



Integrating Structural-Functional Theory with KAP Analysis: Understanding HIV Transmission Risk in Nepal

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Abstract

Background: Nepal continues to be exposed to HIV transmission risks despite several decades of public health initiatives, especially within the Kathmandu Valley, where internal migration, workforce mobility, and other structural factors combine. Despite this persistent gap between HIV KAP, individual-level behavior models offer an insufficient explanation of the problem.

Objective: The current systematic review seeks to use structural-functional theory to supplement empirical findings on KAP to understand the dynamics of HIV transmission risks in Nepal, as well as identify patterns of publications, citations, authorship, and country/organizational productivity for the last ten years.

Methods: A systematic search was performed through Dimension.ai using Boolean terms: ("HIV" OR "AIDS" OR "HIV transmission") AND ("KAP" OR "knowledge attitude" OR "knowledge practice") AND ("Nepal" OR "Kathmandu Valley"). A total of 107 articles have been identified as published in the period between 1st January 2017 and 10th April 2026. Bibliometrics was performed through VOSviewer with regard to authorship network analysis, citations, and word clouds.

Findings: The research production is largely clustered in Health Sciences (71), Biomedical and Clinical Sciences (66), and Human Society (64). The publishing trend demonstrates some growth up to ten publications in 2024 before drastically falling off. Citations increased steadily



from 71 (2017) until reaching their maximum of 147 (2024) before significantly reducing to 27 in 2026. Nepal is prominent in documents (43) and citations (475), accompanied by high collaboration with Japan (299 citations), the United Kingdom (223 citations), and the United States (214 citations). Tribhuvan University (12 documents, 213 citations) and the University of Tokyo (9 documents, 299 citations) serve as the core institutions. "HIV," "knowledge," "health," "practice," and "Nepal" emerge as key topics based on word cloud analysis.

Conclusion: The combination of structural-functional theory and KAP analysis shows that HIV transmission risk in Nepal results from the interaction between systemic dysfunctions such as cultural taboo, economic weakness, and institutional gaps with individual-level KAP disjunctions. Future research should diversify methodological approaches, consider rural areas, and focus on intervention-related studies for consistent behavior modification.

Keywords: HIV transmission risk, Kathmandu Valley, knowledge-attitude-practice (KAP), Nepal, structural-functional theory

1. Introduction

However, even after decades of extensive interventions within the health care sector, Nepal continues to be vulnerable to HIV transmission. The factors leading to the HIV epidemic in the country can be traced back to structural factors such as poverty, labor migration, gender inequities, and the lack of health services in rural areas (Karki, 2015). In particular, the Kathmandu Valley, as the capital and the most urbanized region in Nepal, creates an environment where internal migrants, truck drivers, garment factory workers, and brick kiln workers are particularly exposed to HIV risks (Karki & Gartoulla, 2017). On the national level, the prevalence rate of HIV infection for the adult population has leveled off to around 0.2%. Nonetheless, the groups most vulnerable to HIV still include MSM, female sex workers, and people who inject drugs (Deuba et al., 2014). Clearly, the reasons for continued risk despite widespread awareness need to go beyond individual behaviors.

Conventional research into HIV mainly examines individual risks but fails to consider the contribution of societal factors in producing and sustaining HIV transmission risks (Latkin et al., 2010). Social and cultural constructs in Nepal have put women at greater risk than others due to their negative impacts on society (Karki & Khadka, 2019a). The female sex workers in Nepal are at risk of contracting HIV infection. FSWs that were under the Peer Education intervention scored significantly higher for psychosocial health knowledge, self-efficacy, resource access, happiness, and job control than those that were not under the intervention (Menger-Ogle et al., 2020). Thus, it can be said that women's autonomy in decision-making plays an essential role in preventing health burdens, such as HIV in Nepal, due to the correlation between higher autonomy and lower risk-taking behaviors, as well as undergoing HIV screening in Nepal, based on the national survey of 9,904 ever-married women. Education, financial status, employment, place of residence, age, and religion also play a role in determining one's knowledge and behaviors toward protecting themselves from HIV infections (Raut & Kagotho, 2024). There is a need for social discourses and dialogue to empower women



and girls against the harmful cultural practices and social taboos (Karki & Khadka, 2019b), and also prevent the transmission of HIV.

The structural-function theory, especially in the formulation of Robert K. Merton with his notions of manifest and latent functions, is one of the useful theories for analyzing the role played by different social subsystems such as economics, education, culture, and politics in the change and development of societies (Aguene, 2025), which is related to how these subsystems can reduce or increase the vulnerability to HIV. According to a previous research conducted on Bangladesh, Lao, Mongolia, and Nepal, it was shown that many demographic factors, including wealth index, education, and access to information, were significantly associated with HIV/AIDS knowledge among these populations (Dzadey et al., 2023). The work done by Karki & Gartoulla (2017) successfully illustrated how this model works in Nepal by showing that individual determinants, socio-cultural factors, economic situation, educational attainment, and political structures operate in combination to influence the risk of HIV transmission in the broader social structure. In their paper, the cultural taboo of talking about sexual activities served as a latent dysfunction that kept encouraging risky behavior despite having a relatively high level of awareness about HIV/AIDS prevention.

There is ample evidence available suggesting an evident gap between HIV-related knowledge, attitudes, and practices (KAP) in various groups within Nepal. In a systematic review conducted by Upreti et al. on the sexual health of young people in Nepal, it was determined that although the general level of knowledge about STIs and HIV/AIDS is high, there is a large discrepancy in knowledge depending on education level, gender, and region (Upreti et al., 2009). Most importantly, it was observed that although the awareness of condoms is widespread, their consistent use among young Nepalis in premarital and extramarital relationships with non-consistent partners is exceedingly poor, and overall, risky sexual behavior can be seen as prevalent among the youth (Upreti et al., 2009). The problem of a KAP gap is not exclusive to the youth. In a case study conducted by Karki (2014) among 404 workers of garments, bricks, transport, and health care, the level of knowledge ranged between 13.6% and 96.8%, whereas attitudes towards PLWH varied between totally negative and completely positive, with 42.8% of the respondents believing that the status should be kept secret. The above study revealed that factors like ignorance, negligence, illiteracy, polygamy, trafficking, stigmatization and discrimination, war, migration, and poverty played key roles in increasing risks. In the study of Shrestha and friends (2021), it was revealed that individuals educated in medical ethics score high on knowledge, attitudes, and practices (Shrestha et al., 2021).

Although both structural-functionalist perspectives and KAPs have been extensively researched in Nepal, these approaches seem to run separately from each other, rather than complementing one another. While structural-functionalist approaches have successfully outlined the macro-level structures responsible for an individual's exposure to HIV, KAPs have offered detailed insights into individuals' knowledge, attitudes, and practices without the necessary theoretical framework explaining why certain individuals fail to act according to their knowledge base (Karki, 2014; Karki & Gartoulla, 2017). It is this lack of integration that precludes the design of a more holistic intervention strategy targeting both structural forces and



individual behaviors. As emphasized by Deuba et al. (2014) in their investigation of HIV risk among the MSM population in Kathmandu Valley, not enough attention has been paid to how the interaction of individual-level, social capital, and social-structural variables might affect the likelihood of acquiring an infection. Specifically, it is evident from Deuba et al.'s findings that sex work and awareness about symptoms of STIs significantly impact individuals' chances of contracting HIV infection in combination with other factors.

Research Objectives

The main purpose of this review is to critically analyze the literature available on the use of structural functionalism in HIV transmission risk in Nepal, along with the research related to KAP in empirical studies.

2. Methodology

This study is an attempt to conduct a systematic review of the published scientific papers within the scope of dimension.ai for the past decade. In this study, the search terms used include ("*HIV*" OR "*AIDS*" OR "*HIV transmission*") AND ("*KAP*" OR "*knowledge attitude*" OR "*knowledge practice*") AND ("*Nepal*" OR "*Kathmandu Valley*"). A total of 107 articles have been identified that are part of the current analysis. The statistical analysis of HIV and AIDS articles was done using the VOSviewer application.

3. Results

3.1 Research Categories

The Figure 1 shows the research output or academic interests in different scientific and social science areas, where "Health Sciences" has the highest percentage. In terms of numbers, "Health Sciences" comes first with 71, followed by "Biomedical and Clinical Sciences" and "Human Society," which both have scores of 66 and 9, respectively. It can be observed from the graph that "Health Sciences," and "Biomedical and Clinical Sciences," make up the main area of concern for the research. Some other areas of research apart from the top two, though still relatively important, are Commerce, Management, Tourism and Services, which have 2; Education with 2; and Philosophy and Religious Studies with 2.



As seen from the graph, the other disciplines contribute progressively lower amounts, making up the long tail of more specialized or less mainstream disciplines. The contribution made by Psychology is two, whereas the contribution made by the Agricultural and Veterinary Sciences, Biological Sciences, and Built Environment and Design is one each. From this distribution pattern, it can be said that while the main research focus lies in the health and biomedical sciences sector with a high level of societal importance, there are some links to the study of psychology, agriculture, biology, and built environment and design.

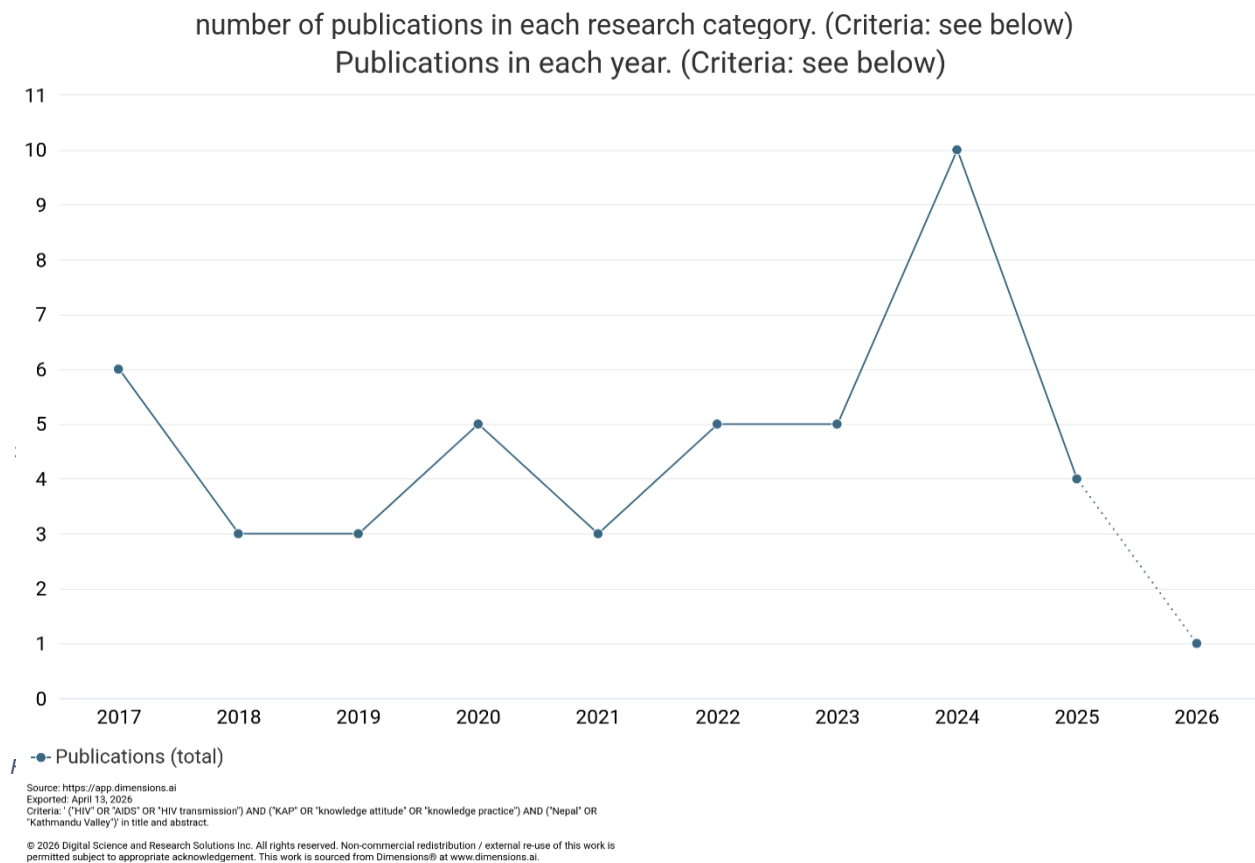


Figure 1: Year-wise publication

3.2 Year-wise publication

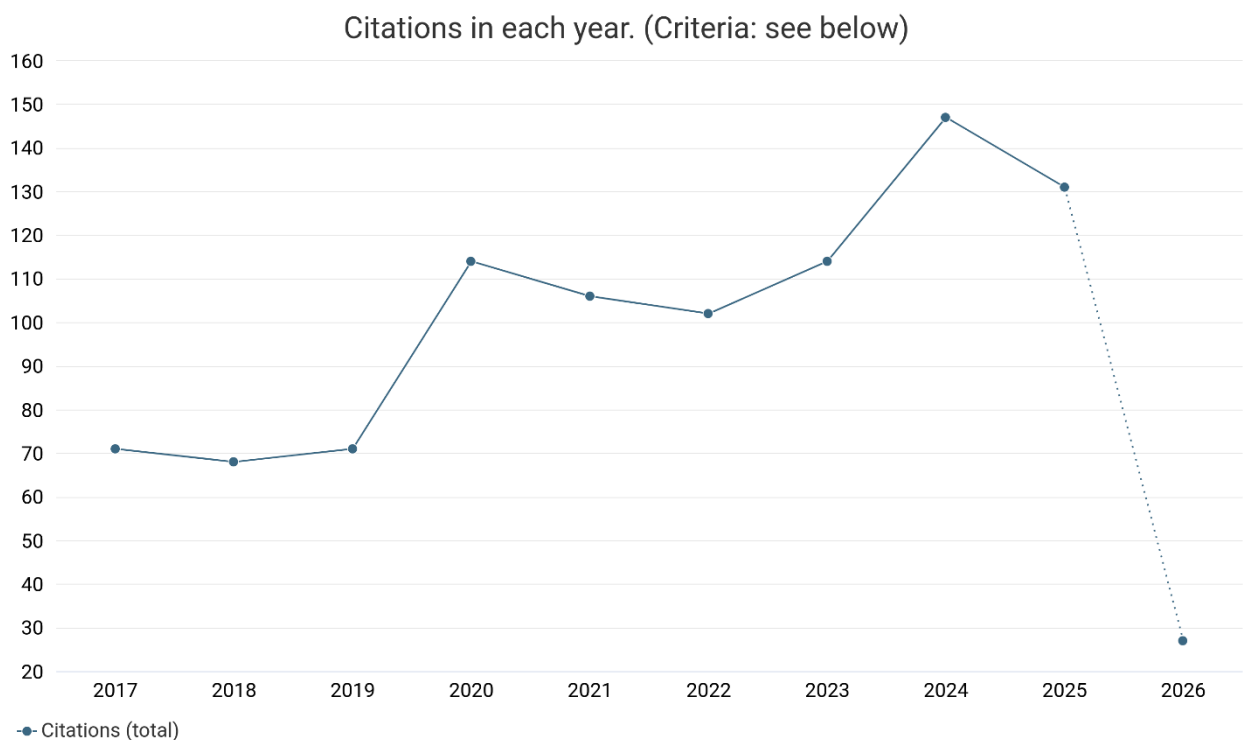
Figure 2 illustrates that there has been a publication trend over a decade (from 2017 to 2026) that has experienced significant variations, yet a slight upward trend can be observed, especially towards the later part of the period. Publications from 2017 to 2022 have remained minimal and consistent for the most part, ranging from 3 to 6 publications annually without any linear increase in the number of publications. The highest number of publications was recorded at 6 publications in 2017, followed by 5 publications in 2020 and 2022, and 3 publications for all other years, namely 2018, 2019, and 2021.



There is a considerable increase in ‘2024’, with the most publications (10), making it the year with the highest publication count during the ten-year period, doubling the maximum previously recorded and accounting for 25% of the total 45 publications throughout the ten years. The spike might be attributed to a late reaction to previous research voids, funding changes, or a resurgence in academic interest in HIV service provision due to the effects of the COVID-19 pandemic. Nevertheless, there is a sudden and dramatic fall in the count to four publications in 2025 and just one in 2026 (assuming partial data for the year 2026). Such a rapid decline might be indicative of topic exhaustion, a change in research focus, or possibly insufficient data for the year 2026.

3.3 Year-wise citations

The Figure 3 presents an obvious upward trend in the number of citations per year between 2017 and 2024, pointing towards the growing impact and relevance of research in the area in question. Beginning with 71 citations in 2017, the figures stayed relatively flat until 2019 (68-71). Then, there was a sudden jump in the number of citations up to 114 in 2020. While the next two years (2021, 2022) recorded a decline in citations (106 and 102, respectively), it remained high compared to previous years. The years with the most citations are '2020 (114)', '2023 (114)', and '2024 (147)', with 2024 having the most citations (147). The data indicate that



Source: <https://app.dimensions.ai>

Exported: April 13, 2026

Criteria: ("HIV" OR "AIDS" OR "HIV transmission") AND ("KAP" OR "knowledge attitude" OR "knowledge practice") AND ("Nepal" OR "Kathmandu Valley") in title and abstract

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Figure 3: Year-wise citations



articles published before 2020 (especially 2017-2020) received citations as the field developed further, while the newer ones also gained popularity.

What is the most striking characteristic of this graph? It is a sudden decrease down to 27 citations in 2026, that accounts for less than 20% compared to the highest 2024 record. This sudden change in the trend needs some consideration. There may be several reasons for such a situation:

First, it is possible that 2026 represents only part of a year, and we have the data on citations only for several months. Thus, we can expect further changes in future. Second, it is worth noting that citation trends tend to lag behind publishing years, thus we may expect additional citations during late 2026. Third, the falling trend might indicate the decrease of interest to this area of study or shifting to other theoretical bases or regions. Nevertheless, taking into account the previous good performance of the area under consideration, it seems that the reason for the change in 2026 is incomplete data collection.

3.4 Co-authorship analysis

The Figure 4 above represents a graph representing networks of collaboration between researchers dealing with HIV/AIDS issues. In the figure, it seems that there is emphasis on Nepal or South Asia because of the names mentioned here. The graph is divided into different clusters (different color codes). Among the other highly connected researchers are 'Simkhada, Padam Prasad', 'Deuba, Keshab', and 'Kaufman, Michelle R'. These are important researchers since they can act as collaborators for many researchers. With the involvement of other important researchers like 'Twati, Devina', 'Shrestha, Nistha' and 'Basnyat, Buddha', we can assume that research teams are active in Nepal or its surroundings.

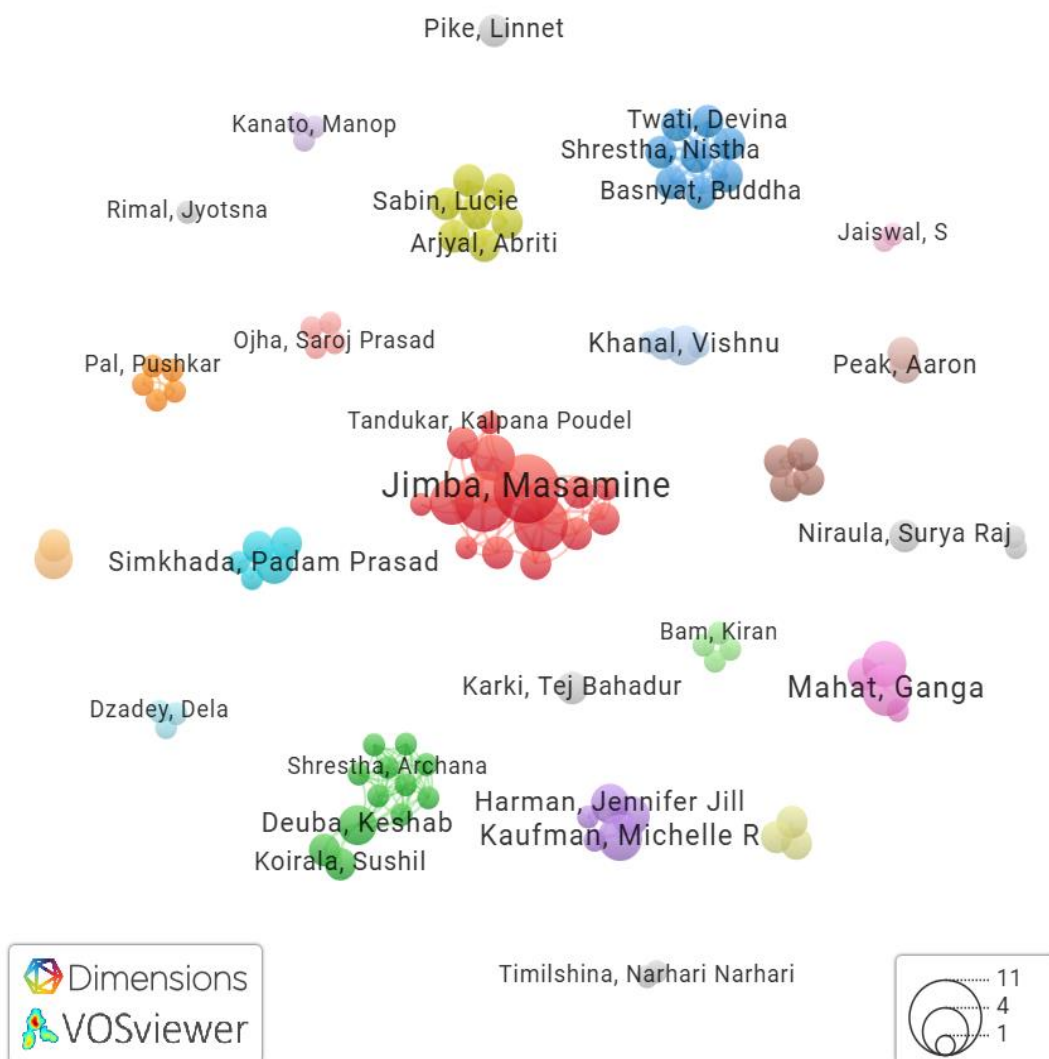


Figure 4: Co-authorship analysis

There seem to be at least four separate clusters on the map. The first cluster revolves around 'Karki' and involves 'Mahat, Ganga', 'Tandukar, Kalpana Poudel', and 'Bam, Kiran'. This might mean that there is a team of researchers working together in one project or more. In another cluster, we see 'Simkhada' and 'Deuba', which might be connected with such authors as 'Koirala,

Sushil', 'Kaufman, Michelle R', and 'Peak, Aaron'. This implies that there is some form of collaboration between people from different countries or institutions. In the third cluster, we can find 'Kanato, Manop' and 'Pike, Linnet', which might mean that there is a group related to Thailand. Some authors are shown as isolated nodes, such as 'Timilshina, Narhari', 'Pal, Pushkar', and 'Ojha, Saroj Prasad'.

3.5 Country-wise publication

It is evident from the Figure 5 that the leading country contributing the most in terms of number of articles published is 'Nepal' having 43 articles and also having highest number of link strengths (32) depicting intense international collaboration. It is also clear that the country is highly productive in terms of publication with highest number of citations (475). Moving ahead on the list, the 'United States' comes in second place with respect to number of articles (19), having 214 citations and a total link strength of 12, whereas the 'United Kingdom' is third on the basis of contribution of 14 articles, 223 citations and a total link strength of 23. The country 'Japan' with its 9 articles and 299 citations has the second-highest citations count.

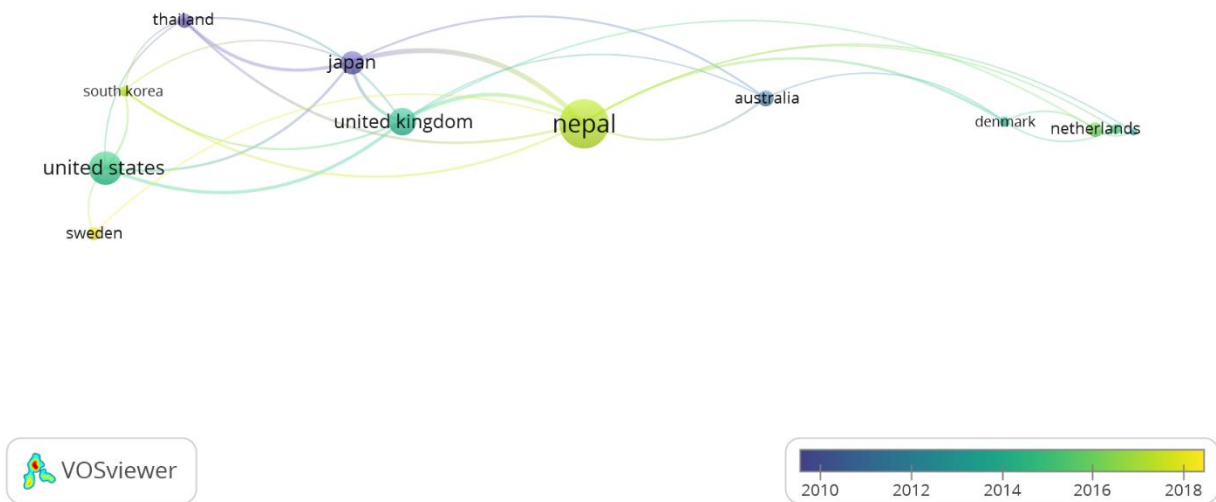


Figure 5: Country-wise publication

The total link strength indicator highlights important collaboration ties. Nations with the largest scores include the United Kingdom (23), Japan (28), Nepal (32), and Thailand (12). Thus, they appear to be at the heart of the dynamic international research collaboration network. On the other hand, there is a group of countries, including Canada, China, Germany, India, Malaysia, Norway, and Taiwan, whose total link strength score equals zero. Hence, these nations may produce scholarly papers independently or collaborate without being documented in the database used for this research. Some countries demonstrate average link strength scores, implying selective collaboration, namely Bangladesh (3), Denmark (6), South Korea (8), and the Netherlands (4). Moreover, there is one entity with no identified country name (id 1, "see note"), having 1 publication and 1 citation in total. Consequently, the research shows that the research collaboration framework is dominated by Nepal with significant support from Japan,

the United Kingdom, and the United States, whereas many other nations have minor involvement or none at all.

3.6 Organizations-wise publication

From the below figure 6, it is clear that 'Tribhuvan University' is the most productive institute, contributing 12 papers, 213 citations, and having the maximum link strength of 14, indicating that not only are the number of papers being published by this institute very high, but there is also a lot of collaboration going on. The second most productive institute, 'The University of Tokyo', has equal production as that of Tribhuvan University with 9 papers; however, it has more citations, 299, which is higher than Tribhuvan University. Moreover, the University of Tokyo has the maximum total link strength of 16, indicating an exceptionally high impact for each paper and also good international cooperation. 'B.P. Koirala Institute of Health Sciences' has produced 9 papers with a total of 52 citations and a link strength of 6, making it an important contributor within Nepal. Other important contributors from Nepal include 'Nepal Medical College Teaching Hospital' with 5 papers, 65 citations, and zero link strength and 'Kathmandu

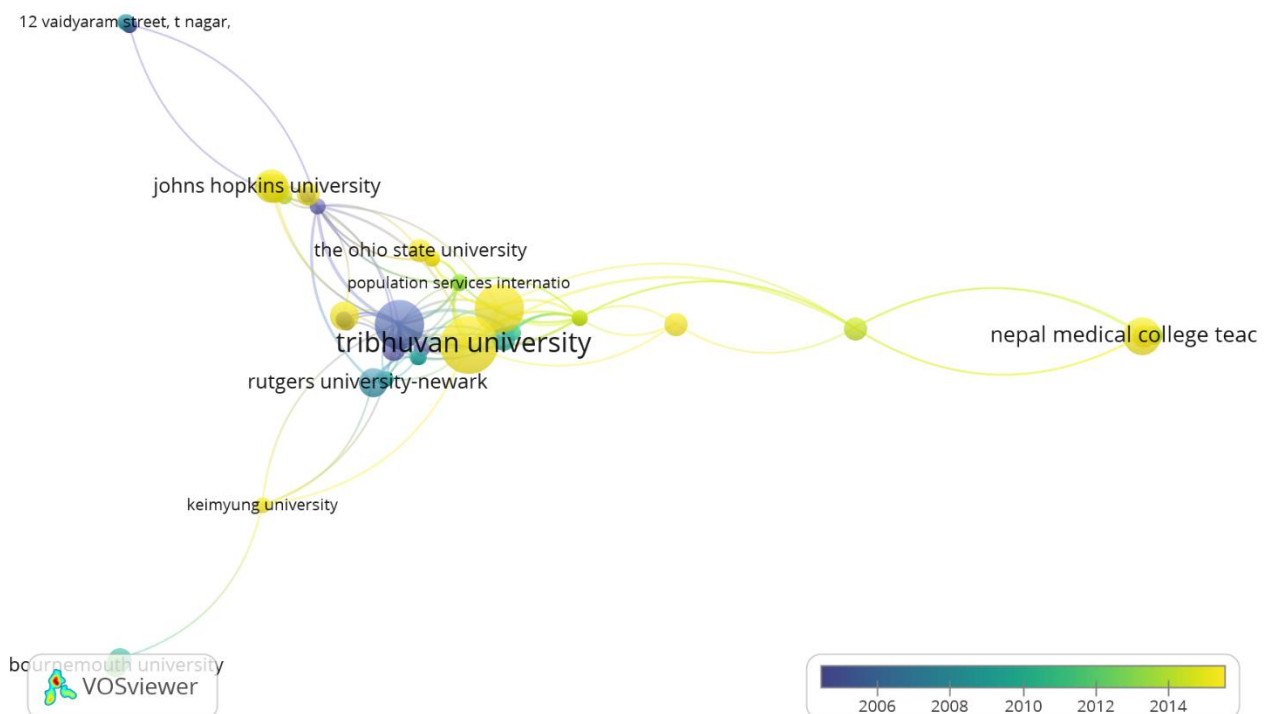


Figure 6: Organizations-wise publication

University' with 5 papers, 38 citations, and link strength 1.

The metric of total link strength brings to light some stark contrasts between collaborating partners. For instance, 'University of Tokyo' is recorded with a total of 16 papers while 'Tribhuvan University' records 14. This implies that they are highly collaborative and can be said to form the main drivers of international collaborative research on HIV/AIDS in Nepal. 'Karolinska Institutet' scores very low on total link strength with just one document but has 96 citations and 32 citations per document implying that although it is not much engaged in



indicates that the applied aspects of the research have been emphasized to improve service delivery and educational programmes. Thus, altogether, the words reflect the broad range of research focused on KAP about HIV.

4. Conclusion and Recommendation

It can be seen from the above findings that trends in HIV publications heavily emphasize issues of KAP. Specifically, the prominence of the term “HIV” denotes the main focus on the subject matter. Moreover, the prevalence of terms like “knowledge,” “health,” “practice,” and “study” implies that most publications concentrate more on descriptive approaches rather than longitudinal or experimental ones. It can also be noted that publications under analysis are geographically oriented and mostly cover Nepal with special attention paid to districts and communities, as well as the hospital environment in particular. The target group of these publications involves adolescents and women, which indicates their focus on vulnerability among these populations regarding sexually transmitted diseases and possible ways to prevent them.

In view of these trends, future research ought to broaden its scope geographically as well as methodologically so as to have findings that are thorough and more comprehensive. There is a need for consideration of underprivileged areas, such as rural and marginalized areas, as well as the adoption of mixed methodology and longitudinal studies that will help analyze behavioral changes in the future. There is also a need for more attention to be paid to intervention-based and implementation research to assess the efficacy of various interventions concerning education, condoms, and prevention in general. Furthermore, consideration of socio-cultural, economic, and gender issues may make future findings highly relevant in the Nepalese context.

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References

- Aguene, I. N. (2025). *Basic Sociological Theory (Second Edition)* (2nd ed.). Erudite Publishers. https://eprints.gouni.edu.ng/5156/1/FORMAT_BASIC_SOCIOLOGICAL_THEORY.pdf
- Deuba, K., Karki, D. K., Shrestha, R., Aryal, U. R., Bhatta, L., & Rai, K. K. (2014). Risk of HIV Infection Among Men Having Sex With Men in Kathmandu Valley, Nepal. *Asia Pacific Journal of Public Health*, 26(2), 126–137. <https://doi.org/10.1177/1010539512441491>
- Dzadey, D., Biswas, R. K., & Bhowmik, J. (2023). Investigating factors affecting HIV/AIDS knowledge among women in low and middle-income countries in Asia. *Journal of Health Psychology*, 28(11), 1085–1098. <https://doi.org/10.1177/13591053221127531>
- Karki, T. B. (2014). Correlation between knowledge, attitude and practices on HIV and AIDS: cases from the Kathmandu Valley. *Journal of Nepal Health Research Council*, 12(26), 24–29. <http://www.ncbi.nlm.nih.gov/pubmed/25574980>
- Karki, T. B. (2015). Association Between Socio-Cultural Factors and HIV And AIDS. *Journal of Advanced Academic Research*, 2(2), 76–89. <https://doi.org/10.3126/jaar.v2i2.16608>
- Karki, T. B., & Gartoulla, R. P. (2017). Application of Structural-Functional Theory in Risk of HIV Transmission. *Journal of Advanced Academic Research*, 2(1), 92–99. <https://doi.org/10.3126/jaar.v2i1.16600>
- Karki, T. B., & Khadka, K. (2019a). Cultural Barrier at the time of Menstruation: Perspective from Girl Students. *Nepal Journal of Multidisciplinary Research*, 2(2), 16–20. <https://doi.org/10.3126/njmr.v2i2.26281>
- Karki, T. B., & Khadka, K. (2019b). Social discourses on practices and remedies of harmful tradition of Chhaupadi in far western region of Nepal. *Nepal Journal of Multidisciplinary Research*, 2(1), 1–6. https://scholar.google.com/citations?view_op=view_citation&hl=en&user=KBnl-SkAAAAJ&citation_for_view=KBnl-SkAAAAJ:qjMakFHDy7sC
- Latkin, C., Weeks, M. R., Glasman, L., Galletly, C., & Albarracin, D. (2010). A Dynamic Social Systems Model for Considering Structural Factors in HIV Prevention and Detection. *AIDS and Behavior*, 14(S2), 222–238. <https://doi.org/10.1007/s10461-010-9804-y>
- Menger-Ogle, L. M., Kaufman, M. R., Fisher, G. G., Ryan, E. P., & Stallones, L. (2020). Using Peer Education to Promote Psychosocial and Occupational Health and Empowerment Among Female Sex Workers in Nepal. *Violence Against Women*, 26(11), 1445–1466. <https://doi.org/10.1177/1077801219861155>
- Raut, S., & Kagotho, N. (2024). Examining Women's HIV Protective Behaviors in Nepal. *Health & Social Work*, 49(2), 115–123. <https://doi.org/10.1093/hsw/hlae003>
- Shrestha, C., Shrestha, A., Joshi, J., Karki, S., Acharya, S., & Joshi, S. (2021). Does teaching medical ethics ensure good knowledge, attitude, and reported practice? An ethical vignette-based cross-sectional survey among doctors in a tertiary teaching hospital in Nepal. *BMC Medical Ethics*, 22(1), 109. <https://doi.org/10.1186/s12910-021-00676-6>
- Upreti, D., Regmi, P., Pant, P., & Simkhada, P. (2009). Young people's knowledge, attitude, and behaviour on STI/HIV/AIDS in the context of Nepal: A systematic review. *Kathmandu University Medical Journal*, 7(28), 383–391. <https://doi.org/10.3126/kumj.v7i4.2759>

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