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Original Research Article

Knowledge and perception about One Health among young doctors in north India: an observational study

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ABSTRACT

Background: One Health is a novel concept and is need of hour to improve human health. It is a collective, multi-sectoral and trans-disciplinary phenomenon. The interplay of relationships among people, animals, and the environment is ever-changing and evolving. Not one discipline or sector of society has enough knowledge and resources to prevent the emergence or resurgence of diseases in today's globalized world; hence, inter-sectoral collaboration is the need of the hour. This study was conducted in order to assess knowledge regarding one health among medical students.
Methods: A descriptive cross-sectional study was conducted using a pre-tested, structured questionnaire, administered via social media platforms. The participants included medical students, medical graduates undergoing internship, post-graduate students and young resident doctors.
Results: Only one-third of the participants (n=300) responded in the affirmative when asked whether they knew about one health. A majority of the participants (73%) believed that one health is the domain of veterinarians. Only 44% of the participants were actively involved in one health at the time of the study, while 63% of the participants showed a willingness to get involved in the one health approach.
Conclusions: Dissemination of correct and complete information about one health would go a long way in bridging the gap between the two professions of medicine and veterinary science, and provide us with an able and willing workforce ready to commit to and work for the one health approach.

Keywords: One Health, Inter-sectoral collaboration, Knowledge, Medical students, Veterinary science

INTRODUCTION

One Health is not a new concept. However, in recent times, it has been gaining further interest as the interactions among humans, animals, and their surroundings keep changing. One Health is a collaborative, multi-sectoral and trans-disciplinary attitude. The One Health approach emphasizes that multidisciplinary communication, cooperation, and collaboration are the best ways of dealing with complex problems at the human-animal-environmental interface. The One Health approach uses connections between specialists in human, animal, environmental health, and other affiliated disciplines and sectors in monitoring and regulating public health pitfalls and to learn how diseases spread among humans, animals, plants, and the environment.[1] The growth of human and animal populations, the expanding need for land, food, and energy, variations in climate and land use, and improved global travel and trade deliver manifold chances for disease development. Environmental changes and ecosystem impairment have resulted in impacts like altered infectious diseases, population displacement (including slum lodgings), conflicts, inappropriate adaptation and mitigation. In recent times, there has been an increase in the new emerging infectious conditions affecting the human population, and research has shown that 75% of these conditions have an animal origin. In

contrast, roughly 60% of pathogens primarily affecting humans have also been shown to cause zoonotic conditions which affect humans and animals alike.[2]

Rudolf Virchow, who came from an agricultural family, was an early champion of One Health. He said, "Between animal and human medicine there's no dividing line- nor should there be. The object is different but the experience obtained constitutes the basis of all medicine".[3] The One Health conception, once applied in its entirety, will help transfigure how physicians and veterinarians understand health, disease and the interplay between the two. Numerous physicians with some mindfulness of One Health frequently believe it to be primarily and solely about zoonotic infections and global health, and as such leave this into the hands of others to run and control, not realizing that this may lead to numerous new emerging diseases in humans which they may have to navigate in the future.[4] The world has become a global village now, and as has been seen in other fields, cooperative work with other disciplines has shown positive results in dealing with diseases and saving time, as numerous experts are concurrently involved. This was also true during the COVID-19 pandemic and the recent Monkeypox outbreaks. Despite this, One Health has not yet gained significant attention in the human medical communities. The concept of One Health has not been made mandatory in the medical undergraduate curriculum, and indeed, if there's any mention of it, it is not detailed enough to explain its consequences.[5] No one discipline or sector of society has enough knowledge and resources to prevent the emergence or resurgence of diseases in today's globalized world. Reshaping a more integrative and self-motivated educational system, including recognizing several "hot spot" areas of possible One Health collaboration, is necessary. With this context, we conducted the present study to ascertain the knowledge and perception of young medical doctors and students towards One Health.

METHODS

Study design

The study was a cross-sectional descriptive study. Study period: The data collection for the study was conducted from 20th April to 30th April 2023, using a semi-structured pre-tested questionnaire.

Procedure

It was an online survey; data was collected using an online questionnaire through Google forms, and it was disseminated through social media. In the initial part of the form (the description box), participants were informed about the conduct of the research, the purpose of the study and the research objectives of the study. Instructions to fill out the form were also provided, specifying that only those consenting should fill out the form and submit it. Those participants who submitted the Google form were deemed to have consented to participate in the study. The responses obtained from the participants were anonymous as no email addresses were collected during the filling of the form. Before the commencement of the study, ethical clearance was obtained from the institutional review board. Each participant could submit the Google form only once. The study participants were young doctors, especially the interns, junior residents and senior residents.

Sample size

Since we could not find any relevant data available on the topic at the time of conceptualizing the present study, for calculating the sample size, we assumed the prevalence of knowledge in the population to be 50%. Using an absolute error of 5% with a 95% confidence interval, the sample size was calculated as 384. A total of 300 participants were recruited during the study period.

Sampling

The selection of participants was purposive and based on the convenience of the researchers. Every participant was asked to give their consent while filling out the Google form.

Study tool

It was a semi-structured, pretested questionnaire. The questionnaire was developed by the researchers and pretested in a pilot study on 30 participants. It helped make the necessary changes in the language, style, and question responses, after which the updated questionnaire was edited on Google forms and circulated to the study participants. The questionnaire included two main domains: socio-demographic variables (age, gender, and educational qualification), and questions regarding the knowledge and perception about One Health.

Statistical analysis

The data were entered into a Microsoft Excel 2016 spreadsheet and analyzed. Categorical variables were expressed as frequencies and percentages. The chi-square test was used to assess any association between the dependent and independent variables, while the odds ratio and 95% confidence intervals were used to determine the strength of association.

RESULTS

A total of 300 completely filled responses were obtained during the data collection period. Out of the total, 42% were males, while 58% were females. A majority (88%) of the participants were aged 30 years or less, while 5% were aged 31-35 years and 8% were aged 36 years or above. Amongst the participants, a majority (52%) were medical interns, 33% were medical students, 9% were senior residents, and 6% were postgraduate students

(Table 1). Among the participants, only one-third (33.3%) could confidently say that they knew the concept of One Health (Table 2), while 34% of the participants were not aware of One Health, and 32.7% were not sure about the concept.

Table 1: Socio-demographic variables of the study population.

Variables		Frequency (percentage) (n=300)
Gender	Male	126 (42.0)
	Female	174 (58.0)
Age (years)	≤30	264 (88.0)
	31-35	15 (5.0)
	≥36	21 (7.0)
Qualification	Interns	156 (52.0)
	MBBS students	99 (33.0)
	Medical postgraduates	18 (6.0)
	Senior resident	27 (9.0)

Table 2: Knowledge and perception of One Health in the study participants.

Variables		Frequency (percentage) (n=300)
Knowledge of the concept	Yes	100 (33.3)
	No	102 (34.0)
	Maybe	98 (32.7)
Knowledge of purpose	Joint collaboration	51 (18.0)
	Addresses shared health threats	3 (1.0)
	Global health security	18 (6.0)
	All of the above	225 (75.0)
Major role in one health, according to the participant (multiple responses per participant)	Medical doctors	209 (69.7)
	Veterinarians	219 (73.0)
	Agricultural scientist	157 (52.3)
	Environmentalist	182 (60.7)
	All of the above	77 (25.7)
	None of the above	12 (4.0)
One health pertains to	Healthy humans	93 (31.0)
	Healthy animals	47 (15.7)
	Healthy environment	138(46.0)
	All of the above	17 (5.6)
	None of the above	5 (1.7)
The medical community's disengagement	Yes	182 (60.5)
	No	22 (7.5)
	Maybe	96 (32.0)
Participated in any one health forum	Yes	45 (15.0)
	No	243 (81.0)
	Maybe/not sure	12 (4.0)
Ways to strengthen collaboration	Cross-professional collaboration	34 (11.3)
	Significant cultural change	24 (8.0)
	Specific roles	8 (2.7)
	All of the above	234 (78.0)
Willing to be part of one health	Yes	188 (62.8)
	No	26 (8.6)
	Maybe	86 (28.6)
Involved in one health initiative	Yes	133 (44.3)
	No	74 (24.7)
	Maybe	93 (31.0)

Table 3: Association of Knowledge of one health with other variables.

Variable	Knowledge of One Health		OR (95% CI)	χ^2 (p value)
	Yes (n=100) (%)	No/Maybe (n=200) (%)		
Involvement in One Health initiatives				
Involved (n=133)	68 (51.12%)	65 (48.87%)	4.41 (2.64-7.38)	34.043 (p<0.00001)
Not Involved/ Maybe (n=167)	32 (13.77%)	135 (80.83)		
Gender				
Male (n=126)	51 (40.47%)	75 (59.52%)	1.73 (1.07-2.82)	4.9877 (p=0.025528)
Female (n=174)	49 (28.16%)	125 (71.83%)		
Age				
≤30 (n=264)	69 (26.13%)	195 (73.86%)	0.06 (0.02-0.15)	51.2784 (p<0.00001)
>30 (n=36)	31 (86.11%)	5 (13.88%)		
Willingness to participate in future initiatives				
Willing (n=188)	79 (42.02%)	109 (57.97%)	3.14 (1.8-5.48)	17.104 (p=0.000035)
Not Willing/Maybe (n=112)	21 (18.75%)	91 (81.25%)		

The majority of the participants (73%) believed that only veterinarians played a major role in One Health, while 70% said that medical doctors would play a key role. Only one-fourth of the participants knew that One Health involved the combined efforts of veterinarians, medical doctors, environmentalists and agricultural scientists. Out of the total, only 5.7% of participants knew that One Health refers to healthy animals, humans and the environment together. Only 15% of the participants had participated in any forum on One Health (Table 2). Less than half (44.3%) of participants were actively engaged in One Health initiatives.

About 62.8% of participants expressed their willingness to be involved in such programmes in the future.

The association of the knowledge of One Health with sociodemographic variables was determined by the chi-square test, while the odds ratio was used for the strength of association. Table 3 depicts the odds of knowing One Health based on the sociodemographic characteristics. The knowledge of one health was significantly associated with the willingness to participate in One Health initiatives, being currently involved in the One Health programmes and those aged more than 30 years.

DISCUSSION

The concept of One Health is not a recent one; however, it is only now that the approach is being actively pursued to maintain a healthy ecosystem. About two-thirds of survey participants could not confidently state that they understood what One Health meant, which is a reflection of the concept's rarity in the current study.

Out of the 300 participants, a majority (88%) belonged to the age group of 30 years or less, while 5% were aged 31-35 years and 8% were aged 36 years or above. The study conducted by Vigilla-Montecillo et al in the Philippines had a similar number of participants in the age group of 18-30 years and 65.5% of undergraduate students.[6]

Among the participants from our study, only one-third (33.3%) could say with confidence that they knew the concept of One Health, while 34% of participants didn't have any knowledge about One Health, and 32.7% were not sure about the concept. One Health is a novel concept and an emerging one. Similar findings were reported by studies conducted in Poland (33.3% of veterinary students knew about One Health) and Nigeria (31.7% of medical students knew).[7,8] However, few studies conducted in Turkey on medical interns showed a higher percentage of knowledge (59.8%).[5] In Nepal, a study conducted among veterinary students showed 55.6% of them knew about One Health, while in the USA, 69% of the medical students showed awareness regarding One Health, and in North America, 74.2% of the veterinary students had the knowledge.[9-11] This shows the importance of incorporating One Health in the curriculum of the medical and veterinary students in our setting.

About 62.8% of participants in our study expressed their willingness to be involved in such programmes in the future. A higher percentage was also reported by the study conducted in Turkey among medical interns.[5]

The One Health concept recognizes the health connections between humans, animals, and their shared environments. In today's rapidly changing environments, complex problems affecting multiple species and pathogens can be addressed by promoting professional cooperation between physicians, veterinarians, and others. On one hand, the One Health concept has proven to be useful for addressing the problems of zoonotic disease emergence, while on the other hand, it helps in understanding the overlaps between human and animal health, such as the human-animal bond.[12] This emphasizes the need to incorporate One Health in the medical educational curriculum. The One Health approach is gaining global interest, and the role of academia in training future professionals is critical in building a global workforce capable of enhancing synergies across various sectors in improving health

globally.[13] Incorporating transdisciplinary group projects into the curricula of medical and veterinary schools would foster teamwork and early networking between veterinary and medical students.[14]

The One Health approach can also be applied in a teaching context. When educating and training public health professionals, regardless of what university program they have been enrolled on, emphasizing why these different disciplines inherently interact in practice is fundamental.[15] To establish One Health, beyond the institution of favourable policy frameworks, achieving multi-sectoral convergence is not linear but complex and multi-layered, involving mediators in different positions in-between and at the intersection of these hierarchical structures. Within this purview, existing networks and interpersonal relationships, strong leadership, trust and accountability, knowledge, and policy frameworks are important facilitators to and/or barriers to cross-sectoral action.[16]

Failure of adequate and timely diagnosis and treatment, growing antibiotic resistance among animals, rodents, and insects, which persists in the skin and gut, circulating in the ecosystem, is yet another challenge. Research gap and evidence gap- very few studies have been completely dedicated to multi-disciplinary One Health research. Information on zoonotic diseases in humans and animals is sparsely available. Lack of training programs - there is a minimal number of capacity-building programmes, and training for health workers is held in the country.[17] In India, the central and state governments are increasingly using One Health approaches to tackle the rapidly emerging issues of antimicrobial resistance, zoonoses and food safety.[17] Crosscutting policies and regulatory measures exist that are conducive to the further development of the One Health approach.

Globally, several One Health initiatives are underway, while the Indian approach has so far been largely solution-based, specifically during emergencies and outbreaks. A deeper understanding of local priorities would help shape the nature of One Health collaborations.[18]

CONCLUSION

Developing programmes and educational opportunities tailored for physicians is crucial to the development of One Health in the coming years. There are so many opportunities, yet the gap between the two professions persists. Taking stock of where the barriers are and developing programmes to remove them will do much to promote One Health across the health professions.

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REFERENCES

1. CDC. Centre for Disease Control and Prevention (CDC). 2023. One Health. Available from: https://www.cdc.gov/onehealth/index.html. Accessed on 7 December 2025.
2. Agriculture UD of. US Department of Agriculture. One Health. Available from: https://www.aphis.usda.gov/animal_health/one_health/downloads/one_health_info_sheet.pdf. Accessed on 7 December 2025.
3. Klauder JV. Interrelations of human and veterinary medicine. N E J Med. 1958;258:170-7.
4. Natterson-Horowitz B. A physician's view of one health: Challenges and opportunities. Vet Sci. 2015;2(1):23-5.
5. Akpinar CV, Durmaz S. Medical interns' attitudes towards the One Health approach. Turk J Biochem. 2022;47(1):137-44.
6. Vigilla-Montecillo KR, Rivera JCP, Montecillo AD, Almonte MKG, Bulao MFS, Ong JDP, et al. Awareness, knowledge, attitude, and practices (A-KAP) assessment of the One Health approach in health sciences education webinar series participants in select universities in the Philippines. J Glob Health Rep. 2023;7(May 2021):1-8.
7. Sobierajski T, Wanke-rytt M, Chajecka-Wierzchowska W, Smialek M, Hryniewicz W. One Health in the consciousness of veterinary students from the perspective of knowledge of antibiotic therapy and antimicrobial resistance: a multi-centre study. Front Public Health. 2023;(1).
8. Terrigbade I, Babalobi O. Awareness of One Health by veterinary medicine and human medicine clinical undergraduate students, University of Ibadan, Nigeria (2017/2018 Session). Int J Infect Dis. 2021;101:405-6.
9. Subedi D, Gautam A, Sapkota D, Subedi S, Sharma S, Abdulkareem M, et al. Knowledge and perception of veterinary students on One Health: a first nationwide multi-institutional survey in Nepal. Int J One Health. 2022;8(1):34-42.
10. Docherty L, Foley PL. Survey of One Health programs in US medical schools and development of a novel One Health elective for medical students. One Health. 2021;12:100231.
11. Wong D, Kogan LR. Veterinary students' attitudes on one health: Implications for curriculum development at veterinary colleges. J Vet Med Educ. 2013;40(1):58-62.
12. Rabinowitz PM, Natterson-Horowitz BJ, Kahn LH, Kock R, Pappaioanou M. Incorporating one health into medical education. BMC Med Educ. 2017;17(45):1-7.
13. Atusingwize E, Ndejjo R, Tumukunde G, Buregyeya E, Nsamba P, Tuhebwe D, et al. Application of one health approach in training at Makerere University: experiences from the one health workforce project in Uganda. One Health Outlook. 2020;2(23).

14. Sreedharan S, Nanni S. Introducing One Health to medical and veterinary students. Lancet Planet Health. 2019;3(5):e210.
15. Lerner H, Berg C. The concept of health in One Health and some practical implications for research and education: what is One Health? Infect Ecol Epidemiol. 2015;8686.
16. Asaaga FA, Young JC, Oommen MA, Chandarana R, August J, Joshi J, et al. Operationalising the "One Health" approach in India: facilitators of and barriers to effective cross-sector convergence for zoonoses prevention and control. BMC Public Health. 2021;21(1517):1-21.
17. Raut J, Joshi A, Mudey A, Mehendale AM. The past, present, and future of one health in India: a narrative review. Cureus. 2023;15(9).
18. Dasgupta R, Tomley F, Alders R, Barbuddhe SB, Kotwani A. Adopting an intersectoral One Health approach in India: time for One Health committees. Indian J Med Res. 2021;281-6.

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