

Ethical Challenges and Opportunities at the intersection of One Health and Open Science in India: A Scoping Review

Data Extraction Form

Author/year	Method	Findings	Implications for One Health
Chethan Kumar H B et al., 2021	Review article	Types of disease reporting and surveillance system in animal health	Need to be expanded to more diseases
Yasobant S et al, 2023	Protocol	Highlights India's efforts in adopting the OH approach	Emphasizes the importance of interdisciplinary collaboration, policy development, and capacity building to effectively manage zoonotic diseases and improve overall health outcomes.
Zhang X X et al, 2023	Perspective	Deficiencies in current global health systems, including emergency management and disease surveillance.	Need for enhanced international cooperation, improved data sharing, and a systematic redesign to bolster health system resilience and emergency preparedness
Sironi A V et al, 2022	Review article	Prudent and radical approach for the successful implementation of OH research. Difficult for all countries to implement as the new approach is more expensive	Need for ethical framework
Ghanekar PA, 2022	Commentary	Lack of training of community health workers	Need for training addressing specific needs of communities
Misra et al, 2019	Perspective	Prevalence of predatory journals	Need for policies promoting open access publications
Kullenberg C et al, 2016	Scientometric meta-analysis	Publication participation in research under the citizen science umbrella, Citizen Science for collecting and analyzing data	Scientometrics, as a method for mapping Citizen Science projects
Hansen	Scoping review and case study	Authorship issues and data privacy- a major barrier in Citizen Science projects	Need for guidelines for the implementation of Citizen Science
Tulchinsky T H, 2018	Case study	Strict compliance to ethical guidelines for public health research	Need to adopt strategies to ensure honesty and trustworthiness in public health research
Ghai R R	Framework development with subject experts- research article	A five-step model designed to enhance the management of zoonotic diseases through interdisciplinary collaboration.	Scope for interdisciplinary research in OH

Van Panhuis et al, 2014	Systematic review	Challenges in data sharing classified into 6 categories: technical, motivational, economic, political, legal, and ethical barriers	Need for a global solution to facilitate data sharing among countries
Reichmann S et al, 2022	Narrative review	Merely increasing openness does not automatically lead to greater policy impact	Need for empirical research in Open Science
Ribeiro S C et al, 2019	Systematic review	Monitoring and evaluation of OH is a major challenge	Need for capacity building in OH
Dasgupta R et al, 2021	Narrative review	Political and behavioral barriers in the implementation of OH	Need for OH committees
Ved R et al, 2019	Mixed-method study	Continual adaptations are required to address ongoing gender challenges, both anticipated and unanticipated.	Need for health system evaluation
Bhat P et al, 2021	Mixed-methods study	Weak points: training, test Surveillance, OH approach Inter-departmental co-operation Three layers –tick, monkey, and human surveillance, with intersections in activities – often complex	Often require inter-departmental coordination, which is difficult at times. • There is over-reliance on the Health Department for all three surveillance activities – tick, monkey, and human.
Abbas S S et al, 2022	Narrative review	Examines the different ways in which multisector partnerships have been conceptualized across multiple disciplines and thematic areas. Political perspectives and barriers	We suggest that OH discourse needs to move beyond a one-size-fits-all approach and embrace multiple forms of multisector partnerships that are open to adaptation.
Patil R et al, 2021	Perspective	Limited funding for stakeholder engagement	Stakeholder engagement is often underfunded
Tan Yie-Roe et al, 2022	Narrative review	Examines citizen science approaches in participatory data generation, modelling and visualization, and calls for truly participatory and co-creation approaches across all domains of pandemic preparedness and response	Need for Participatory Action Citizen science approaches. Need for participatory modelling and data visualization and communication.
Ulahannan P J et al, 2020	Content analysis	Generation of a bilingual data visualization dashboard	Data visualization technique might be helpful in Citizen science initiatives in OH research
Dahal R et al, 2017	Literature review followed by an online survey of OH researchers (Bangladesh, Bhutan, India and Nepal) using a structured questionnaire	The growth of OH is seen in non-governmental sectors in South Asia. Need for governmental support, collaboration with key stakeholders, coordination and funding support	Limited publication opportunities in One health in South Asian region. There is a great need to explore the challenges in OH at individual and institutional levels comprising of all the stakeholders involved OH.

Ghanekar A P, 2022	Commentary	There is shortage of ASHAs in Gujarat and challenges in inter-sectoral coordination. There is increased workload with reduced pay of the ASHAs	Development of capacity-building models for ASHAs is of utmost importance for the successful implementation of OH
Kumar R et al, 2018	Clinical trial	Lack of open access to One Health research especially human health	No stated directly but an example in community engagement.
Namdeo K S, Koley M, 2021	Policy brief	Challenges in Citizen science such as data ownership issues, data quality, privacy and difficulties in volunteer retention.	Need for a national framework
Prejit et al, 2022	Evaluation of the impact of OH in Kyasanur Forest Disease (KFD) with the help of the Network for Evaluation of One Health (NEOH) protocol	The OH planning, data sharing and learning scored less, and organization, thinking and collaborative efforts scored high. Low involvement of the scientific community, lack of support at individual levels	Recommendation to use the NEOH protocol as checklist at the project planning stage, also there is a need for data sharing platforms for OH
Mckenzie J Set al, 2016	Mixed-method study	Lack of OH research and capacity building programs in South Asia. Behavior and attitude as barriers in collaboration	Need for further development of policies
Taaffe J et al, 2023	Review article	Lack of coordination among sectors	Need to strengthen intersectoral coordination
Chatterjee P et al, 2016	Perspective	Limited capacity-building programs in South and Southeast Asia (SEA), where SEA was found to be relatively better in capacity-building for the implementation of OH	Need for policies and governmental support
Yasobant S et al, 2021	Case study with 3 phases (qualitative, quantitative, participatory workshop)	Manpower, infrastructure, capacity--building programs, trust, surveillance, collaborations, community engagements as facilitators of OH	Need for a bottom-up approach to implement OH
Hoque N M et al, 2022	Review article	Need for risk-management strategies and cross-boundary regulations	Need for inter-sectoral coordination, policies
Arredondo A M P et al, 2021	Content analysis	Lack of data sharing, training of health professionals, surveillance, laboratory facilities, cultural barriers in India. Policy frameworks in both countries are based on international guidelines	Need to explore the ways of implementing OH, and the roles of the key actors involved
Wai-Loon Ho C, 2022	Protocol	Fairness and equity- key factors in the implementation of OH digitalization	Need for a global framework for data integration
Kumar S et al, 2023	Review article	The establishment of the National Institute of OH has been a major development	Need to integrate with traditional systems of medicine

Yasobant S et al, 2019	Participatory research method	Level-based, solution-based and third party-based collaborations for the implementation of OH	Need to explore the interministerial task force
Rocque L D S et al, 2021	Content analysis	Structural and cultural barriers among disciplines	Need for a joint review of capacities in OH
Asaaga A F et al, 2021	Mixed-method study (content analysis, in-depth interviews)	Limited cross-sectoral collaboration with behavioural and cultural and hierarchial barriers. Limited policy frameworks, and lack of clarity on guidelines for OH	To improve inter-personal relationships and collaborations
Chakravorty N et al, 2022	Review article	Risk of publication bias, publication inequality, lack of funding support to publish in OA journals	Need for more open access journals for OH research with increased funding opportunities
Raut J et al, 2023	Narrative review	Lack of training programs, lack of multidisciplinary research, inadequate and timely diagnosis	Need to strengthen cross-sectoral collaborations
Anam E Z, Yasmin S, 2021	Policy brief	Citizen science approach as a solution to solve concrete problems of the society	Need for devices and online tools for research involving citizen scientists
Rajbangshi R P et al, 2021	In-depth interviews	Increased workload and reduced pay of community healthcare workers. Societal barriers and lack of trust as major barriers in community health programs	Focus on conflict-hit areas
Saprii L et al, 2015	In-depth interviews and focus group discussions	Biased selection of ASHAs, increased workload and reduced pay, gender inequality. Lack of transportation facilities	Need to mitigate socio-cultural barriers
Subrahmanya G V S et al, 2022	Review article	Lack of manpower to monitor data, limited accessibility to data	Need for data standardization
Raja S B et al 2021	Narrative review	Lack of data privacy, lack of regulations over tracking the location of patients	Need for a safe repository to store personal information of patients
Yasobant S et al, 2020	Mixed-methods study	Lack of operating guidelines for OH research, lack of data, political barriers differences in working culture- a major problem	Need to understand the existing mechanisms for OH research in India
Mourya D T et al. , 2021	Case report/description	Building laboratory capacity, coordination, training in biosafety	Need for capacity building for OH research

Vreeland C E et al 2016	Review article	Environmental health has less open access journals when compared to human and animal health	Need for open access journals in OH
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