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Full Length Research Article

A Comparative Study of Reproductive Health Beliefs and Practices among Adolescent Married Girls of Birhor and Kolha Tribes in Oupada Block, Balasore District

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ABSTRACT
Comparative understanding of reproductive health beliefs and practices between different tribal groups is essential for developing targeted, culturally-appropriate health interventions. This descriptive comparative survey assessed reproductive health beliefs and practices among 100 adolescent married girls (50 Birhor, 50 Kolha) in Oupada Block, Balasore District, Odisha. Using purposive sampling and structured interview questionnaires, data were collected on menstrual hygiene, sexual behavior, and nutritional domains. The hypothesis tested whether Birhor primitive tribal group demonstrates more traditional beliefs and inadequate practices compared to Kolha tribe. Results revealed significant inter-tribal differences: menstrual beliefs showed 100% Birhors versus 70% Kolhas believing menstruation is God's gift; practices demonstrated 100% Birhors using only undergarments versus 88% Kolhas using old cloth during menstruation. Sexual behavior comparisons showed 100% Birhors versus 84% Kolhas believing pre-15 pregnancy is safe; contraceptive use was 0% among Birhors versus 70% Kolhas. Nutritional comparisons revealed 90% Birhors versus 54% Kolhas believing forest food alone suffices; both tribes showed 100% alcohol consumption during pregnancy. The study concluded that Birhors face compounded vulnerabilities from extremely traditional beliefs combined with severe resource deprivation, while Kolhas demonstrate gradual modernization with persistent traditional elements, necessitating differentiated intervention strategies for distinct tribal populations.

Keywords: *Comparative tribal health, reproductive health, Birhor tribe, Kolha tribe, adolescent health.*

1. INTRODUCTION

India's tribal populations, constituting 8.6% of the total population (104 million people), represent diverse ethnic communities with distinct cultural identities, traditional practices, and health profiles (Census of India, 2011). Among these, Particularly Vulnerable Tribal Groups (PVTGs) like Birhors face extreme marginalization characterized by primitive subsistence patterns, declining populations, geographical isolation, and minimal literacy, creating compounded health vulnerabilities (Xaxa, 2008). Understanding health belief and practice variations between PVTGs and relatively less marginalized tribal groups is critical for developing differentiated intervention strategies addressing specific community needs. Reproductive health among tribal adolescent married girls represents a critical public health concern, as this population faces intersecting vulnerabilities of young age, early marriage, limited education, gender inequality, and inadequate healthcare access (Santhya et al., 2010). Reproductive health outcomes among tribal populations lag substantially behind national averages, with higher maternal mortality ratios, infant mortality rates, unmet contraceptive needs, and reproductive morbidity prevalence (Ministry of Health and Family Welfare, 2018). However, most tribal health data aggregate all tribal groups, obscuring critical inter-tribal variations that may require targeted approaches.

The Birhor and Kolha tribes of Odisha represent contrasting positions on the tribal development spectrum. Birhors, one of India's 75 PVTGs, maintain semi-nomadic hunter-gatherer lifestyles in remote forest areas with minimal integration into mainstream society (Roy, 2005). Their population has declined drastically over decades due to forest resource depletion, forced sedentarization attempts, and socio-economic marginalization (Vidyarthi, 1963). In contrast, Kolha tribes, while retaining tribal identity and cultural practices, have experienced greater acculturation through longer settlement patterns, agricultural adoption, and increased educational access (Singh, 2002). These differential trajectories create distinct socio-cultural contexts likely

influencing reproductive health beliefs and practices. Comparative research between different tribal groups remains limited in Indian public health literature. Most studies either focus on single tribal communities or aggregate all tribals into homogeneous categories, neither approach adequately addressing inter-tribal diversity (Basu & Basu, 2005). The few existing comparative studies primarily examine socioeconomic indicators rather than specific health domains like reproductive health (Mohapatra & Sahoo, 2018). This knowledge gap impedes development of nuanced, tribe-specific interventions potentially more effective than generic tribal health programs.

Reproductive health encompasses multiple domains menstrual hygiene, sexual behavior, nutrition each influenced by cultural beliefs translating into specific practices with health consequences. Beliefs about menstruation as physiological versus supernatural phenomenon influence hygiene practices; sexual behavior beliefs impact contraceptive use and STI prevention; nutritional beliefs affect dietary adequacy during critical reproductive phases (Jejeebhoy & Sebastian, 2004). Systematic comparison of both beliefs and practices between contrasting tribal groups can elucidate how socio-cultural contexts differentially shape reproductive health, informing culturally-tailored intervention design. This study addresses these gaps by comprehensively comparing reproductive health beliefs and practices related to menstrual hygiene, sexual behavior, and nutritional status between Birhor (PVTG) and Kolha (non-PVTG) adolescent married girls in Balasore District, Odisha. The comparative analysis tests the hypothesis that PVTG status correlates with more traditional belief retention and less adequate practices compared to relatively acculturated tribal groups, providing evidence for differentiated tribal health intervention strategies.

2. LITERATURE REVIEW

Comparative tribal health research in India has primarily focused on socioeconomic and demographic differences rather than specific health domains. Xaxa (2008) documented substantial heterogeneity among Indian tribal populations across development indicators, with PVTGs showing significantly lower literacy rates, higher poverty incidence, and worse health infrastructure access compared to other tribal groups. However, comprehensive reproductive health comparisons remain scarce in published literature. Menstrual health beliefs and practices show substantial variation across different cultural contexts globally. A systematic review by Hennegan et al. (2019) documented diverse menstrual beliefs ranging from biomedical understanding to supernatural attributions, with practices varying from commercial product use to traditional materials and restriction patterns. Among Indian tribal populations specifically, limited comparative data exist, though single-tribe studies by Thakre et al. (2011) and Omidvar and Begum (2010) document poor menstrual hygiene practices and extensive taboos requiring intervention. Sexual behavior variations among tribal populations have been anthropologically documented but remain under-researched from public health perspectives. Historical ethnographic work suggested some tribal communities maintained less restrictive sexual norms compared to mainstream Indian society (Basu, 1993), but systematic contemporary comparative research examining sexual practices, contraceptive use, and reproductive autonomy between different tribal groups is virtually absent. Research by Ackerson and Subramanian (2008) compared tribal and non-tribal intimate partner violence patterns but did not examine inter-tribal variations.

Nutritional practices during reproductive phases show considerable diversity across Indian tribal populations based on food availability, traditional knowledge systems, and cultural taboos. Ghosh-Jerath et al. (2015) documented rich traditional food diversity among Oraon tribals with specific pregnancy dietary practices, while Christian (2010) identified harmful food restrictions among Northeast Indian tribal populations. However, systematic comparisons between forest-dependent PVTGs and agricultural tribal groups regarding reproductive nutrition are lacking. The limited comparative tribal health research suggests PVTG populations face compounded disadvantages beyond other tribal groups. Mohapatra and Sahoo (2018) compared healthcare utilization between PVTG and non-PVTG communities in Odisha, finding significantly lower healthcare access and higher traditional medicine reliance among PVTGs. However, their study did not examine reproductive health specifically or assess belief-practice relationships. Gender dynamics and women's autonomy vary substantially across tribal communities, influencing reproductive health outcomes. Research by Jejeebhoy and Sathar (2001) demonstrated that women's autonomy affects reproductive health decision-making, healthcare access, and contraceptive use, with autonomy levels varying by cultural context. However, systematic comparisons of reproductive autonomy between PVTG and non-PVTG women are absent from literature.

Health belief models suggest that individuals' health-related behaviors are influenced by perceived susceptibility to health problems, perceived severity, perceived benefits of action, and perceived barriers

(Rosenstock, 1974). Cultural contexts substantially shape these perceptions, with traditional belief systems often influencing health behaviors more strongly than biomedical knowledge in communities with limited health system exposure (Kreuter & McClure, 2004). Comparative research examining how different degrees of cultural isolation affect reproductive health belief-practice relationships would advance theoretical understanding applicable to tribal health intervention design. This review identifies critical knowledge gaps: (1) absence of comprehensive reproductive health comparisons between PVTG and non-PVTG populations, (2) lack of systematic belief-practice relationship assessment in comparative tribal contexts, (3) insufficient understanding of how differential acculturation affects reproductive health across tribal communities, and (4) limited evidence base for developing differentiated tribal health interventions. This study addresses these gaps through systematic comparative assessment of reproductive health beliefs and practices between Birhor (PVTG) and Kolha (non-PVTG) adolescent married girls.

3. OBJECTIVES

1. To compare beliefs related to menstrual hygiene between adolescent married girls of Birhor and Kolha tribes
2. To compare beliefs related to sexual behavior and nutrition between adolescent married girls of Birhor and Kolha tribes
3. To compare practices related to menstrual hygiene between adolescent married girls of Birhor and Kolha tribes
4. To compare practices related to sexual behavior and nutrition between adolescent married girls of Birhor and Kolha tribes

4. METHODOLOGY

The study adopted a non-experimental descriptive comparative survey design to systematically assess and compare reproductive health beliefs and practices among two tribal groups—Birhor and Kolha. It was conducted in Patharapada and Majhisahi villages of Oupada Block, Balasore District, Odisha, selected for their substantial representation of both communities and comparable regional conditions. The study population comprised adolescent married girls aged 10–19 years. Using purposive sampling, 100 participants were recruited, with equal representation from Birhor (n=50) and Kolha (n=50) tribes, enabling direct inter-tribal comparison. Inclusion criteria included tribal affiliation, marital status, ability to communicate in Oriya, residence in the selected villages, and voluntary consent, while girls from mixed marriages, those severely ill, or unwilling to participate were excluded. Data were collected using a structured interview schedule developed through literature review, expert validation, and pilot testing. The tool consisted of three sections: socio-demographic characteristics, reproductive health beliefs, and corresponding practices related to menstrual hygiene, sexual behavior, and nutrition. Content validity was established through expert review by nursing, medical, and anthropological specialists, and a pilot study confirmed clarity and feasibility. Face-to-face interviews were conducted privately, following ethical approval and informed consent procedures. Data analysis involved descriptive statistics and comparative percentage analysis to identify inter-tribal differences. Ethical principles of voluntary participation, confidentiality, anonymity, and participant safety were strictly maintained throughout the study.

5. RESULTS

Comparative Socio-Demographic Profile

Table 1: Comparative Socio-Demographic Characteristics

Characteristic	Birhor (n=50)	Kolha (n=50)	Comparison
Age Distribution			
13-15 years	15 (30%)	14 (28%)	Similar
16-19 years	35 (70%)	36 (72%)	Similar
Educational Status			
Completely illiterate	50 (100%)	41 (82%)	18% difference
Any literacy	0 (0%)	9 (18%)	Kolha advantage
Monthly Family Income			
<Rs.3,000	11 (22%)	4 (8%)	14% difference
Rs.3,000-5,000	39 (78%)	26 (52%)	26% difference
>Rs.5,000	0 (0%)	20 (40%)	40% difference
Occupation			
Unskilled labor	50 (100%)	42 (84%)	16% difference
Housewife	0 (0%)	8 (16%)	Kolha diversity

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Living Space			
One room only	50 (100%)	31 (62%)	38% difference
Multiple rooms	0 (0%)	19 (38%)	Kolha advantage

Socio-demographic comparison revealed age distribution similarity between tribes (70-72% aged 16-19 years), indicating comparable adolescent married girl populations. However, substantial differences emerged across development indicators. Educational disparity was striking—complete illiteracy among all Birhors (100%) versus 82% Kolhas, with 18% Kolhas achieving some literacy representing significant educational advantage despite low absolute levels. This 18-percentage-point gap suggests Kolha community's greater educational infrastructure access or cultural education valuation. Economic disparities proved even more pronounced. While both tribes predominantly fell in Rs.3,000-5,000 monthly income category, 40% Kolha families earned above Rs.5,000 compared to zero Birhor families, representing substantial wealth gap. Conversely, 22% Birhor families versus only 8% Kolhas earned below Rs.3,000, indicating greater Birhor poverty concentration. These economic differences likely reflect Birhor reliance on declining forest resources versus Kolha agricultural and wage labor diversification. Occupational patterns showed 100% Birhors engaged in unskilled labor with no housewife category (suggesting universal female economic contribution necessity) compared to 84% Kolhas in unskilled labor with 16% identifying as housewives (indicating some families can afford female domestic specialization). Living space disparities highlighted material deprivation differences all Birhors (100%) occupied single-room dwellings versus 62% Kolhas, with 38% Kolhas having multiple rooms suggesting better housing infrastructure. These socio-demographic differences establish contextual foundation for understanding reproductive health belief-practice variations between tribes.

Comparative Menstrual Hygiene Beliefs

Table 2: Comparison of Menstrual Nature Beliefs

Belief	**Birhor (n=50)**	**Kolha (n=50)**	**Difference**
Menstruation is physiological	0 (0%)	1 (2%)	Minimal difference
Menstruation is God's gift	50 (100%)	35 (70%)	30% difference
Dirty blood release	31 (62%)	37 (74%)	12% higher Kolha
Menstruation is sin period	50 (100%)	47 (94%)	6% difference
Right marriage age <15 years	50 (100%)	19 (38%)	62% difference
Marriage just after menarche	50 (100%)	24 (48%)	52% difference

Menstrual nature belief comparison revealed near-universal scientific knowledge deficit across both tribes—neither showed meaningful physiological understanding (0% Birhor, 2% Kolha). However, supernatural belief intensity differed markedly. All Birhors (100%) attributed menstruation to divine origin versus 70% Kolhas, the 30-percentage-point difference suggesting Kolhas' partial belief diversification possibly through education or health messaging exposure. Interestingly, "dirty blood" perception was actually higher among Kolhas (74%) than Birhors (62%), potentially reflecting different cultural narratives around menstrual impurity despite greater Kolha acculturation. The menstruation-as-sin belief approached universality in both groups (100% Birhor, 94% Kolha) with minimal difference, indicating deeply entrenched stigma transcending tribal-specific differences. Most striking differences emerged in marriage age beliefs—all Birhors (100%) endorsed immediate post-menarche marriage and under-15 marriage versus only 38-48% Kolhas, representing dramatic 52-62 percentage point gaps. This suggests significant Kolha normative shift toward delayed marriage despite continued early marriage acceptance by substantial minorities, possibly reflecting educational influences, legal awareness, or changing economic incentives for girls' education versus early marriage.

Table 3: Comparison of Menstrual Taboos and Restrictions

Taboo/Restriction	**Birhor (n=50)**	**Kolha (n=50)**	**Analysis**
Shouldn't see men before bathing	41 (82%)	50 (100%)	Kolha 18% stricter
Shouldn't touch plants	42 (84%)	50 (100%)	Kolha 16% stricter
Shouldn't go to temple	50 (100%)	50 (100%)	Universal agreement
Take neem twig outdoors	33 (66%)	34 (68%)	Nearly identical

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Shouldn't go out at noon/evening/night	0 (0%)	21 (42%)	Kolha 42% more restrictive
Shouldn't see male persons	0 (0%)	2 (4%)	Minimal practice

Menstrual taboo comparison revealed unexpected pattern Kolhas demonstrated equal or greater restriction stringency compared to Birhors across several domains, contradicting simple acculturation-liberalization assumptions. While both tribes showed universal religious prohibition (100% temple avoidance), Kolhas enforced stricter gender contact restrictions with 100% avoiding men before bathing versus 82% Birhors, and 100% avoiding plant contact versus 84% Birhors. Most dramatically, 42% Kolhas restricted outdoor movement during specific day times (noon, evening, night) compared to zero Birhors, suggesting Kolha community maintains elaborate menstrual seclusion practices absent among nomadic-origin Birhors whose subsistence patterns may not accommodate extensive movement restrictions. Protective practices like neem twig carrying showed near-identical rates (66-68%), indicating shared traditional protective belief systems. These findings suggest acculturation does not linearly reduce traditional practices but may intensify specific restrictions as communities selectively preserve cultural distinctiveness, or alternatively, that Kolhas adopted some restrictive practices through contact with broader Hindu cultural norms foreign to Birhors' original forest-based culture.

Comparative Sexual Behavior and Nutritional Beliefs

Table 4: Comparison of Sexual Beliefs

Belief	Birhor (n=50)	Kolha (n=50)	Comparison
Sex education arouses desire	44 (88%)	50 (100%)	Kolha 12% higher resistance
Pregnancy <15 years not harmful	50 (100%)	42 (84%)	Birhor 16% more risk-unaware
Don't know contraception	41 (82%)	22 (44%)	Birhor 38% more knowledge deficit
Use jadibuti for contraception	36 (72%)	34 (68%)	Similar reliance
Pre-marital sex enhances marriage	50 (100%)	50 (100%)	Universal agreement
Multi-partner sex gives pleasure	32 (64%)	33 (66%)	Nearly identical

Sexual belief comparison revealed complex patterns. Resistance to formal sex education was near-universal but slightly stronger among Kolhas (100%) than Birhors (88%), possibly reflecting Kolha greater awareness of formal education systems paradoxically increasing cultural defensiveness about sexuality topics. Early pregnancy safety beliefs showed critical difference—all Birhors (100%) believed pregnancy before 15 years is safe versus 84% Kolhas, with 16% Kolhas recognizing health risks representing important minority health consciousness absent among Birhors. Contraceptive knowledge disparities were dramatic—82% Birhors admitted not knowing pregnancy prevention methods versus 44% Kolhas, a 38-percentage-point gap indicating substantially greater Kolha family planning awareness despite still-majority knowledge deficit. Interestingly, traditional contraceptive method reliance (jadibuti) was nearly identical (72% Birhor, 68% Kolha), suggesting shared traditional knowledge base but differential access to modern information. Sexual permissiveness beliefs showed no tribal differences—both universally endorsed pre-marital sexual experience enhancing marital relations (100%), and approximately two-thirds (64-66%) believed multiple partners provide greater pleasure, indicating these sexual attitudes transcend tribal-specific cultural variations and may represent broader regional tribal sexual norms.

Table 5: Comparison of Nutritional Beliefs

Belief	Birhor (n=50)	Kolha (n=50)	Analysis
Good nutrition needed during menstruation	13 (26%)	0 (0%)	Birhor 26% higher awareness
Good nutrition creates diseases	32 (64%)	35 (70%)	Similar misconception
Nutrition not needed for health	40 (80%)	38 (76%)	Similar misconception
Forest food most nutritious	50 (100%)	50 (100%)	Universal agreement
Only forest food sufficient	45 (90%)	27 (54%)	Birhor 36% more restrictive
High water intake causes diseases during pregnancy	50 (100%)	38 (76%)	Birhor 24% more restrictive
Nutritious food causes obstructed labor	50 (100%)	38 (76%)	Birhor 24% more misconception

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Nutritional belief comparison revealed alarming misconceptions across both tribes with notable differences in extremity. Paradoxically, slightly more Birhors (26%) than Kolhas (0%) recognized menstrual nutritional importance, though absolute levels remained dismally low. Anti-nutrition beliefs prevailed similarly—64-70% believed nutrition causes diseases, 76-80% believed nutrition unnecessary for health—indicating shared fundamental nutritional knowledge gaps. Universal forest food supremacy belief (100% both tribes) demonstrated strong traditional food culture preservation across acculturation differences. Critical difference emerged in dietary supplementation attitudes—90% Birhors versus 54% Kolhas believed forest food alone suffices without additional nutrition, the 36-percentage-point gap suggesting Kolhas' greater openness to dietary diversification possibly through market access or agricultural production. Pregnancy-related nutritional misconceptions showed Birhor beliefs more uniformly extreme—100% Birhors versus 76% Kolhas believed high water intake causes pregnancy diseases, and 100% Birhors versus 76% Kolhas believed nutritious food causes obstructed labor, indicating Kolha minority (24%) rejected these harmful beliefs while Birhors maintained absolute consensus. These patterns suggest nutritional knowledge interventions may find more receptive audience among Kolhas where belief heterogeneity exists compared to Birhors' uniform traditional belief adherence.

Comparative Menstrual Hygiene Practices

Table 6: Comparison of Menstrual Materials and Hygiene Practices

Practice	Birhor (n=50)	Kolha (n=50)	Comparison
Menstrual Material			
Only undergarments	50 (100%)	0 (0%)	Complete difference
Old cloth	0 (0%)	44 (88%)	Complete difference
Washing Method			
Water only	50 (100%)	50 (100%)	Universal similarity
Soap usage	9 (18%)	13 (26%)	Kolha 8% higher
Termite/Alluvial soil	37 (74%)	33 (66%)	Similar reliance
Changing Frequency			
1-2 times/day	38 (76%)	6 (12%)	Birhor 64% more inadequate
3-4 times/day	0 (0%)	21 (42%)	Kolha 42% more adequate
Storage Location			
With other clothes	50 (100%)	50 (100%)	Universal similarity
Additional locations	0 (0%)	47 (94%)	Kolha diversification

Menstrual practice comparison revealed most dramatic differences in material access and changing adequacy. The complete divergence in menstrual materials—100% Birhors using only undergarments versus 0% Kolhas, with 88% Kolhas using old cloth—represents absolute difference in resource availability reflecting extreme Birhor material deprivation. This single finding encapsulates broader socio-economic disparities with serious health implications. Washing methods showed universal plain water use (100% both groups) but marginally higher Kolha soap adoption (26% vs 18%), though both rates remained inadequately low. Traditional cleaning agent reliance was comparable (66-74%), indicating shared traditional practice preferences transcending resource differences. Changing frequency disparities highlighted practice adequacy gaps—76% Birhors changed only 1-2 times daily versus 12% Kolhas, while 42% Kolhas achieved 3-4 times versus 0% Birhors, representing substantial hygiene practice difference potentially correlating with material availability (more cloth pieces enable more frequent changing). Storage patterns showed universal inclusion with regular clothes (100%) but Kolhas additionally utilized diverse locations like cow sheds and tree holes (94%), suggesting spatial resource availability enabling separation practices impossible in Birhors' single-room dwellings.

Comparative Sexual Behavior Practices

Table 7: Comparison of Sexual Practices and Contraception

Practice	Birhor (n=50)	Kolha (n=50)	Analysis
Premarital sexual affairs	16 (32%)	12 (24%)	Birhor 8% higher
Extramarital affairs	11 (22%)	9 (18%)	Birhor 4% higher
Sex during menstruation	32 (64%)	34 (68%)	Nearly identical

Contraceptive Use			
Any contraception	0 (0%)	35 (70%)	Complete difference
Temporary methods	0 (0%)	28 (56%)	Complete difference
Permanent methods	0 (0%)	7 (14%)	Complete difference
Post-coital hygiene	0 (0%)	0 (0%)	Universal absence

Sexual practice comparison revealed striking contraceptive access divide alongside similarities in other domains. Premarital (32% vs 24%) and extramarital (22% vs 18%) sexual affairs showed slightly higher Birhor rates with small percentage differences, possibly reflecting different surveillance/social control patterns or reporting differences rather than actual behavior variations. Menstrual sex practice showed remarkable similarity (64% Birhor, 68% Kolha), indicating widespread behavior contradicting menstruation-as-sin beliefs across both tribes equally. The most dramatic difference emerged in contraceptive usage—absolute zero among all Birhors versus 70% Kolhas using various methods represents complete disparity in reproductive autonomy and family planning access. Among Kolha users, temporary method preference (56%) over permanent sterilization (14%) suggested reproductive choice maintenance. This contraceptive divide likely reflects multiple factors: Kolha proximity to health facilities, greater health system engagement, education enabling method understanding, and possibly different fertility preferences. Zero Birhor contraceptive use exposes this population to continuous pregnancy risks with inadequate birth spacing, representing critical unmet reproductive health need. Universally absent post-coital hygiene (0% both tribes) demonstrated shared critical practice gap transcending tribal differences, requiring intervention across both populations.

Comparative Nutritional Practices

Table 8: Comparison of Dietary Practices During Reproductive Phases

Practice	**Birhor (n=50)**	**Kolha (n=50)**	**Comparison**
Non-vegetarian diet	50 (100%)	50 (100%)	Universal similarity
Food choice during menstruation	50 (100%)	35 (70%)	Kolha 30% restricted
Energy Supplementation			
Handia consumption	50 (100%)	50 (100%)	Universal practice
Alcohol consumption	50 (100%)	50 (100%)	Universal practice
Mahuli consumption	50 (100%)	50 (100%)	Universal practice

Nutritional practice comparison revealed universal non-vegetarian preference (100% both tribes) with diverse animal protein sources including hunted game, reflecting shared forest-based food traditions. Interestingly, food choice autonomy during menstruation was higher among Birhors (100%) versus Kolhas (70%), with 30% Kolhas experiencing dietary restrictions suggesting Kolha community imposes menstrual dietary controls absent among Birhors. Most concerning finding was universal alcohol-based energy supplementation during menstruation and pregnancy across both tribes (100% consuming Handia, alcohol, and Mahuli), representing shared harmful practice with serious pregnancy outcomes implications including fetal alcohol spectrum disorders. The absolute universality (100% both tribes) indicates deeply embedded cultural practice requiring sensitive intervention approaches acknowledging traditional beverages' cultural roles while introducing harm reduction education. This shared practice pattern suggests some traditional practices transcend tribal-specific differences, maintained across varying acculturation levels, requiring regionally-adapted rather than tribe-specific intervention approaches.

6. DISCUSSION

This comparative study reveals complex patterns of similarities and differences in reproductive health beliefs and practices between Birhor and Kolha adolescent married girls, challenging simplistic assumptions about acculturation effects while confirming significant PVTG-specific vulnerabilities requiring differentiated interventions. Socio-demographic disparities provided critical context for understanding reproductive health differences. The 100% Birhor illiteracy versus 82% Kolha, while both extremely high, represents meaningful educational access gap potentially influencing health knowledge and practice adoption capacity, consistent with Xaxa's (2008) documentation of PVTG educational disadvantages. Economic disparities with 40% Kolhas versus 0% Birhors earning above Rs.5,000 monthly translate directly into menstrual material access differences (old cloth versus no materials), demonstrating how poverty mediates health practice

possibilities beyond belief influences. Menstrual belief comparisons revealed unexpected patterns contradicting linear modernization assumptions. While Birhors showed stronger supernatural attribution (100% God's gift vs 70% Kolha), Kolhas demonstrated equal or greater restriction stringency in several domains (100% vs 82% avoiding men pre-bathing, 42% vs 0% outdoor movement restrictions). This suggests acculturation does not uniformly liberalize practices but may intensify certain restrictions as communities negotiate cultural identity preservation amid external influences, supporting Mohapatra and Sahoo's (2018) observations of selective traditional practice retention among transitioning tribal groups.

The 62-percentage-point difference in early marriage endorsement (100% Birhor vs 38% Kolha for under-15 marriage) represents one of the study's most significant findings with direct policy implications. This demonstrates that even among tribal populations with high absolute early marriage rates, substantial belief heterogeneity exists potentially amenable to normative change interventions, particularly targeting populations like Kolhas showing existing belief diversification (Santhya et al., 2010). Sexual behavior beliefs showed surprising uniformity across tribes in some domains (100% both endorsing pre-marital sex enhancing marriage, 64-66% supporting multi-partner pleasure beliefs) despite differences in contraceptive knowledge (82% Birhor vs 44% Kolha admitting ignorance). This pattern suggests sexual permissiveness may represent broader regional tribal sexual culture transcending specific tribal identities, while contraceptive knowledge reflects differential healthcare access and education rather than cultural sexual conservatism differences. These findings challenge assumptions that link sexual conservatism with contraceptive non-use in tribal contexts, suggesting knowledge and access barriers rather than cultural prohibition drive low contraceptive usage (Jejeebhoy & Sebastian, 2004).

Nutritional belief patterns revealed both shared fundamental misconceptions (64-70% believing nutrition causes diseases) and critical differences in belief extremity (100% Birhor vs 76% Kolha believing nutritious food causes obstructed labor). The 90% Birhor vs 54% Kolha belief that forest food alone suffices represents meaningful difference potentially linked to differential market access and agricultural production enabling Kolha dietary diversification beyond forest dependence, consistent with Ghosh-Jerath et al.'s (2015) documentation of forest food reliance varying with livelihood patterns. Practice comparisons revealed most dramatic tribal differences in menstrual material access and contraceptive use, both directly linked to resource availability and health system access rather than belief differences alone. The complete divergence 100% Birhors using only undergarments versus 88% Kolhas using old cloth represents material deprivation extreme rarely documented in contemporary India, confirming PVTG populations' exceptional marginalization (Roy, 2005). Similarly, the 0% Birhor versus 70% Kolha contraceptive use represents probably the largest inter-tribal contraceptive prevalence gap documented in Indian research, exceeding typical tribal-non-tribal differences and highlighting PVTG family planning service access failures.

Interestingly, some harmful practices showed no tribal differences universal alcohol consumption during pregnancy (100% both), universal post-coital hygiene absence (0% both), similar menstrual sex practice (64-68%). These shared patterns suggest certain traditional practices persist across varying acculturation levels, requiring regional intervention approaches rather than tribe-specific targeting. The universal pregnancy alcohol consumption represents critical public health priority given fetal alcohol spectrum disorder risks, yet absolute universality indicates deep cultural embedding requiring extremely sensitive intervention design acknowledging traditional fermented beverages' nutritional and cultural roles while introducing harm reduction (Christian, 2010). The study findings support differentiated tribal health intervention strategies. For Birhors, interventions must address fundamental resource provision (menstrual materials, contraceptive access), basic health infrastructure development (accessible primary health centers), and foundational health education given near-complete scientific knowledge absence. For Kolhas, interventions can build on existing health system engagement focusing on practice quality improvement, modern method adoption enhancement, and addressing persistent harmful practices (pregnancy alcohol consumption) and restrictive norms (menstrual seclusion intensification).

However, some intervention components should be uniform across tribal groups. Post-coital hygiene education, menstrual sex risk communication, and pregnancy alcohol harm reduction require delivery to both populations given shared deficits. Universal interventions enable economies of scale and avoid creating service delivery fragmentation, while differentiated intensity and delivery mechanisms can address tribe-specific needs. Theoretical implications include demonstrating that acculturation effects on health beliefs and practices are non-linear and domain-specific greater acculturation may paradoxically intensify certain traditional restrictions while liberalizing others, requiring nuanced understanding

beyond simple tradition-modernity dichotomies. The disconnect between beliefs and practices (e.g., menstruation-as-sin belief coexisting with majority menstrual sex practice) confirms behavior is not determined solely by beliefs but influenced by multiple factors including partner dynamics, resource availability, and situational contexts (Rosenstock, 1974; Kreuter & McClure, 2004). Study limitations include cross-sectional design preventing causal inference about acculturation effects, relatively small sample size limiting generalizability to all Birhor and Kolha populations, self-reported data subject to social desirability bias particularly for sensitive topics, lack of biological outcome measures (infection rates, pregnancy outcomes) correlating beliefs/practices with health consequences, and absence of male perspectives limiting understanding of couple-level decision-making dynamics influencing reproductive health.

7. CONCLUSION

This comparative study documents significant reproductive health belief and practice differences between Birhor (PVTG) and Kolha (non-PVTG) adolescent married girls alongside important similarities, supporting hypotheses of PVTG compounded vulnerabilities while revealing complex acculturation effects. Birhors demonstrated extreme material deprivation (100% using only undergarments during menstruation), complete contraceptive access absence (0% usage), more uniform traditional belief adherence (100% early marriage endorsement), and greater scientific knowledge deficits (100% illiteracy, 82% contraceptive knowledge absence). Kolhas showed relative advantages in material resources, contraceptive access (70% usage), educational attainment (18% literate), and belief heterogeneity, while paradoxically maintaining stricter menstrual restrictions in some domains and sharing harmful practices like universal pregnancy alcohol consumption. These patterns necessitate differentiated yet coordinated tribal health intervention strategies. Birhor interventions require intensive resource provision, fundamental health infrastructure development, and basic health education addressing near-complete knowledge voids. Kolha interventions can build on existing health engagement focusing on practice quality enhancement and harmful tradition modification. However, shared deficits (post-coital hygiene absence, pregnancy alcohol consumption) require uniform intervention components across both populations.

Policy implications include: (1) PVTG-specific health programs with enhanced resource allocation and service delivery innovations reaching extremely remote populations, (2) tribal diversity recognition in state/national health planning avoiding homogeneous tribal category assumptions, (3) culturally-sensitive intervention design acknowledging traditional practices' cultural meanings while introducing evidence-based alternatives, (4) community-based participatory approaches employing tribal health workers ensuring cultural appropriateness and community ownership, and (5) intersectoral coordination addressing underlying determinants (education, poverty, infrastructure) influencing reproductive health. Future research priorities include: (1) qualitative investigation of belief formation processes and practice decision-making contexts through in-depth interviews and ethnography, (2) biological outcome assessment (reproductive tract infections, anemia, pregnancy outcomes) correlating beliefs/practices with health status, (3) longitudinal studies tracking belief-practice changes over time and acculturation effects, (4) intervention development and effectiveness testing using community-based participatory research approaches, (5) male involvement examination in reproductive health decisions through couple-level research, and (6) expanded comparative research across additional tribal groups (multiple PVTGs, various non-PVTG tribes) identifying universal versus group-specific intervention targets for India's exceptionally diverse 700+ tribal communities requiring culturally-tailored health approaches respecting indigenous knowledge while promoting health equity.

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