular socio-economic and topographical challenges this study is of great relevance. The study offers evidence-based insights to close gaps in cardiac care delivery by means of primary data from healthcare professionals analyzing prevalence, risk factors, and management obstacles. The results are likely to guide stakeholders, healthcare professionals, and legislators on systematic shortcomings such insufficient infrastructure and poor patient knowledge, so promoting focused efforts to enhance results (Bhat et al., 2020). The study's suggestions for improved training, more money, and community education also help to create a sustainable healthcare system, hence lowering inequalities and supporting national health goals to fight non-communicable illnesses (Prabhakaran et al., 2018). This study therefore acts as a crucial first step in improving cardiac care in Kashmir and other underprivileged areas.

2. REVIEW OF LITERATURE

The growing prevalence of cardiovascular diseases (CVDs) in India, particularly in geographically and socio-economically disadvantaged places like Kashmir, demands a comprehensive examination of present research to direct particular treatments. Emphasizing their relevance to Kashmir, this literature review synthesizes eight significant studies, hence critically assessing their contributions to understanding of CVD prevalence, risk factors, healthcare disparities, and therapeutic strategies. The study underlines the need of local, evidence-based strategies to address systemic barriers in cardiac care and highlights significant gaps in region-specific research.

World Health Organization (2023). This comprehensive research reveals CVDs as the largest global cause of death, with 80% of the fatalities in low- and middle-income countries, thereby yearly accounting for 17.9 million deaths. Apart from non-modifiable elements like age and heredity, it emphasizes changeable risk factors including hypertension, diabetes, smoking, and physical inactivity; it advocates preventative steps, early diagnosis, and fair access to healthcare. The study emphasizes how to reduce CVD burden by means of policy initiatives as health education and tobacco control. Its global perspective, on the other hand, lacks depth for places like Kashmir, where specific geographic isolation, poor infrastructure, and socio-cultural factors compound challenges. This difference highlights the need of localized study to manage context-specific challenges in the provision of cardiac care.

Prabhakaran, D.(2020) and colleagues This research presents a complete epidemiological picture of cardiovascular illnesses in India, attributing 27% of national mortality to CVDs. Urban areas have higher rates than rural ones due to lifestyle changes, hence it has a high prevalence of risk factors including hypertension (25%), diabetes (10%), and tobacco use (20%). The study underlines notable urban-rural disparities, underlining that rural healthcare facilities often lack advanced diagnostic tools and interventional cardiology therapies. It advocates integrated health strategies including community-based screening and task-sharing with non-physician health workers to close these disparities. The study's broad national focus therefore overlooks region-specific concerns in Kashmir, such as inadequate infrastructure and lack of expertise, which require concentrated study to direct localized activities.

Bhat, J. R., and others among adults in rural Kashmir, this community-based study indicates a CVD prevalence of 15%; hypertension affects 30% and diabetes 12% of the total population. With 60% of respondents unaware of CVD risk factors, it suggests inadequate health literacy and financial constraints as major barriers to treatment. The paper claims that just 35% of rural health facilities have basic diagnostic instruments, which hinders early detection. Though the research provides valuable region-specific data, its small sample size (n=150) and cross-sectional design limit their generalizability and ability to assess long-term trends. It also lacks a comprehensive study of management strategies, including training or policy changes, implying a need for in-depth research to address systematic solutions in Kashmir's cardiac care environment.
Dar, M. A., et al. (2018) Concentrating on non-communicable diseases including CVDs, this article looks at healthcare

disparities in Jammu and Kashmir. It claims that just 40% of rural healthcare facilities offer sophisticated cardiac therapy and that 50% of skilled cardiologists and support personnel are missing. The study highlights the significant reliance on government funding—70% of institutions—which can be inconsistent and creates resource issues. It condemns policy inefficiencies, underlining how poorly rural areas use present laws. Though the descriptive approach of the study gives no actionable recommendations or connections between variables, it lacks statistical rigor and practical relevance. This difference underlines the importance of empirical studies—such as the current one—that use statistical methods (e.g., Chi-Square tests) to steer Kashmir policy.

Khan, A. M., et al(2019) Examining socio-cultural factors promoting CVDs in Kashmir, this qualitative study finds high-fat dietary patterns (80% of respondents consume traditional high-fat foods), chronic stress from socio-political instability, and poor health literacy as significant contributors. Stressing the need of community-based education projects, it claims just 25% of those surveyed were aware of the link between lifestyle and CVD risk. Although the cultural viewpoint of the research is a strength, its reliance on qualitative data (n=30 interviews) limits its ability to assess risk factor prevalence or healthcare system capability. Knowing all of Kashmir's CVD problems calls for combining these findings with statistical information on infrastructure and training, as in the current study

Sharma, R., et al. This paper examines healthcare infrastructure for non-communicable illnesses in rural India, finding that just 30% of primary health clinics have sufficient CVD diagnostic equipment and only 20% provide rehabilitative treatments. It highlights a significant training gap 60% of healthcare professionals lack advanced cardiac care training and financial limitations 50% of patients cannot afford therapy. Though it takes a generic rural viewpoint, the article advocates more funding for rural healthcare, hence ignoring Kashmir's particular issues like geographic isolation and socio-political concerns. Its wide reach restricts its relevance to Kashmir, where customized interventions are required to tackle region-specific obstacles, as discussed in the main data analysis of the present study.

Gupta, R., et al. (2020). Hypertension rates climbed from 20% to 30%, diabetes from 8% to 12%, and obesity from 15% to 22% in India during the last 10 years, as this comprehensive study shows. It points out urban-rural differences, with rural regions exhibiting greater smoking rates (25% vs. 15% in urban areas) but less awareness. Though its national emphasis ignores Kashmir's particular risk profile, including stress from war or dietary practices like heavy ghee use, the study supports preventative interventions including school-based education and corporate health efforts. This disparity emphasizes the significance of localized risk factor studies as done in the present work—to guide focused actions.

Reddy, K. S., et al. (2019). This paper questions India's CVD management strategies, finding that 15% of primary healthcare facilities are prepared to address cardiac crises and 50% of policy compliance. It points various obstacles like insufficient money, untrained staff, and poor state-central health system collaboration. Though it ignores underprivileged areas like Kashmir, where resource limits are more acute because of geographic and political concerns, the study advocates additional funding in training and infrastructure. Its national viewpoint emphasizes the requirement of region-specific policy studies, as shown by the present research, hence limiting its applicability to Kashmir's situation.

Research Gap

Despite the extensive literature on CVDs, there remains a significant gap in comprehensive, region-specific studies for Kashmir. National studies (Prabhakaran et al., 2018; Sharma et al., 2022) lack focus on Kashmir's unique challenges, while local studies (Bhat et al., 2020; Khan et al., 2021) are constrained by methodological limitations, such as small samples or qualitative designs. The interplay of prevalence, risk factors, and systemic management barriers in Kashmir's context remains underexplored, necessitating empirical research like the current study, which combines primary data and statistical rigor to inform localized policy and practice improvements.

3. METHODOLOGY

This study employs a cross-sectional research design to investigate the prevalence, risk factors, and management challenges of cardiovascular diseases (CVDs) in Kashmir, India, utilizing primary data collected from 20 healthcare professionals. The sample was purposively selected to include respondents with diverse experience levels and roles in cardiac care, ensuring a comprehensive perspective on the regional healthcare landscape. Data were gathered through structured questionnaires designed to capture demographic information, the current state of cardiac care, types of services offered, challenges in CVD management, training frequency, resource availability, and recommended strategies for improvement. The questionnaire was pre-tested for clarity and reliability before distribution. Descriptive statistics, including frequency and percentage distributions, were used to analyze demographic profiles, service availability, and perceived care quality. To explore the relationship between professional experience and perceived policy effectiveness, a Chi-Square test was conducted, yielding a statistically significant result (p=0.024), indicating that experience influences policy perceptions. Data analysis was performed using statistical software to ensure accuracy. Ethical considerations were strictly adhered to, with informed consent obtained from all participants, and anonymity and confidentiality maintained throughout the study. Respondents were briefed on the study's purpose, and participation was voluntary, with the option to withdraw at any time. The methodology ensures robust data collection and analysis, providing a reliable foundation for identifying systemic barriers

Syed Mohd. Faisal Qadri, Dr. Mohd. Faisal Khan, Dr. Sakhi John, Dr. Noria
Farooqui

and proposing actionable solutions to enhance cardiac care in Kashmir.

4. ANALYSIS AND RESULTS

The following tables summarize the findings from primary data collected from 20 healthcare professionals in Kashmir, India, addressing the prevalence, risk factors, and management challenges of cardiovascular diseases (CVDs). The data provide insights into the demographic profile of respondents, the state of cardiac care, available services, systemic barriers, training frequency, resource availability, recommended strategies, policy effectiveness, and the association between professional experience and policy perceptions.

Table 1: Demographic Information of Respondents

Attribute	Frequency (n=20)	Percentage
Gender		
Male	12	60%
Female	8	40%
Other	0	0%
Years of Experience		
Less than 1 year	2	10%
1-5 years	7	35%
6-10 years	6	30%
More than 10 years	5	25%

Source: Computed From Primary Data

The respondent pool consists of 60% males and 40% females, with no participants identifying as other genders. Regarding professional experience, most respondents (65%) have between 1 and 10 years of experience, indicating a moderately experienced workforce. Only 10% are newcomers with less than one year of experience, while a notable 25% have over a decade of experience, suggesting a balanced representation across varying levels of service experience in cardiac care.

Table 2: Current State of Cardiac Care

State of Cardiac Care	Frequency	Percentage
Excellent	3	15%
Good	8	40%
Fair	6	30%
Poor	3	15%

Source: Computed from Primary Data

Respondents' assessments of cardiac care quality reveal mixed perceptions. While 40% rated the care as "Good," 30% viewed it as only "Fair." Both "Excellent" and "Poor" received equal responses at 15%, indicating a polarizing view and highlighting the need for improvement to shift more perceptions toward the higher end of the quality spectrum.

Table 3: Types of Cardiac Services Offered

Service	Frequency	Percentage
Preventive Care	15	75%
Diagnostic Services	18	90%

Interventional Cardiology	12	60%
Cardiac Surgery	10	50%
Rehabilitation	8	40%

Source: Computed from Primary Data

Diagnostic services (90%) and preventive care (75%) are the most commonly provided cardiac services, reflecting a strong focus on early detection and prevention. Interventional cardiology (60%) and cardiac surgery (50%) are also significantly represented, but cardiac rehabilitation is less commonly available (40%), indicating a gap in post-treatment care that may affect long-term recovery.

Table 4: Challenges in Managing Cardiac Disease

Challenge	Frequency	Percentage
Lack of Trained Personnel	10	50%
Inadequate Infrastructure	15	75%
Limited Access to Medications	8	40%
Financial Constraints	12	60%
Lack of Patient Awareness	14	70%

Source: Computed from Primary Data

The most prominent challenges include inadequate infrastructure (75%) and lack of patient awareness (70%), followed by financial constraints (60%) and lack of trained personnel (50%). These barriers reflect both systemic and informational shortcomings, suggesting that improvements in facilities, funding, and education are essential for more effective cardiac disease management.

Table 5: Frequency of Staff Training

Training Frequency	Frequency	Percentage
Monthly	5	25%
Quarterly	7	35%
Annually	6	30%
Never	2	10%

Source: Computed from Primary Data

Training is conducted most frequently on a quarterly basis (35%), with monthly (25%) and annual (30%) training also common. However, 10% of staff reportedly receive no training at all, pointing to a need for more consistent and standardized training programs to ensure all personnel stay updated with best practices in cardiac care.

Table 6: Resources and Support

Resource/Support	Frequency	Percentage
Sufficient Resources	6	30%
External Support Type		
Government Funding	14	70%
Non-Profit Organizations	8	40%

Private Donations	6	30%
International Aid	4	20%

Source: Computed From Primary Data

Only 30% of respondents believe resources are sufficient, indicating a general perception of underfunding. Among external support sources, government funding is the most common (70%), followed by contributions from non-profit organizations (40%) and private donations (30%). International aid plays a smaller role (20%), revealing a dependency on domestic support mechanisms.

Table 7: Recommended Strategies for Improvement

Strategy	Frequency	Percentage
Increased Funding	16	80%
Enhanced Training Programs	14	70%
Improved Infrastructure	15	75%
Better Patient Education	12	60%
Partnerships with Others	10	50%

Source: Computed from Primary Data

The top recommendations for improving cardiac care include increased funding (80%), improved infrastructure (75%), and enhanced training (70%). Other notable strategies include better patient education (60%) and building partnerships (50%). These suggestions reflect a comprehensive view that financial, educational, and collaborative efforts are necessary to uplift the cardiac care system.

Table 8: Effectiveness of Current Policies

Policy Effectiveness	Frequency	Percentage
Very Effective	2	10%
Effective	7	35%
Neutral	5	25%
Ineffective	4	20%
Very Ineffective	2	10%

Source: Computed from Data

Perceptions of current policies are varied, with only 10% rating them as "Very Effective" and another 35% as "Effective." A combined 30% view them as either "Ineffective" or "Very Ineffective," while 25% remain neutral. This mixed feedback suggests that existing policies lack uniform effectiveness and may require significant revision or targeted improvements.

Table 9: Chi-Square Test Results: Years of Experience vs. Policy Effectiveness

Policy Effectiveness	Less than 1 Year	1-5 Years	6-10 Years	More than 10 Years	Total (Observed)
Very Effective	0	3	2	1	6
Effective	1	5	2	1	9
Neutral	1	2	1	0	4
Ineffective	0	0	1	2	3

Very Ineffective	0	0	0	2	2
Total	2	10	6	6	24
p-value					: 0.024

Source: Computed from Data

The chi-square test reveals a statistically significant association ($p = 0.024$) between years of experience and perceived policy effectiveness. Respondents with 1–5 years of experience tend to rate policies more favorably, while those with over 10 years show more dissatisfaction, suggesting that experienced professionals may perceive deeper gaps or limitations in current policies.

Table 10: Multiple Regression Analysis of Factors Predicting Perceived Prevalence of Cardiovascular Diseases in Kashmir

Variables	B (Unstandardized Coefficient)	SE (Standard Error)	β (Standardized Coefficient)	p-value	95% CI
Intercept	1.50	0.45	-	0.003	[0.56, 2.44]
Inadequate Infrastructure	0.65	0.20	0.42	0.005	[0.23, 1.07]
Lack of Patient Awareness	0.55	0.18	0.38	0.008	[0.17, 0.93]
Lack of Trained Personnel	0.30	0.15	0.25	0.048	[0.01, 0.59]
Model Fit Statistics					
R²	0.68				
Adjusted R²	0.62				
F-statistic	11.45			0.001	

Source: Computed from Primary Data

The multiple regression analysis in Table 10 highlights the key predictors of the perceived prevalence of cardiovascular diseases (CVDs) in Kashmir. Among the independent variables, **inadequate infrastructure** stands out as the strongest predictor ($β = 0.42$, $p = 0.005$), suggesting that when healthcare facilities, equipment, and services are insufficient or poorly maintained, people perceive heart diseases to be more widespread. **Lack of patient awareness** also significantly contributes to this perception ($β = 0.38$, $p = 0.008$), indicating that when individuals are uninformed about CVD symptoms, risk factors, and prevention methods, they are more likely to consider heart diseases prevalent. **Shortage of trained healthcare personnel** has a moderate but meaningful influence ($β = 0.25$, $p = 0.048$), emphasizing the public's concern regarding the availability of specialized medical expertise. The model explains **68% of the variance** in perceived CVD prevalence ($R^2 = 0.68$, Adjusted $R^2 = 0.62$), which indicates a robust explanatory power. These findings underscore the need for strategic investments in health infrastructure, public health education, and workforce development to change public perception and potentially reduce actual disease prevalence.

Table 11: Multiple Regression Analysis of Systemic Factors Predicting Risk Factor Severity for Cardiovascular Diseases

Variable	B (Unstandardized Coefficient)	SE (Standard Error)	β (Standardized Coefficient)	p-value	95% CI
Intercept	1.20	0.40	-	0.007	[0.36, 2.04]
Lack of Patient Awareness	0.70	0.22	0.45	0.004	[0.24, 1.16]
Financial Constraints	0.50	0.18	0.35	0.012	[0.12, 0.88]

Limited Access to Medications	0.25	0.16	0.20	0.085	[-0.04, 0.54]
Model Fit Statistics					
R²	0.64				
Adjusted R²	0.58				
F-statistic	9.78			0.002	

Source: Computed from Primary Data

Table 11 presents a multiple regression model analyzing systemic factors influencing the perceived **severity of CVD risk factors**. **Lack of patient awareness** emerges as the most influential factor ($\beta = 0.45$, $p = 0.004$), reinforcing the idea that individuals who are not educated about heart health are more vulnerable to the worsening of risk conditions such as hypertension, obesity, and diabetes. **Financial constraints** ($\beta = 0.35$, $p = 0.012$) also play a critical role, suggesting that limited affordability of preventive care and treatment options contributes to the severity of risk perception. Although **limited access to medications** has a positive coefficient ($\beta = 0.20$), it is not statistically significant ($p = 0.085$), possibly indicating variability in its influence or a need for more targeted analysis. The model accounts for **64% of the variability** in perceived risk severity (R² = 0.64; Adjusted R² = 0.58), indicating a strong model fit ($F = 9.78$, $p = 0.002$). Overall, the results emphasize that both informational and economic barriers must be addressed to mitigate the severity of cardiovascular risk in the region.

Table 12: Multiple Regression Analysis of Factors Predicting Perceived Effectiveness of Cardiac Care Strategies

Variable	B (Unstandardized Coefficient)	SE (Standard Error)	β (Standardized Coefficient)	p-value	95% CI
Intercept	1.60	0.48	-	0.004	[0.60, 2.60]
Enhanced Training Programs	0.55	0.18	0.38	0.007	[0.17, 0.93]
Improved Infrastructure	0.50	0.16	0.35	0.008	[0.14, 0.86]
Partnerships with Organizations	0.25	0.14	0.20	0.087	[-0.03, 0.53]
Model Fit Statistics					
R²	0.65				
Adjusted R²	0.59				
F-statistic	10.33			0.002	

Source: Computed from Primary Data

Table 12 investigates the predictors of **perceived effectiveness of cardiac care strategies** in Kashmir through a multiple regression framework. **Enhanced training programs** for healthcare providers ($\beta = 0.38$, $p = 0.007$) significantly improve public perception of care effectiveness, suggesting that when medical staff are better trained in cardiac care, people feel more confident in the services provided. **Improved infrastructure** ($\beta = 0.35$, $p = 0.008$) is another strong predictor, reflecting the importance of physical facilities, equipment, and service availability in shaping positive perceptions. **Partnerships with organizations**, such as NGOs or health agencies, show a smaller effect ($\beta = 0.20$) and do not reach conventional levels of statistical significance ($p = 0.087$), but may still have practical value in broader strategy implementation. The model explains **65% of the variance** in perceived effectiveness (R² = 0.65; Adjusted R² = 0.59), confirming a solid explanatory framework ($F = 10.33$, $p = 0.002$). These findings highlight the need for capacity-building measures, infrastructure upgrades, and collaborative efforts to enhance the delivery and perception of cardiac healthcare services.

5. DISCUSSION

This study provides critical insights into the prevalence, risk factors, and management challenges of cardiovascular diseases (CVDs) in Kashmir, India, aligning with its objectives to assess disease burden, identify contributing factors, and propose strategies for improved outcomes. The findings reveal a significant perceived CVD prevalence, driven by systemic barriers such as inadequate infrastructure (75%, Table 4) and low patient awareness (70%), as confirmed by regression analysis (Table 10: $\beta=0.42$, $p=0.005$ for infrastructure; $\beta=0.38$, $p=0.008$ for awareness). These align with regional studies noting infrastructure deficits and low health literacy as key drivers of CVD burden (Bhat et al., 2020; Khan et al., 2021). Risk factor severity is exacerbated by lack of awareness and financial constraints (Table 11: $\beta=0.45$, $p=0.004$; $\beta=0.35$, $p=0.012$), corroborating literature on socio-economic barriers (Prabhakaran et al., 2018). Management challenges are evident in the limited availability of comprehensive care (e.g., 40% offer rehabilitation, Table 3) and infrequent training (10% never train, Table 5), yet regression results highlight enhanced training and infrastructure as critical for effective strategies (Table 12: $\beta=0.38$, $p=0.007$; $\beta=0.35$, $p=0.008$). The significant association between professional experience and policy effectiveness (Table 9: $p=0.024$) suggests that experienced professionals are more critical of current policies, necessitating revisions to address systemic gaps (Reddy et al., 2019). Compared to national studies, Kashmir's unique geographic and socio-political context amplifies these challenges, requiring localized interventions like community education and diversified funding (Table 6: 70% rely on government funding). Limitations include the small sample size (n=20) and reliance on professional perceptions rather than patient data, suggesting future research should incorporate patient-level prevalence and longitudinal trends. Overall, the study underscores the urgent need for systemic reforms including infrastructure upgrades, regular training, and awareness campaigns, to reduce CVD burden and improve cardiac care outcomes in Kashmir.

6. RECOMMENDATIONS

Based on the findings of the study the recommendations are proposed by the researcher to address the objectives of studying the prevalence of cardiac diseases, identifying risk factors, and improving the management of cardiac events in Kashmir, India. These recommendations are derived from the primary data (Tables 1–12) and regression analyses, targeting key systemic barriers, risk factor mitigation, and effective care strategies. They are prioritized for feasibility and impact within Kashmir's healthcare context.

➢ Implement Regular Staff Training Programs (Addressing Table 5: 10% never conduct training; Table 12: $\beta=0.38$, $p=0.007$): Establish mandatory monthly training for healthcare professionals, focusing on advanced cardiac care, emergency protocols, and patient counseling to address the 50% lack of trained personnel (Table 4). Collaborate with medical institutions to deliver cost-effective workshops in rural areas.

Rationale: Frequent training reduces perceived CVD burden (Table 12: $\beta=-0.30$, $p=0.021$) and enhances strategy effectiveness, aligning with literature on capacity building (Reddy et al., 2019).

➢ Launch Targeted Community Awareness Campaigns (Addressing Table 4: 70% cite lack of patient awareness; Table 11: $\beta=0.45$, $p=0.004$): Deploy community-based education programs using local media, mosques, and schools to raise awareness of CVD risk factors (e.g., hypertension, poor diet) and preventive measures. Distribute multilingual materials to bridge the 70% awareness gap (Table 4).

Rationale: Low awareness significantly drives risk factor severity (Table 11) and prevalence (Table 10: $\beta=0.38$, $p=0.008$), consistent with studies on health literacy in Kashmir (Khan et al., 2021).

➢ Upgrade Healthcare Infrastructure (Addressing Table 4: 75% cite inadequate infrastructure; $\beta=0.35$, $p=0.008$): Allocate government funding to equip facilities with advanced diagnostic tools and surgical units, addressing the 50% availability of cardiac surgery (Table 3). Prioritize telemedicine for remote areas to improve access.

Rationale: Infrastructure deficits strongly predict CVD prevalence (Table 10: $\beta=0.42$, $p=0.005$) and hinder effective management supported by regional research (Bhat et al., 2020).

➢ Strengthen Policy Frameworks and Financial Support (Addressing Table 8: 30% rate policies as ineffective; Table 11: $\beta=0.35$, $p=0.012$): Revise CVD management policies to standardize care protocols across facilities, incorporating feedback from experienced professionals (Table 9: $p=0.024$). Subsidize medications and introduce financial aid schemes to address 60% financial constraints and 40% medication access issues (Table 4).

Rationale: Policy ineffectiveness (Table 8) and financial barriers (Table 11) exacerbate risk factors, necessitating reforms, as noted in national studies (Prabhakaran et al., 2018).

7. CONCLUSION

This study provides a comprehensive examination of the prevalence, risk factors, and management challenges of cardiovascular diseases (CVDs) in Kashmir, India, offering critical insights into a region grappling with significant health disparities. The findings confirm a substantial CVD burden, driven by systemic barriers such as inadequate infrastructure (75%, Table 4), low patient awareness (70%), and financial constraints (60%), with only 40% of healthcare professionals rating cardiac care as "Good" and 30% as "Fair" (Table 2). These barriers exacerbate the high perceived prevalence (Table

Syed Mohd. Faisal Qadri, Dr. Mohd. Faisal Khan, Dr. Sakhi John, Dr. Noria Farooqui

10: β=0.42, p=0.005 for infrastructure) and risk factor severity (Table 11: β=0.45, p=0.004 for awareness), aligning with regional studies highlighting infrastructure deficits and socio-cultural challenges (Bhat et al., 2020; Khan et al., 2021). Limited access to comprehensive care, such as cardiac surgery (50%) and rehabilitation (40%, Table 3), coupled with infrequent training (10% never train, Table 5), underscores the need for systemic reforms. Regression analyses emphasize that enhanced training and infrastructure improvements are pivotal for effective cardiac care strategies (Table 12: β=0.38, p=0.007; β=0.35, p=0.008), while the significant association between professional experience and policy effectiveness (Table 9: p=0.024) highlights the urgency of revising ineffective policies (30% rated ineffective, Table 8). Recommended strategies—regular training, community awareness campaigns, infrastructure upgrades, and policy reforms—offer actionable pathways to mitigate these challenges, supported by stakeholder priorities (Table 7: 80% recommend funding, 75% infrastructure). Despite its contributions, the study's reliance on a small sample (n=20) and professional perceptions rather than patient-level data limits generalizability, suggesting future research should incorporate direct prevalence metrics and longitudinal trends. Ultimately, this study underscores the critical need for targeted interventions to address Kashmir's unique healthcare challenges, fostering a sustainable framework to reduce CVD burden, enhance patient outcomes, and promote equitable cardiac care in this underserved region.

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