

Original Research Article

Perceptions and practices of tribal traditional healers of Barwani district in Madhya Pradesh: a mixed-method study

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ABSTRACT

Background: Tribal traditional healers are integral to tribal cultures and strongly influence community health behaviors and decisions. Achieving Universal Health Coverage (UHC) in tribal areas requires collaboration with these healers. Recognizing this, the WHO recommends strengthening traditional healing systems through capacity building and standardization of practices. This study aimed to describe ritualistic and non-ritualistic healing practices of tribal healers in selected states, determine the knowledge and attitude of TTHs on other systems of medicine.

Methods: A cross-sectional mixed-methods design was used, involving 275 healers from Barwani district for quantitative analysis and five for qualitative exploration. Quantitative data were analyzed using the Kruskal-Wallis-H test and Poisson regression and thematic analysis of qualitative data was performed.

Results: Findings reported that 211 (99.06%) of 213 Barela healers and 57 (91.93%) of 62 Bhil and Bhilala healers had very poor knowledge of other medical systems. Similarly, 207 (97.18%) Barela healers and 56 (90.32%) Bhil/Bhilala healers were not inclined toward adopting other health systems. Education reported a statistically significant association with knowledge levels. Qualitative analysis generated four key themes: understanding disease and the diseased, diagnostic approaches, treatment practices, and government support. The study recommends development of interventions, capacity-building sessions and behaviour change communication strategies that are culturally acceptable to tribal healers and thereby, developing strategies by fostering collaboration with them to achieve universal health coverage.

Conclusions: In a nutshell, culturally acceptable strategies to integrate tribal healers into PHS are the way ahead to achieve UHC. While studies in different contexts reported TTHs playing significant roles in disease awareness, current study emphasized the masked factors in terms of low knowledge of healers and no inclination towards OHS. Without targeted interventions involving their cultural beliefs and practices, it is challenging not just achieving UHC but also ensuring primary healthcare. The current study strongly recommends a large-scale research to understand the avenues to integrate TTHs into PHS. It also emphasise developing collaborative care models by capacity building of healers and establishing effective referral linkages.

Keywords: Barwani, Health system, Traditional healing, Tribal healers, Universal health coverage

INTRODUCTION

A traditional healer is “A person without formal medical training but is recognized by the community as competent

to provide healthcare by using vegetable, animal and mineral substances and certain other methods based on the social, cultural and religious backgrounds as well as the prevailing knowledge, attitudes, and beliefs regarding

physical, mental and social well-being and the causation of disease and disability in the community''.¹ Traditional healing practices rooted with cultural and spiritual significance vary across diverse tribal cultures. Among them are specialists like snake bite healers, bone setters, jaundice healers, midwives etc. Village healers (Gram vaidyas) are generally well-integrated with their communities and share a common ethos with their patients, so they are equipped to deliver socio-culturally sensitive healthcare. Traditional tribal healing system is widely believed and practiced among tribal populations in India.

As per Census 2011, Madhya Pradesh has 21.1% of Scheduled Tribe (ST) population.² Studies in the tribal areas of Madhya Pradesh found that people often seek traditional healers for illnesses they believe are caused by social or cultural reasons, such as punishment for past sins.³⁻⁶ Improving access to healthcare for indigenous communities would require Universal Health Coverage (UHC) interventions to be culturally acceptable, locally relevant and promote active involvement of the community at all stages of interventions. The first step towards this is to develop and nurture collaborations with TTHs to establish a sustainable two-way referral and integrate TTHs into Public health system (PHS) after building their capacities.

WHO strategy for traditional medicine strongly recommends integration of safe and effective traditional complementary integrative medicine to health systems.⁷ It rightfully identifies the rights of indigenous populations towards their traditional medicines and health practices, leading to inclusive, equitable, culturally acceptable health services.⁷ However, to support the further development of these strategies, understanding of Tribal traditional healers (TTHs) knowledge and attitude about health, disease and health system is lacking. There are very limited studies conducted sporadically which describe the knowledge and attitudes of TTHs. The current study was initiated as the first step towards this literature gap, with objectives to describe the ritualistic and non-ritualistic healing practices of traditional healers of Barwani in the management and treatment of diseases and to determine the knowledge and attitude of traditional healers on other systems of medicine.

METHODS

The current cross-sectional study adopted mixed-method approach. It was conducted in Barwani district of Madhya Pradesh from January 2023 to March 2024. The study is a part of a larger mixed method multi-centre study conducted in the selected districts of Assam, Arunachal Pradesh, Chhattisgarh, Jharkhand, Odisha, Madhya Pradesh and Maharashtra aimed to understand the knowledge, attitude of healers towards other systems of health (OHS), referral patterns, ritualistic and non-ritualistic practices. The study adopted multi-stage stratified systematic random sampling to collect data

proportionately from all districts. At state-level, 7 states were purposively sampled. Districts with $\geq 50\%$ of ST population were sampled followed by blocks with reported clusters of TTHs for their line listing. All healers available at the time of survey were line listed from blocks until the target number was reached. Further, based on sampling methodology, participants were sampled.

The TTHs actively managing the diseases within the tribal community at least for the past one-year, resident of the respective geographical area for at least one year and uncertified healers were included in the study. Qualified medical practitioners (MBBS, BAMS, BNYS, BHMS, BUMS, Siddha, BDS and other medical certified practitioners) were excluded from the study.

For quantitative data, assuming 50% of the traditional healers have good knowledge regarding OHS, with 95% of Confidence Interval, 5% allowable error, DE of 1.2, at 80% power and 20% of non-response rate, total sample size from 7 states was 3318. A total of 275 healers were sampled, in proportion to the ST population in Barwani for quantitative data and 5 healers for qualitative data.

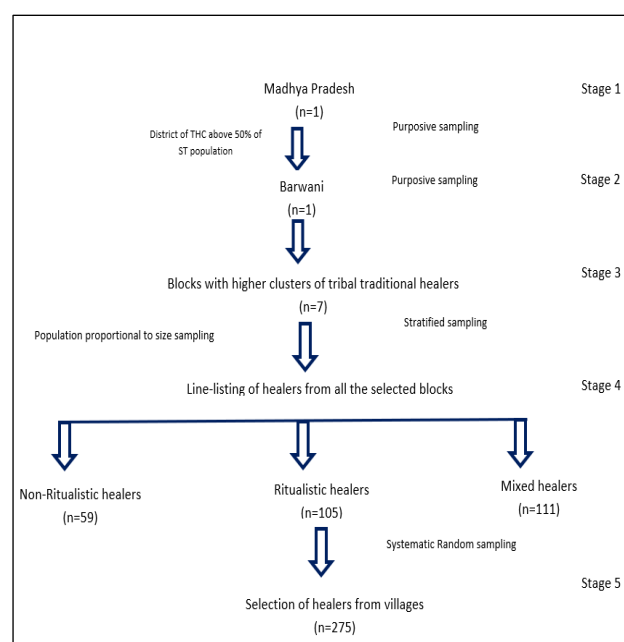


Figure 1: Description of sampling methodology adopted in the study.

At district level, 3 strata were created based on healers treatment methodology: Ritualistic healers (Healers who practice some only rituals like Pooja, Homa, sacrifices etc., to treat patients), non-ritualistic healers (Healers who provide drugs or medicines only, to treat the patients), mixed category of healers (Healers who performed both rituals and provided medicines to treat the patients). Further, from each stratum, the healers were sampled through systematic random sampling. In case of unavailability of healers upon visiting them 3 times, the

next available healer as per the sampling framework was selected.

For qualitative data, arbitrarily, 5 healers were sampled from each district and were interviewed until data saturation was reached. From each stratum, healers were sampled through population proportionate to size. Further, to ensure representation from different tribes, maximum variation sampling with different sub-tribes, age groups and genders was adopted.

A semi-structured tool was developed to assess the Knowledge and Attitude of healers towards different aspects of health and health system. Content and linguistic validity of the tool were conducted. The tool was translated into local language (Hindi) by credible translators and digitized on KoBo collect software for data collection.

The in-depth-interview guide aimed at exploring the perceptions and practices of healers on aspects of health, disease diagnosis, management and understanding of different forms of diseases.

Written informed consent was collected from the participants before data collection. Unavailable participants were visited maximum three times to collect

data, post which the next participant as per the sampling list was selected. The qualitative interview was electronically recorded through a digital voice recorder or mobile phone.

Data analysis

Descriptive statistics of Knowledge and Attitude scores were presented in the following categories- very poor knowledge, poor knowledge, Moderate knowledge, good knowledge; Attitude categories were: not inclined towards other health systems (OHS), neutral towards OHS, leaning towards OHS and believer of OHS.

Kruskal-Wallis H test was performed to determine the difference across each category of variables at tribe level. Further, poisson regression was performed to assess the degree of association. The data from IDI was analysed thematically on Delve software. Researchers familiarized themselves with the IDI transcripts from the study states with the IDI tool to generate codes and sub codes.

RESULTS

Of the 275 participants, 213 (77.45%) were from Barela tribe followed by Bhilala tribe with 60 (21.81%) participants and 2 (0.72%) participants from Bhil tribes.

Table 1: Description of socio-demographic details of participants.

Parameters		Barela, N (%) (n=213)	Bhilala, N (%) (n=60)	Bhil, N (%) (n=2)	Total, N (%) (n=275)
Age (in years)	21 to 40	82 (38.49)	17 (28.34)	0	99 (36)
	41 to 60	94 (44.13)	36 (60)	2 (100)	132 (48)
	61 to 80	37 (17.37)	7 (11.67)	0	44 (16)
Gender	Male	186 (87.32)	47 (78.33)	1 (50)	234 (85)
	Female	27 (12.67)	13 (21.67)	1 (50)	41 (14.90)
Religion	Hindu	213 (100)	57 (95)	2 (100)	272 (98.90)
	Others- Prakriti Pujak Dharm Adivasi	0	3 (5)	0	3 (1.09)
Education status	Non-literates	199 (93.42)	41 (68.34)	2 (100)	242 (88)
	Primary schooling	9 (4.22)	15 (25)	0	24 (8.72)
	Middle schooling	3 (1.40)	3 (5)	0	6 (2.18)
	Bachelor's or degree	2 (0.93)	0	0	2 (0.72)
	Post-graduation	0	1 (1.67)	0	1 (0.36)
Primary occupation	Traditional healer	0	2 (3.34)	0	2 (0.72)
	Farmer (working in own field)	188 (88.26)	48 (80)	2 (100)	238 (86.54)
	Agricultural worker (working in others' field)	21 (9.85)	5 (8.34)	0	26 (9.45)
	Wage labourer (other than agriculture) (not regular monthly/daily wage worker)	3 (1.40)	3 (5)	0	6 (2.18)
	Own business (craftsmen, shop keeper, driver of own vehicle etc)	1 (0.46)	2 (3.34)	0	3 (1.09)
Mean±SD of primary income in rupees (monthly)		21200±7838.24			
Secondary occupation	Traditional healer	11 (5.16)	8 (13.34)	1 (50)	20 (7.27)
	Farmer (working in own field)	5 (2.34)	3 (5)	0	8 (2.90)
	Agricultural worker (working in others' field)	117 (54.92)	34 (56.67)	1 (50)	152 (55.27)

Continued.

Parameters		Barela, N (%) (n=213)	Bhilala, N (%) (n=60)	Bhil, N (%) (n=2)	Total, N (%) (n=275)
	Wage labourer (other than agriculture) (not regular monthly/daily wage worker)	63 (29.57)	13 (21.67)	0	76 (27.63)
	Own business (craftsmen, shop keeper, driver of own vehicle etc)	1 (0.46)	0	0	1 (0.36)
	No alternate occupation	16 (7.51)	2 (3.34)	0	18 (6.54)
Mean±SD of secondary income in rupees (monthly)		2269.38±3402.47			
Mean±SD of traditional healing income in rupees (monthly)		127.27±1074.84			
Type of healers based on specialization	Bone setter	66 (17.83)	4 (3.96)	1 (25)	71 (14.94)
	Poisonous bites	47 (12.70)	16 (15.84)	0	63 (13.26)
	Traditional birth attendants	18 (4.86)	5 (4.95)	1 (25)	24 (5.05)
	Generalists	101 (27.29)	36 (35.64)	2 (50)	139 (29.26)
Total no. of responses from Barela tribes-370	Gynecological issues	16 (4.32)	10 (9.90)	0	26 (5.47)
	Children diseases	73 (19.72)	17 (16.83)	0	90 (18.94)
	Spiritual/sacrificial practices	42 (11.35)	11 (10.89)	0	53 (11.15)
Total no. of responses from Bhilala tribes-101	Specific/endemic diseases	1 (0.27)	1 (0.99)	0	2 (0.42)
Total no. of responses from Bhil tribes= 4					
Total no. of responses from all 3 tribes-475 (Total responses exceed total participants as it was a multiple choice question)	Others	6 (1.62)	1 (0.99)	0	7 (1.47)
Type of healer based on treatment methodology	Non-ritualistic	46 (21.59)	14 (23.34)	1 (50)	61 (22.18)
	Ritualistic	82 (38.49)	20 (33.34)	1 (50)	103 (37.45)
	Mixed	85 (39.90)	26 (43.34)	0	111 (40.36)
Disease specialization	Respiratory conditions	80 (15.62)	17 (10.11)	0	97 (14.18)
	Reproductive, maternal, sexual and child health issues	70 (13.67)	19 (11.30)	1 (25)	90 (13.15)
Total no. of responses from Barela tribes-512	Mental conditions and epilepsy	71 (13.86)	17 (10.11)	0	88 (12.86)
	Non-communicable diseases	42 (8.20)	10 (5.95)	0	52 (7.60)
	Liver conditions	33 (6.44)	18 (10.71)	0	51 (7.45)
Total no. of responses from Bhilala tribes-168	Animal and insect bites	52 (10.15)	19 (11.30)	0	71 (10.38)
	Bone and joints conditions	18 (3.51)	5 (2.97)	1 (25)	24 (3.50)
	Malaria	42 (8.20)	17 (10.11)	0	59 (8.62)
Total no. of responses from Bhil tribes-4	Skin issues	3 (0.58)	3 (1.78)	0	6 (0.87)
	Endemic diseases	12 (2.34)	10 (5.95)	0	22 (3.21)
	Simple common ailments	85 (16.60)	32 (19.04)	2 (50)	119 (17.39)
Total no. of responses from all 3 tribes-684 (Total responses exceed total participants as it was a multiple choice question)				0	
	Others	4 (0.78)	1 (0.59)		5 (0.73)

Continued.

Parameters		Barela, N (%) (n=213)	Bhilala, N (%) (n=60)	Bhil, N (%) (n=2)	Total, N (%) (n=275)
Years of practice experience	1-3 years	26 (12.20)	2 (3.34)	0	28 (10.18)
	4-7 years	27 (12.67)	3 (5)	0	30 (10.90)
	8-10 years	38 (17.84)	17 (28.33)	0	55 (20)
	11 years and above	122 (57.27)	38 (63.34)	2 (100)	162 (58.90)
Received certification for healing practices	Yes	0	1 (1.67)	0	1 (0.36)
	No	209 (98.12)	57 (95)	2 (100)	268 (97.45)
	Prefer not to say	4 (1.87)	2 (3.34)	0	6 (2.18)

Table 2: Knowledge and attitude of Barela healers of Barwani towards OHS (n=213).

Socio-demographic variables		Knowledge regarding OHS, N (%)				P value	H static	Attitude towards OHS, N (%)				P value	H static
		Very poor	Poor	Moderate	Good			Not inclined	Neutral	Learning	Believer		
Age (in completed years)	21-40	80 (37.55)	2 (0.93)	0	0	0.201	3.210	81 (38.02)	1 (0.46)	0	0	0.480	1.470
	41-60	94 (44.13)	0	0	0			90 (42.25)	4 (1.87)	0	0		
	61-80	37 (17.37)	0	0	0			36 (16.90)	1 (0.46)	0	0		
Gender	Male	185 (86.85)	1 (0.46)	0	0	0.112	2.529	180 (84.50)	6 (2.81)	0	0	0.345	0.892
	Female	26 (12.20)	1 (0.46)	0	0			27 (12.67)	0	0	0		
Education	Illiterate	199 (93.42)	0	0	0	0.00	63.382	193 (90.61)	6 (2.81)	0	0	0.933	0.432
	Primary school	8 (3.75)	1 (0.46)	0	0			9 (4.22)	0	0	0		
	Middle school	3 (1.40)	0	0	0			3 (1.40)	0	0	0		
	High school	1 (0.46)	1 (0.46)	0	0			2 (0.93)	0	0	0		
Family socio-economic status	APL	10 (4.69)	0	0	0	0.848	0.329	10 (4.69)	0	0	0	0.604	1.007
	BPL	181 (84.97)	2 (0.93)	0	0			177 (83.09)	6 (2.81)	0	0		
	Antyodaya	20 (9.38)	0	0	0			20 (9.38)	0	0	0		
Secondary occupation	Traditional healer	11 (5.16)	0	0	0	0.988	0.604	11 (5.16)	0	0	0	0.951	1.135
	Agricultural worker*	116 (54.46)	1 (0.46)	0	0			113 (53.05)	4 (1.87)	0	0		
	Farmer**	5 (2.34)	0	0	0			5 (2.34)	0	0	0		
	Own business	1 (0.46)	0	0	0			1 (0.46)	0	0	0		
	Wage labourer	62 (29.10)	1 (0.46)	0	0			61 (28.63)	2 (0.93)	0	0		
	Others [§]	16 (7.51)	0	0	0			16 (7.51)	0	0	0		
Type of healer based on treatment methodology	Non-ritualistic	45 (21.12)	1 (0.46)	0	0	0.444	1.622	46 (21.59)	0	0	0	0.010	9.254
	Ritualistic	81 (38.02)	1 (0.46)	0	0			82 (38.49)	0	0	0		
	Mixed	85 (39.90)	0	0	0			79 (37.08)	6 (2.81)	0	0		
Years of experience	1-3	26 (12.20)	0	0	0	0.189	4.770	26 (12.20)	0	0	0	0.448	2.652
	4-7	26 (12.20)	1 (0.46)	0	0			26 (12.20)	1 (0.46)	0	0		
	8-10	37 (17.37)	1 (0.46)	0	0			38 (17.84)	0	0	0		
	11 and above	122 (57.27)	0	0	0			117 (54.92)	5 (2.34)	0	0		
Certification/training	Yes	0	0	0	0	NA	NA	0	0	0	0	NA	NA
	No	207 (97.18)	2 (0.93)	0	0			203 (95.30)	6 (2.81)	0	0		
	Prefer not to say	4 (1.87)	0	0	0			4 (1.87)	0	0	0		

*Working in others' field; **Working in own field; [§]No alternate occupation; NA- Not applicable as Kruskal-Wallis could not be performed due to skewed data

Among them, 132 (48%) healers were in the age group of 41 to 60 years, 234 (85%) were male, 272 (98.90%) Hindus, 3 (1.09%) healers followed a religion of their own, named, Prakriti Pujak Dharm Adivasi. Around 242 (88%) healers were illiterates, 238 (86.54%) healers reported farming as the primary occupation and agriculture as secondary occupation by 152 (55.27%) of healers. Further on healers' disease specialisation, 139 (29.26%) responses were reported for Generalists, 7 (1.47%) in other specialties like evil eye, nature worship, rituals-based treatment. Based on the type of treatment methodology, 111 (40.36%) were mixed-type. Disease-wise specialization of healers reported 119 (17.39%) responses for simple common ailments, 97 (14.18%) for respiratory conditions. Around 162 (58.90%) healers reported having 11 years and above experience. Among them, 268 (97.45%) reported not receiving any certificate for healing practices.

Knowledge of healers towards OHS

Barela tribe healers exhibited poor knowledge of OHS, with 211 (99.06%) healers in very poor knowledge category and 2 (0.93%) in poor knowledge category. No one had moderate or good knowledge of OHS. Education ($p=0.000$) reported statistical significance with knowledge of healers on OHS.

Regarding TTHs knowledge on availability of treatment in OHS for all kinds of illnesses, 77 (36.15%) did not opine that OHS have treatment for all kinds of illnesses, 20 (9.38%) believed that OHS have treatment for all kinds of illnesses, 92 (43.19%) did not know the response and 24 (11.26%) preferred not to respond. Health issues like Animal and Insect bites (AIB) (56 responses), reproductive, maternal, sexual and child health issues (11 responses), respiratory conditions (9 responses), mental conditions including epilepsy (5 responses), non-communicable diseases (3 responses), simple common ailments (2 responses) and other issues requiring spiritual treatment including evil eye and snake bites were reported to be not treated. Reasons for the same were spiritual/sacrificial healing not being practiced in OHS (62 responses), expensive cost of treatment (24 responses), non-uniform treatment for tribal populations (16 responses).

Reporting differences between TTHS and OHS, healers shared- practice of sacrificial treatment rituals in TTHS (130 responses), practice of traditional treatment rituals in TTHS (115 responses), no intensive diagnostic laboratory investigations in TTHS (51 responses), non-utilization of diagnostic equipment like Stethoscope, BP apparatus, Thermometer (2 responses). Around 44 (20.65%) healers reported that they were not aware of the differences and 6 (2.81%) preferred not to respond.

Further, awareness regarding public health committees like JAS, VHSNC was present for 9 (4.22%) healers, 181 (84.97%) did not know and 23 (10.79%) preferred not to

respond. Of 9 healers, 1 (11.12%) opined that these committees have been helpful to the community by providing adequate health information and 3 (33.34%) healers opined conversely for the reason that they believed that these committee members do not visit the villages or provide adequate information and also that these committee members do not work honestly. About 2 (22.23%) healers preferred not to respond, and 3 (33.34%) were not aware of the benefits. None of the healers were part of any of these committees.

Regarding free medicines and consumables provided by government, 57 (26.76%) healers were aware of them, 132 (61.97%) were unaware and 24 (11.26%) preferred not to respond. Among them, 52 (91.22%) opined that these are beneficial to the community members, 2 (3.50%) reported conversely, 2 (3.50%) did not know the response and 1 (1.75%) preferred not to respond. Positive beliefs reportedly were due to the following opinions-providing uninterrupted medicines (10 responses) and affordable medicines for the needy (41 responses).

Reporting the source of knowledge about health, human body and health systems, 202 responses received for Guru (spiritual teacher), 92 responses for community members, 18 responses for other healers, 11 responses for healthcare workers (Medical Officers, ANMs, ASHAs).

Attitude of healers towards OHS

Negative trend was reported regarding attitude of healers towards OHS with 207 (97.18%) healers not inclined and 6 (2.81%) with a neutral attitude towards OHS. Type of treatment modality reported statistical significance ($p=0.010$) with attitude of healers towards OHS.

Visualizing their role in OHS, healers reported providing-therapeutic care (106 responses), preventive care (92 responses), palliative care (55 responses), rehabilitative care (4 responses), 57 responses for all the above-mentioned roles and other roles requiring ritualistic treatment. Around 5 (2.34%) healers reported not knowing their role in OHS.

Regarding health system providing safe and reliable healing services, 112 (52.58%) healers reported that the services are safe and reliable, 3 (1.40%) reported converse, 82 (38.49%) were not aware of it and 16 (7.51%) preferred not to respond. The reasons for believing health services are reportedly the fact that many patients have recovered (109 responses), availability of advanced diagnostic and treatment options (24 responses), provision for emergency care (14 responses). The reasons for converse opinion were that many patients were untreated (3 responses).

Healers opinion regarding government supporting TTHS was that 49 (23%) healers reported that government supports TTHS always, 16 (7.51%) reported sometimes (Only when approached to government), 69 (32.39%)

reported no support, 69 (32.39%) did not know the response and 10 (4.69%) preferred not to say. The reason for their positive opinion was reportedly due to the actions like government providing physical space for healing practice at health facilities (54 responses), financial benefit (55 responses), providing space for cultivating plants (12 responses), referral between the OHS and TTHS (4 responses). However, regarding adequacy of support, 1 (1.53%) reported negatively, citing the reason that government support measures do not adequately reach the needy, 48 (73.84%) reported that they don't know about this and 16 (24.61%) preferred not to respond.

Regarding integration of TTHS with OHS, 55 (25.82%) healers supported the integration, 66 (30.98%) did not support the integration, 82 (38.49%) reported that they are not aware of this and 10 (4.69%) preferred not to respond. The reason for healers support reportedly were that it provides better treatment options for the community through availability of both systems of medicines (46 responses), greater opportunities for healers (24 responses), enhanced referral linkages between both the systems (24 responses), opportunity for research activities (5 responses). The reasons for not supporting the integration was health system not including spiritual healing (60 responses).

Reporting the intention of healers collaboration with practitioners from OHS, 118 (55.39%) of 213 healers intended to collaborate, 3 (1.40%) did not want to collaborate, 25 (11.73%) did not know the response and 67 (31.45%) preferred not to respond. The intention of healers to collaborate was reportedly for the opportunity that provides advanced treatment options to patients (112 responses), strengthens referral mechanisms (92 responses). Healers did not intend to collaborate because both the systems beliefs and treatment practices are different.

Around 149 (69.95%) of 213 healers expressed their intention to learn the aspects of OHS, 2 (0.93%) did not intend to learn, 47 (22.06%) healers did not know their response and 15 (7.04%) preferred not to respond. Intention to learn aspects of other system was reportedly due to their beliefs that health system provides better opportunities for treatment (70 responses), health system provides recognition for healers (71 responses). The healers who did not intend to learn the aspects of OHS were due to their belief that it is not approved by traditional healing system (2 responses).

Table 4: Knowledge and attitude of Bhil and Bhilala healers of Barwani towards OHS (n=62).

Socio-demographic variables		Knowledge regarding OHS, N (%)				Attitude towards OHS, N (%)				P value		H statistic	
		Very poor	Poor	Moderate	Good			Not inclined	Neutral	Learning Believer			
Age	21-40	16 (25.80)	0	1 (1.61)	0	0.653	0.852	15 (24.19)	2 (3.22)	0	0.619	0.959	
	41-60	34 (54.83)	4 (6.45)	0	0			34 (54.83)	4 (6.45)	0			
	61-80	7 (11.29)	0	0	0			7 (11.29)	0	0			
Gender	Male	43 (69.35)	4 (6.45)	1 (1.61)	0	0.212	1.558	43 (69.35)	5 (8.06)	0	0.718	0.131	
	Female	14 (22.58)	0	0	0			13 (20.96)	1 (1.61)	0			
Education	Illiterate	43 (69.35)	0	0	0	0.00	21.218	39 (62.90)	4 (6.45)	0	0.005	12.660	
	Primary school	12 (19.35)	3 (4.83)	0	0			15 (24.19)	0	0			
	Middle school	2 (3.22)	1 (1.61)	0	0			2 (3.22)	1 (1.61)	0			
	High school	0	0	1 (1.61)	0			0	1 (1.61)	0			
Family socio-economic status	APL	0	0	0	0	0.544	0.368	0	0	0	0.502	0.451	
	BPL	53 (85.48)	4 (6.45)	1 (1.61)	0			52 (83.87)	6 (9.67)	0			
	Antyodaya	4 (6.45)	0	0	0			4 (6.45)	0	0			
Primary occupation	Traditional healer	2 (3.22)	0	0	0	0.077	8.433	2 (3.22)	0	0	0.168	6.446	
	Agricultural* worker	5 (8.06)	0	0	0			5 (8.06)	0	0			
	Farmer**	50 (80.64)	3 (4.83)	0	0			46 (74.19)	4 (6.45)	0			
	Own business	2 (3.22)	0	1 (1.61)	0			1 (1.61)	1 (1.61)	0			

Continued.

Socio-demographic variables		Knowledge regarding OHS, N (%)				P value	H static	Attitude towards OHS, N (%)				P value	H static
		Very poor	Poor	Moderate	Good			Not inclined	Neutral	Learning Believer			
	Wage labourer	3 (4.83)	1 (1.61)	0	0			2 (3.22)	1 (1.61)	0	0		
Secondary occupation	Traditional healer	8 (12.90)	1 (1.61)	0	0			7 (11.29)	2 (3.22)	0			
	Agricultural worker*	32 (51.61)	3 (4.83)	0	0			33 (53.22)	2 (3.22)	0	0		
	Farmer**	3 (4.83)	0	0	0	0.971	0.527	3 (4.83)	0	0	0	0.181	6.247
	Wage labourer	12 (19.35)	0	1 (1.61)	0			12 (19.35)	1 (1.61)	0	0		
	Others-no alternate occupation	2 (3.22)	0	0	0			1 (1.61)	1 (1.61)	0	0		
Type of healer based on treatment methodology	Non-ritualistic	13 (20.96)	2 (3.22)	0	0			14 (22.58)	1 (1.61)	0	0		
	Ritualistic	20 (32.25)	1 (1.61)	0	0	0.619	0.959	21 (33.87)	0	0	0	0.653	0.852
	Mixed	24 (38.70)	1 (1.61)	1 (1.61)	0			21 (33.87)	5 (8.06)	0	0		
Years of experience	1-3	2 (3.22)	0	0	0			2 (3.22)	0	0	0		
	4-7	2 (3.22)	0	1 (1.61)	0			2 (3.22)	1 (1.61)	0	0		
	8-10	16 (25.80)	1 (1.61)	0	0	0.363	3.190	15 (24.19)	2 (3.22)	0	0	0.494	2.397
	11 above	37 (59.67)	3 (4.83)	0	0			37 (59.67)	3 (4.83)	0	0		
Certification/raining	Yes	0	1 (1.61)	0	0			0	1 (1.61)	0	0		
	No	55 (88.70)	3 (4.83)	1 (1.61)	0	NA	NA	54 (87.09)	5 (8.06)	0	0	NA	NA
	Prefer not to say	2 (3.22)	0	0	0			2 (3.22)	0	0	0		

*Working in others' field; **Working in own field; NA- Not applicable as Kruskal-Wallis could not be performed due to skewed data

Around 57 (91.93%) of 62 healers from Bhil and Bhilala tribes had very poor knowledge regarding OHS, 4 (6.45%) healers had poor knowledge of OHS and 1 (1.61%) healer had moderate knowledge of health system. Education ($p=0.000$) is reported to be statistically significant with knowledge regarding OHS indicating the influence of education on knowledge.

Reporting the healers knowledge about treatment for all kinds of illnesses in other systems, 19 (30.64%) of 62 healers reported that there is treatment for all kind of illnesses, 9 (14.51%) reported converse, 26 (41.93%) did not know the response and 9 (14.51%) preferred not to respond. The diseases that do not have treatment in OHS reportedly were AIB (7 responses), MC (1 response) and other issues requiring spiritual or ritualistic healing. The reasons for their disbelief in treatment were that OHS doesn't practice spiritual/sacrificial healing (6 responses), non-uniform treatment for tribal populations (4 responses), expensive cost of treatment (2 responses).

Between TTHS and OHS, healers reported the following differences, traditional treatment rituals in TTHS (31 responses), sacrificial treatment rituals in TTHS (28 responses) and no intensive diagnostic laboratory investigations in TTHS (28 responses), non-utilization of diagnostic equipment like Stethoscope, BP apparatus, Thermometer (1 response). Around 20 (32.25%) of 62 healers were not aware of the differences and 2 (3.22%) preferred not to respond.

Regarding public health committees, 9 (14.51%) of 62 healers were aware of public health committees like JAS, VHSNC, 49 (79.03%) were not aware and 4 (6.45%) preferred not to respond. Among 9 healers, 3 (33.34%) were unaware of these committees helping community to avail better health services and 6 (66.67%) preferred not to respond. Among 62 healers, only 1 (1.61%) healer was part of these committees and was reportedly responsible for representing community, voicing the health needs of the community, monitoring of health and wellness centres/ health facilities, health promotion/health education.

Regarding awareness of healers towards free medicines and consumables distributed by government, 21 (33.87%) of 62 healers were aware of it, 37 (59.67%) were unaware of it, 4 (6.45%) preferred not to respond. Among them, 19 (90.47%) of 21 healers opined that these medicines and consumables are helping the community in maintaining good health, 1 (4.76%) was not aware of it and 1 (4.76%) preferred not to respond. Their positive opinion towards medicines and consumables was reportedly due to the fact that these are affordable for needy (19 responses).

Reporting the sources of knowledge, 61 (62.88%) responses were received for gurus, 20 (20.61%) for community members, 12 (12.37%) for other healers, 4 (4.12%) healthcare workers.

Attitude of healers towards OHS

Around 56 (90.32%) healers reported no inclination, and 6 (9.67%) healers had a neutral attitude towards OHS. Education ($p=0.005$) reported statistical significance with attitude of healers towards OHS indicating its influence on outcome.

Reporting the visualization of healers role in health system, 22 responses were received for treatment of diseases, 17 responses for prevention of diseases, 5 responses for palliative care (Care for terminally ill patients) and 32 responses for all the above-mentioned roles.

Regarding safety and reliability of medicine provided by other systems of medicine, 34 (54.83%) of 62 healers asserted their belief in the medicines provided by OHS, 22 (35.48%) did not know the response, 6 (9.67%) preferred not to respond. Their belief in the medicines were due to the facts like many patients have recovered (30 responses), advanced diagnostic and treatment options (10 responses), provision for emergency care (4 responses).

Reporting the opinion of healers regarding support provided by government, 1 (1.61%) of 62 healers opined that government always supports TTHS, 8 (12.90%) shared that support is occasional/sometimes (Only when approached to government), 33 (53.22%) did not know and 8 (12.90%) preferred not to respond. Their positive

opinion about government support was reportedly due to the following actions by government- providing space for cultivating the plants (5 responses), financial benefit (5 responses), providing physical space for healing practice at health facilities (4 responses). Further regarding adequacy of support provided by government, 8 (88.89%) of 9 healers preferred not to respond and 1 (11.12%) healer did not know the response.

Reporting of healers support towards integration of TTHS with OHS, 28 (45.16%) of 62 healers expressed their support towards integration, 7 (11.29%) healers reported conversely, 23 (37.09%) did not know and 4 (6.45%) preferred not to respond. The reason to express their support were reportedly it provides better treatment options for the community through availability of both systems of medicines (24 responses), enhanced referral linkages between both the systems (14 responses), provides greater opportunities for healers (11 responses), provides research activity opportunities (7 responses). Healers who did not express their support for integration were reportedly because health systems does not include spiritual healing (7 responses).

Reporting the intention of healers to collaborate with practitioners from OHS, 50 (80.64%) healers intended to collaborate, 3 (4.83%) did not know the response and 9 (14.51%) preferred not to respond. Their intention to collaborate with the health system was reportedly due to factors- health systems providing advanced treatment options to patients (49 responses), strengthened referral mechanisms (39 responses).

Reporting the intention of healers to learn the aspects of OHS, 54 (87.09%) healers expressed their interest to learn, 2 (3.22%) did not know the answer and 6 (9.67%) preferred not to respond. The reason for their interest to learn the aspects of OHS were reportedly- health system provides better opportunities for treatment (46 responses), health system provides recognition for healers (33 responses).

Increase in education from elementary school to Bachelor's and above is reported with increase in knowledge of healers towards other systems of health. None of the variables reported significance in attitude category.

Table 5: Degree of association (Poisson regression).

Variables		EXP (B)	Confidence interval		EXP (B)	Confidence interval	
			Lower bound	Upper bound		Lower bound	Upper bound
		Knowledge of healers			Attitude of healers		
Education	Illiterate	0.641	0.526	0.781	0.881	0.794	0.978
	Middle school	0.886	0.566	1.388	1.053	0.846	1.311
	Bachelor's or Degree	2.056	1.144	3.696	1.241	0.883	1.743
	Post-graduation	2.355	1.371	4.045	1.120	0.714	1.758
	Primary school	0			0		

Continued.

Variables		EXP (B)	Confidence interval		EXP (B)	Confidence interval	
			Lower bound	Upper bound		Lower bound	Upper bound
		Knowledge of healers			Attitude of healers		
Type of healers based on treatment methodology	Non-ritualistic	0.586	0.487	0.704	0.866	0.798	0.940
	Ritualistic	0.496	0.422	0.584	0.835	0.778	0.897
	Mixed	0			0		

Findings from in-depth interviews

From Barwani, 3 (60%) male and 2 (40%) female healers participated in the study. All 5 (100%) healers belonged to Bilala tribe, with 2 (40%) of them belonging to ritualistic, 2 (40%) to mixed and 1 (20%) to non-ritualistic categories. Average age of the participants reportedly was 48.8 ± 6.30 years.

Understanding the disease and diseased

Healers reported determining a person's health by observing physical appearances of patients. They believed that by carefully looking at a patient's eyes, they can tell the health status of patients. Only one healer expressed that he learnt about human body, organs and organ systems from his guru (teacher), however, did not share the names of the organs that he was aware of. None of the other healers knew about organs or organ systems. Apart from gurus, healers reported to have gained their knowledge from nature, spirituality, and familial traditions. Healers perceived genetic diseases as those that run within the family and shared typhoid or malaria as genetic reflecting their limited understanding of contagious and genetic diseases.

Healers opined that supernatural powers influence diseases along with other factors such as climate, dietary habits, food quality, lifestyle of a person, pesticides in food and vegetables cultivation. One of the healers believes that 'Devi Karak' (local deities/divine entities causing diseases). Healers often adhere to cultural practices like fasting on specific days, performing rituals related to birth, death, and other significant life events to ward off negative influences caused by supernatural factors. One healer stated, "They (people) come and tell us their symptoms. By seeing that we identify if it's due to "Bahari Baada" (spirits), bhut/preth effects (evil spirits/ghosts) and tell them accordingly to do some things (remedial measures) and tell them they will get relief".

Diagnostic methods for disease diagnosis

While one healer shared that patients themselves share the issues post which he prays to goddess Narmada to cure them, other healer shared that he observes patients to note the diagnosis, without questioning them but upon diagnosing, patients confirm the same. Another healer

shared that he diagnoses through pulse examination without using modern equipment like stethoscope or sphygmomanometer. He further shared that he notes the details of patient in a journal. He stated, "I have a diary. I document the details of each patient in my diary. My diagnostic process involves checking the pulse exclusively; I do not use any additional tools like a stethoscope like how the doctor puts in the ear. (unlike doctors)".

Treatment practices of healers

Healers reportedly rely on forest-based herbs to treat the diseases. They gather herbs three times a year and administer them on specific days, indicating a seasonal and ritualistic aspect to their sourcing process. He shared, "I pluck herbs three times a year, I grind and mix them with water. I provide them only three times a year, specifically on Akha Teej, Vijay Dashmi, and Diwali." They firmly opined that these natural medicines do not cause any side effects. A healer reported distributing the medicines from health facilities to village members during covid-19 outbreak, for which, he received covid-warrior certificate as well. Ritualistic healers reported that their treatment methods would not differ for disease outbreaks. Their line of treatment involves tying sacred threads and praying for well-being of patients. Patients expressing their remission from the symptoms was considered as disease-free status by the healers.

Support from government

While one healer does not expect any support from government as he does not collect/charge money in exchange for his services, another feels that government must support them by building temple-like structure as they are rendering a spiritual service. A healer stated, "Yes, the government should support us; we are doing "dharam ka kaam" (Religious work), so there must be support. they can support by providing funds for building the temple here". Healers shared that they have been observing an increase in number of patients visiting them regularly further reporting that they have not been encountering any challenges in their healing practices.

DISCUSSION

Quantitatively, majority of the healers reported very poor knowledge and no inclination towards OHS. Qualitatively, different practices towards understanding

the diseases, diagnosing and treating them with a layer of added cultural and spiritual lenses and did not align with concepts of OHS were reported. The current study has presented that education and type of treatment modality influence the knowledge level and attitude of tribal healers towards other systems of health. This divergence in practices, poor knowledge and no inclination towards OHS call for a collaborated effort towards enhancing the knowledge and shifting the attitude for an effective collaboration between tribal healers and PHS.

A study by Dwivedi et al assessed the levels of knowledge, attitude, and practices of Tribal traditional healers toward the COVID-19 pandemic and its association with sociodemographic factors.⁸ Contrary to the current study findings, referred study reported 55.3% had good knowledge of covid-19 and 91.2% healers had good attitude score, with Education reporting statistical significance. The divergence in knowledge and attitude levels may be attributable to the fact that the earlier study was disease-specific and conducted while extensive health education interventions were in place, whereas the present study did not undertake such measures and instead focused entirely on OHS. Dwivedi et al recommended that in India, where healthcare workers are less in proportion to the large population, traditional healers can play an important role in raising disease awareness and promoting prevention, thereby supporting primary healthcare.⁸

A study by Das et al reported coexistence of a sparse and unevenly distributed PHS with a widespread presence of informal and private providers, often serving as the first point of contact in villages.⁹ The study revealed that while qualified providers are limited, informal practitioners play a critical role in filling healthcare gaps, particularly in underserved areas. These findings are in line with our current findings, indicating a heavy reliance on informal care providers. The current study further emphasized low knowledge and inclination of healers towards OHS causing further challenges in integration.

In line with integration of healers into PHS, WHO has recommended four-pronged approach- Establish the evidence base for Traditional Complementary and Integrative Medicine (TCIM), support the provision of safe and effective TCIM through appropriate regulatory mechanisms, integrate safe and effective TCIM into health systems and optimize the cross-sector value of TCIM and empower communities.⁷ Present study findings contribute to developing strategies and avenues for integration of TCIM into health system by capacity building of healers on aspects of health, disease and health systems. Thereby, empowering them to be primary healthcare providers at the grass root level and instating them into the health systems.

Multiple studies across India reinforce that diagnostic and treatment practices among tribal healers are inseparable from cultural traditions, with observation of symptoms,

community narratives, and spiritual guidance playing a central role in provision of care.¹⁰⁻¹² Qualitative findings in current study reflect this pattern, as healers diagnosed illness through physical observation, and attributed it to spiritual or supernatural causes, and provided treatment with a combination of herbs and/or ritual practices. This highlights that tribal healers function not only as health providers but also as cultural interpreters, embedding healthcare within the community's spiritual and social matrix. This necessitates the need for development of culturally acceptable strategies to integrate them into PHS.

Further, another systematic review by Sharma et al assessed the status and challenges of traditional medical systems (excluding Ayurveda) in tribal and indigenous contexts.¹³ Adopting socio-ecological lens and reviewing literature from 2009-2019, the authors reported that although India boasts rich, diverse local healing traditions (LHTs), these remain marginalized due to poor recognition, limited policy support, diminishing practitioner interest, and environmental or legal challenges. The study argued that simply integrating local health traditions (LHTs) into national health strategies may not improve primary care access for marginalized groups, but called for policy reforms to legitimize, regulate, protect, and sustainably integrate local healers and their knowledge echoing the central argument of the present study.

The present study, to the best of our knowledge, is the first of its kind that has attempted to assess the knowledge and attitude of healers towards OHS. While the study has presented tribe-wise data, smaller samples, especially from a single district, limit the possibility of generalizing the quantitative results. A smaller sample size for qualitative data has limited the tribe-wise understanding of different practices.

CONCLUSION

In a nutshell, culturally acceptable strategies to integrate tribal healers into PHS are the way ahead to achieve UHC. While studies in different contexts reported TTHs playing significant roles in disease awareness, current study emphasized the masked factors in terms of low knowledge of healers and no inclination towards OHS. Without targeted interventions involving their cultural beliefs and practices, it is challenging not just achieving UHC but also ensuring primary healthcare. The current study strongly recommends a large-scale research to understand the avenues to integrate TTHs into PHS. It also emphasise developing collaborative care models by capacity building of healers and establishing effective referral linkages.

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