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Understanding Sanitation Behaviour Among Tribal Households: An Integrated Utaut–Tpb Approach To Sbm Adoption In The Nilgiris

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ABSTRACT
Purpose: This study aims to examine the behavioural and socio-cultural factors influencing the adoption and continued usage of Swachh Bharat Mission (SBM) sanitation facilities among tribal households in the Nilgiris district of Tamil Nadu. By integrating the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behaviour (TPB), the research seeks to understand how awareness, social influence, perceived behavioural control, facilitating conditions, and behavioural intentions shape sanitation usage, attitudes, and perceived importance in tribal communities.
Methods: A descriptive research design was used to analyse sanitation behaviour among the tribal population in selected Nilgiris villages. Data were collected from 211 tribal respondents through a structured five-point Likert scale questionnaire administered via face-to-face interactions. Structural Equation Modelling (SEM) was employed to test the hypothesised relationships among key constructs from UTAUT and TPB. Model fitness was validated through CFA and SEM fit indices. Ethical guidelines for research within indigenous communities were followed, ensuring informed consent, confidentiality, and cultural sensitivity.
Findings: The results revealed that all proposed hypotheses were supported. Awareness, social influence, perceived behavioural control, and facilitating conditions significantly and positively influenced behavioural intention toward SBM adoption. Behavioural intention strongly predicted actual usage of sanitation facilities, while usage practices positively shaped both attitude towards SBM and the perceived importance of sanitation. Usage practices emerged as the strongest driver of perceived importance, emphasising the role of experiential learning in sustaining sanitation behaviour among tribal households.
Originality/Value: This study is among the first to integrate UTAUT and TPB in the context of sanitation behaviour within a tribal setting. While previous studies have focused on infrastructure or awareness components of SBM, this research offers a holistic behavioural perspective that combines individual beliefs, social norms, and structural support. The findings contribute theoretical value by extending technology-based behavioural models into a public health and rural sanitation domain. Practically, the study provides culturally grounded insights to guide policymakers, NGOs, and community organisations in designing more effective, tribal-sensitive sanitation interventions that go beyond toilet construction to foster long-term behavioural change.
Keywords: Swachh Bharat Mission (SBM), Sanitation Adoption, Tribal Communities, Nilgiris District, Behavioural Intention, UTAUT, Theory of Planned Behaviour (TPB)....

1. INTRODUCTION:

Sanitation and hygiene are critical public health determinants, particularly in socially and economically marginalized tribal regions such as the Nilgiris district of Tamil Nadu. In response to the need for improved sanitation and reduction of open defecation, the Government of India launched the Swachh Bharat Mission (SBM) in 2014, aiming to promote cleanliness, toilet construction, and behavioural change toward healthier sanitation practices (Ministry of Jal Shakti, 2019). Within the Nilgiris—home to distinct tribal groups such as the Todas, Kotas, Kurumbas, Irulas, and Paniyas—SBM has contributed to notable improvements by enhancing access to household toilets, strengthening hygiene awareness, and improving dignity and health outcomes among tribal families (Sivaraman & Asha, 2022; Rajan & Joseph, 2023).

However, despite infrastructural progress, toilet adoption and continued usage among tribal households in the Nilgiris remain inconsistent. Studies have shown that sanitation-related behaviour in tribal areas is influenced by deep-rooted cultural norms, environmental constraints, traditional living patterns, and socio-demographic characteristics (Devi & Kumar, 2021). The presence of a toilet does not automatically translate into regular use, as attitudes, perceived benefits, social influence, and control over sanitation-related decisions often shape behavioural outcomes (Murugesan & Prabhu, 2022). This highlights that the success of SBM in tribal communities requires more than facility provision—it demands an understanding of the psychological and socio-cultural factors driving sanitation behaviour.

To address this gap, the present study focuses on the attitudes and intentions of tribal households in the Nilgiris district toward adopting and using SBM sanitation

facilities. The research integrates the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behaviour (TPB) to examine behavioural and demographic determinants of SBM usage. UTAUT explains acceptance through performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003), while TPB emphasizes attitude, subjective norms, and perceived behavioural control as predictors of intention and behaviour (Ajzen, 1991). By combining these frameworks, the study provides a holistic understanding of how internal beliefs and external influences affect sanitation adoption in tribal settings.

This study is expected to offer valuable insights for policymakers, local authorities, and social organisations in designing culturally sensitive, community-specific behavioural interventions tailored to the Nilgiris tribal context. Strengthening sanitation behaviour in these communities can further enhance public health, dignity, and sustainable development outcomes in the region.

2. LITERATURE REVIEW

Improving sanitation behaviour in tribal communities is a complex process influenced by awareness, social norms, individual beliefs, and environmental support. The Swachh Bharat Mission (SBM) has reached the Nilgiris district intending to shift long-standing sanitation habits. To understand how and why tribal households choose to adopt and continue using toilets, it is essential to examine the factors that shape their intentions and everyday practices.

Awareness of SBM and Behavioural Intention

Awareness is often the first step towards behavioural change. When people clearly understand what SBM is, why it was introduced, and how it benefits their health and dignity, they are more likely to consider using toilets regularly. Awareness campaigns have helped many rural and tribal families connect sanitation with disease prevention and improved quality of life (Kaur & Kaur, 2021). In the Nilgiris, programmes conducted by schools, Anganwadi centres, and local health workers have increased understanding of hygiene and toilet usage (Sivaraman & Asha, 2022). Ajzen (1991) notes that people form stronger intentions when they possess adequate knowledge about a behaviour. Therefore, awareness of SBM can motivate tribal households to develop a positive intention to use and maintain toilets.

H_1: Awareness of SBM has a positive influence on behavioural intention to adopt SBM sanitation practices.

Social Influence and Behavioural Intention

In tribal communities, decisions are rarely taken in isolation. The opinion of elders, neighbours, and community leaders plays a powerful role in shaping behaviour. When respected members of the community adopt SBM practices or encourage toilet usage, others tend to follow the same path (Murugesan & Prabhu, 2022). According to Venkatesh et al. (2003), social influence strongly affects a person's willingness to adopt a new behaviour. Awareness shared through village meetings, women's self-help groups, and local gatherings makes SBM behaviour socially acceptable, even desirable. As a result, social approval becomes a key source of motivation for forming behavioural intention.

H_2: Social influence positively affects behavioural intention to adopt SBM sanitation practices.

Perceived Behavioural Control and Behavioural Intention

Even if a person understands the importance of toilets, they may feel unable to use them regularly due to practical challenges. Perceived Behavioural Control (PBC) refers to how confident individuals feel about performing a behaviour despite obstacles (Ajzen, 1991). In the case of tribal households, issues like water scarcity, difficulty cleaning toilets, or lack of space affect usage and confidence in managing toilets daily. Studies show that when people feel capable of using and maintaining toilets, their intention to continue using them increases (Devi & Kumar, 2021). In the Nilgiris, confidence grows when families receive guidance on maintenance and access to basic resources (Rajan & Joseph, 2023). Thus, PBC influences how strongly individuals intend to follow SBM practices.

H_3: Perceived behavioural control has a positive influence on behavioural intention to adopt SBM sanitation practices.

Facilitating Conditions and Behavioural Intention

Having support, resources, and a favourable environment is essential for sustaining sanitation behaviour. Facilitating conditions include water availability, proper drainage, government support, training, and follow-up visits from health workers. Venkatesh et al. (2003) explain that people adopt a behaviour more willingly when they feel supported by external systems. In tribal regions, the mere construction of toilets is not enough—continuous support from local authorities, NGOs, and sanitation workers is necessary for long-term usage (Patil et al., 2023). When such support exists, families feel more encouraged and capable of engaging in regular sanitation practices, leading to stronger behavioural intentions.

H_4: Facilitating conditions positively influence behavioural intention to adopt SBM sanitation practices.

Behavioural Intention and Usage Practices

Behavioural intention is closely linked to actual behaviour. When an individual genuinely decides to use a toilet and values hygiene, this intention is more likely to translate into daily practice. Ajzen (1991) highlights that intention is the strongest predictor of behaviour. Research in rural and tribal communities has shown that people who consciously form the intention to use toilets are far more likely to maintain consistent usage habits (Choudhury & Singh, 2021). In the Nilgiris, when families internalise the benefits of SBM and develop the intention to follow hygienic practices, it results in regular toilet use and better sanitation behaviour (Sivaraman & Asha, 2022).

H_5: Behavioural intention has a positive influence on SBM usage practices.

Usage Practices and Attitude towards SBM

Experiencing the benefits of regular toilet use often leads to a more positive attitude towards SBM. Once families begin to use toilets consistently and notice improvements in cleanliness, comfort, dignity, and health, their trust and appreciation for SBM increases (Patil et al., 2023). Women, in particular, report feeling safer and more dignified when not forced to defecate in open spaces (Murugesan & Prabhu, 2022). Over time, these positive experiences shape a favourable attitude towards the mission and its goals.

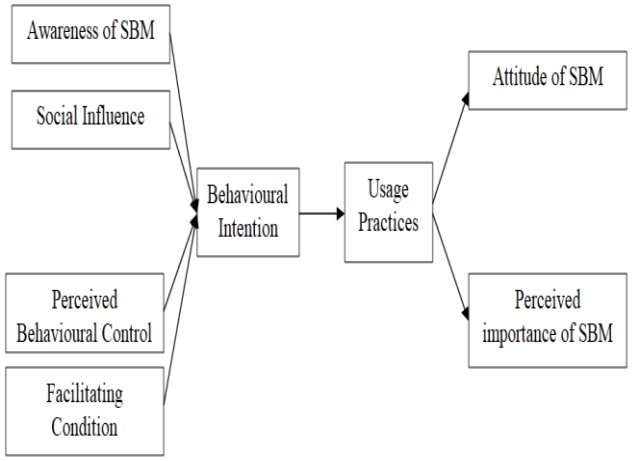
H_6: SBM usage practices have a positive influence on attitude towards SBM.

Usage Practices and Perceived Importance of SBM

Experience influences perception. When tribal households use toilets regularly, they start recognising the broader value of sanitation—less illness, cleaner surroundings, and greater social dignity. This makes SBM more meaningful and important in their lives. As families notice health improvements, reduced medical expenses, and a cleaner living environment, they begin to value the mission more deeply (Singh & Gupta, 2021). In the Nilgiris, continuous usage helps individuals realise that sanitation is not just a government scheme but an essential part of healthy living (Sivaraman & Asha, 2022). This realisation enhances the perceived importance of SBM.

H_7: SBM usage practices have a positive influence on the perceived importance of sanitation.

Figure:1 Conceptual Model



Source: Venkatesh et al., (2003); Ajzen, (1991); Patil et al., (2023); Singh & Gupta, (2021).

3. RESEARCH GAP

The objectives of this study are the analysis of the effectiveness of SBM in promoting sanitation and hygienic practices among tribal communities in the Nilgiris district and surrounding areas. This research combines the models of UTAUT and TPB theory uniquely. It is evidenced in previous work that community-level participation is influenced by multiple variables, but an integrated approach can be represented to depict variables with a positive relationship towards the SBM scheme. An integrated approach is novel to represent such a combination since no previous study incorporated this set of variables; hence, it constitutes a valuable addition to the literature.

4. OBJECTIVES

To examine the influence of awareness of SBM, social influence, perceived behavioural control, and facilitating conditions on the behavioural intention and usage practices of SBM among tribal households in the Nilgiris district.

To analyse how SBM usage practices shape the attitude and perceived importance of sanitation among tribal communities in the Nilgiris district.

5. RESEARCH METHODOLOGY

This study adopted a descriptive research design to examine the behavioural and social factors that influenced the adoption of Swachh Bharat Mission (SBM) sanitation practices among tribal communities in the Nilgiris district. A descriptive approach was considered suitable when the aim was to systematically describe attitudes, perceptions, and behavioural patterns of a specific population (Kothari, 2004). The study integrated elements from the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behaviour (TPB) to analyse how awareness, social influence, perceived behavioural control, facilitating conditions, and behavioural intention shaped SBM usage in tribal households.

The target population for the study consisted of tribal community members residing in selected villages within the Nilgiris district, including the Todas, Kotas, Irulas, Paniyas, and Kurumbas. A purposive sampling method was employed to ensure the inclusion of respondents who were direct beneficiaries of SBM initiatives. Purposive sampling was considered appropriate in studies involving specific community groups, where the researcher needed to collect data from relevant and informed participants (Etikan, Musa & Alkassim, 2016). A sample size of 211 respondents was determined to be adequate for structural analysis, considering that a minimum of 10 respondents per variable was recommended for behavioural research (Hair et al., 2019).

Data were collected using a structured questionnaire consisting of five-point Likert scale items, designed to measure the key constructs under UTAUT and TPB. The questionnaire was administered through face-to-face interaction, as personal contact was more suitable for tribal communities that may have had limited literacy or unfamiliarity with digital surveys (Rao, 2021). Prior to data collection, a pilot study was conducted with 30 respondents to assess reliability and clarity of the instrument, followed by improvements based on respondent feedback. Cronbach's alpha values were computed to confirm internal consistency, with a threshold value of 0.70 considered acceptable (Nunnally & Bernstein, 1994).

The collected data were analysed using both descriptive and inferential statistics. Descriptive statistics were applied to summarise demographic characteristics, awareness levels, and general sanitation practices of the respondents. Inferential analysis was conducted using Structural Equation Modelling (SEM) to test the

hypothesised relationships among the constructs. SEM was recommended for studies examining complex cause–effect relationships between multiple variables, especially within behavioural models (Byrne, 2016). Statistical analyses were carried out using SPSS and AMOS software packages.

To ensure ethical considerations, informed consent was obtained from all respondents, and the research maintained confidentiality and anonymity. Permission from local community leaders and Panchayat authorities was also sought before data collection, following ethical guidelines for research among indigenous populations (Smith, 2012). Overall, the methodology ensured a systematic, culturally sensitive, and theory-driven approach suitable for understanding sanitation behaviour within tribal communities in the Nilgiris.

6. RESULTS

Before examining the structural relationships between the variables, it was essential to first validate the measurement model and assess the overall model fit. Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were conducted to ensure that the constructs used in this study were both statistically reliable and theoretically sound. CFA was carried out to confirm whether the observed indicators accurately represented the underlying latent variables, while SEM was used to test the hypothesised relationships between awareness, behavioural intention, usage practices, and other key constructs influencing the adoption of SBM sanitation practices among tribal households in the Nilgiris. The model fit indices were evaluated in line with the recommended guidelines by Kline (2010), ensuring that the analysis met established thresholds for validity. Once the model demonstrated an acceptable fit, the structural paths were examined to understand how the variables interacted and contributed to sanitation behaviour in the study area.

Table 1 This table represents CFA model fit indices

Fit indices	Value	Accepted value	Result
Cmin/df	2.765	Less than 3	Supported
GFI	.934	Value greater than .90	Supported
CFI	.935	Value greater than .90	Supported
IFI	.934	Value greater than .90	Supported
RMSEA	.069	Value less than .08	Supported

Source: Kline, 2010

Table 1 represents the Confirmatory Factor Analysis (CFA) model fit indices used to assess how well the proposed measurement model aligns with the observed data. The results indicate that the model demonstrates a satisfactory fit across all key indices. The Cmin/df value of 2.765 falls below the recommended threshold of 3.0, suggesting an acceptable level of model parsimony and indicating that the model is not over-fitted (Kline, 2010). This shows that the difference between the observed and estimated covariance matrices is minimal and within an acceptable range. The Goodness of Fit Index (GFI) recorded a value of 0.934, which exceeds the minimum acceptable level of 0.90. This confirms that the model adequately explains the variance–covariance structure of the dataset. Similarly, the Comparative Fit Index (CFI) value of 0.935 and the Incremental Fit Index (IFI) value of 0.934 both surpass the recommended threshold of 0.90, indicating that the model compares well against the baseline model and adds significant improvement in explaining the relationship between the constructs measured (Kline, 2010). Furthermore, the RMSEA value of 0.069 remains below the acceptable cut-off point of 0.08, providing evidence of reasonable model fit with an acceptable approximation error. An RMSEA below 0.08 suggests that the model has only a modest error of approximation and is suitable for hypothesis testing and further structural analysis (Kline, 2010). Taken together, these indices confirm that the measurement model is statistically sound, reliable, and appropriate for assessing the construct relationships in the study.

Figure: 2 Hypothesis model

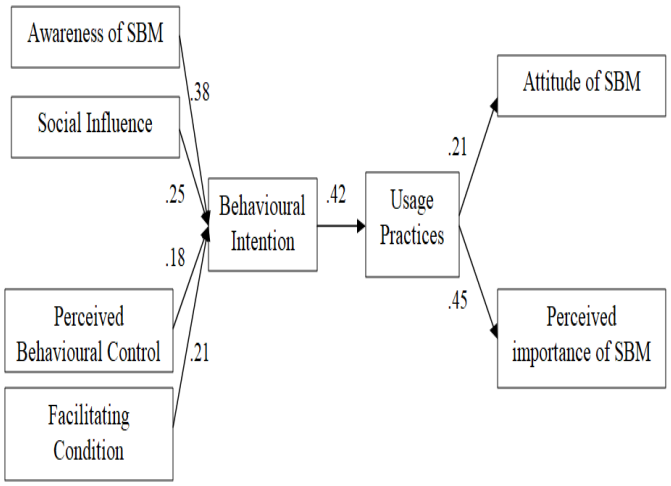


Table 2 this table represents SEM model fit indices

Fit indices	Value	Accepted value	Result
Cmin/df	2.567	Less than 3	Supported
GFI	.941	Value greater than .90	Supported
CFI	.942	Value greater than .90	Supported
IFI	.941	Value greater than .90	Supported

RMSEA	.068	Value less than .08	Supported

Source: Kline, 2010

Table 2 represents the Structural Equation Modelling (SEM) model fit indices used to evaluate how well the structural model fits the observed data. The results indicate that the model exhibits a strong and acceptable fit across all major fit indicators. The Cmin/df value of 2.567 is below the recommended threshold of 3.0, suggesting that the model demonstrates an acceptable balance between goodness-of-fit and model complexity. This indicates that the discrepancy between the observed and estimated covariance matrices is minimal and falls within an acceptable range (Kline, 2010). The Goodness of Fit Index (GFI) value of 0.941 exceeds the minimum recommended value of 0.90, demonstrating that the model accounts for a substantial proportion of variance in the data and fits well with the sample observations. In addition, the Comparative Fit Index (CFI) value of 0.942 and the Incremental Fit Index (IFI) value of 0.941 are both above the acceptable threshold of 0.90. These values confirm that the hypothesised model provides a meaningful improvement over the baseline model and captures the relationships among the variables effectively (Kline, 2010). Moreover, the RMSEA value of 0.068 is below the acceptable limit of 0.08, indicating a reasonable error of approximation. RMSEA values below 0.08 suggest a close model fit, indicating that the model can be considered robust and suitable for interpreting the structural relationships among the constructs in the study (Kline, 2010). Overall, the results confirm that the structural model meets the established standards of model fitness, thereby providing a strong foundation for testing the proposed hypotheses and interpreting the causal paths among the variables.

Table 3 This table represents hypothesis and relationships between variables

Path	Hypothesis	Estimate	P value	Sign	Result
AW→ BI	H_1	0.382	*** (P<0.001)	+	Supported
SI→ BI	H_2	0.249	*** (P<0.001)	+	Supported
PBC→ BI	H_3	0.177	* (P<0.05)	+	Supported
FC→ BI	H_4	0.212	*** (P<0.001)	+	Supported
BI→UP	H_5	0.423	*** (P<0.001)	+	Supported
UP→ ATT	H_6	0.209	*** (P<0.001)	+	Supported
UP→PI	H_7	0.451	*** (P<0.001)	+	Supported

Table 3 represents the results of the structural model, outlining the relationships among the key variables in the study. All seven hypotheses proposed were supported, indicating strong and significant relationships between the constructs. The results show that Awareness (AW) has a significant positive influence on Behavioural Intention (BI) ($\beta = 0.382$, $p < 0.001$). This means that when individuals possess greater awareness and understanding of the Swachh Bharat Mission (SBM), they are more likely to develop the intention to adopt and use sanitation facilities. This finding aligns with previous studies, which emphasise that awareness acts as a fundamental driver of behavioural intention, particularly in sanitation and public health behaviours (Kaur & Kaur, 2021; Sivaraman & Asha, 2022). Similarly, Social Influence (SI) was found to positively impact Behavioural Intention (BI) ($\beta = 0.249$, $p < 0.001$). This indicates that community norms, peer encouragement, and the influence of village and tribal leaders play a crucial role in motivating individuals to adopt toilet usage. This supports the Theory of Planned Behaviour (Ajzen, 1991) and earlier sanitation research showing that social pressure significantly shapes behavioural decisions in rural and tribal communities (Murugesan & Prabhu, 2022). The impact of Perceived Behavioural Control (PBC) on Behavioural Intention (BI) was also significant ($\beta = 0.177$, $p < 0.05$). Although comparatively weaker than other predictors, this still suggests that when people feel confident in accessing the required resources—such as water availability and ability to maintain toilets—they are more inclined to adopt toilet use. This finding is consistent with Ajzen (1991), who highlights the importance of perceived control in behavioural decision-making. In addition, Facilitating Conditions (FC) demonstrated a positive and significant effect on Behavioural Intention (BI) ($\beta = 0.212$, $p < 0.001$). This implies that external support systems, including government assistance, sanitation infrastructure, and awareness programmes, enable individuals to form stronger intentions to use SBM facilities. This result is in line with the UTAUT model, which emphasises the role of supportive conditions in influencing adoption behaviour (Venkatesh et al., 2003). Furthermore, Behavioural Intention (BI) significantly influenced Usage Practices (UP) ($\beta = 0.423$, $p < 0.001$), indicating that stronger intentions directly translate into actual usage of toilets and sanitation practices. This confirms prior research that behavioural intention is a strong predictor of actual behaviour (Ajzen, 1991; Choudhury & Singh, 2021). The study also found that Usage Practices (UP) positively influenced Attitude (ATT) ($\beta = 0.209$, $p < 0.001$). This suggests that as individuals begin using sanitation facilities regularly and experiences the benefits; their attitude becomes more favourable towards SBM. This finding is supported by

Rajan & Joseph (2023), who argue that experience reinforces positive attitudes in sanitation adoption.

Finally, Usage Practices (UP) strongly influenced Perceived Importance (PI) ($\beta = 0.451$, $p < 0.001$), making it the strongest of all path relationships. This highlights that consistent toilet usage not only improves hygiene behaviour but also enhances the perceived value and importance of sanitation in daily life. Similar conclusions were reported in sanitation outcome studies, where sustained usage led to stronger recognition of health and social benefits (Singh & Gupta, 2021; Sivaraman & Asha, 2022). Overall, the results confirm that awareness, social norms, perceived control, and supportive conditions drive behavioural intentions, which in turn shape actual sanitation usage and the perceived value of SBM among tribal households in the Nilgiris.

7. DISCUSSION

The findings of this study provide valuable insights into the behavioural and contextual factors that influence the adoption of Swachh Bharat Mission (SBM) sanitation practices among tribal households in the Nilgiris district. By integrating the Theory of Planned Behaviour (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the study offers a holistic understanding of how intention, behaviour, and social structures contribute to sanitation adoption in tribal communities. The results highlight that sanitation behaviour cannot be driven solely by infrastructure provision; rather, behavioural determinants, social norms, and experiential outcomes play a critical role in shaping adoption and continued usage.

One of the key findings is the strong impact of awareness on behavioural intention, suggesting that when tribal residents clearly understand the purpose and health benefits of SBM, they are more motivated to adopt toilet usage. This aligns with TPB's premise that knowledge and beliefs can shape intention (Ajzen, 1991), and supports earlier studies that identify awareness as a crucial trigger in sanitation behaviour change (Kaur & Kaur, 2021). For tribal communities, where traditional practices such as open defecation are deeply rooted, awareness acts as a transformative tool that challenges long-standing norms and increases acceptance of new sanitation practices. The study also confirms the importance of social influence, which emerged as a significant predictor of behavioural intention. This finding reinforces both TPB and UTAUT, which argue that subjective norms and social pressure play an essential role in shaping behavioural decisions (Venkatesh et al., 2003; Ajzen, 1991). In tribal societies, where collective identity, cultural cohesion, and community approval hold substantial value, the encouragement of village leaders, elders, and peer groups becomes a powerful driver of sanitation adoption. This result is consistent with prior studies in rural and indigenous settings, which highlight that social influence can accelerate the acceptance of public health initiatives (Murugesan & Prabhu, 2022).

The influence of perceived behavioural control on intention was significant, though relatively weaker compared to other factors. This implies that while tribal households may desire to adopt toilets, practical challenges such as water availability, maintenance difficulties, or lack of cleaning materials can limit their confidence. This aligns with TPB, which posits that intention strengthens when individuals believe they can manage the required behaviour (Ajzen, 1991). Therefore, improving water access and maintenance support could further enhance adoption levels.

Similarly, facilitating conditions demonstrated a positive effect on behavioural intention, validating the UTAUT perspective that external support systems are critical for behaviour adoption (Venkatesh et al., 2003). In the tribal context, government support, awareness workshops, toilet construction assistance, and community-based sanitation drives play a significant role in motivating families to embrace SBM. This is in line with past studies indicating that supportive infrastructure can significantly improve sanitation acceptance in rural areas (Patil et al., 2023). The study further reveals that behavioural intention translates into actual usage, confirming the behavioural pathway proposed in TPB and widely supported in sanitation research (Choudhury & Singh, 2021). This finding demonstrates that once intention is formed, tribal households are more likely to use toilets consistently, highlighting the importance of strengthening intention-building factors for long-term behavioural change.

A notable contribution of this study is the identification of usage practices as a driver of attitude and perceived importance of sanitation. As individuals engage in regular toilet use and experience the benefits—such as improved cleanliness, dignity, convenience, and health—they develop a favourable attitude towards SBM. This supports experiential learning theories which suggest that direct usage reinforces positive cognitive and emotional responses to new behaviours (Rajan & Joseph, 2023). The strong impact of usage practices on perceived importance further shows that sustained use leads to a deeper understanding of sanitation's value at both personal and community levels. This finding resonates with earlier research, which shows that long-term usage enhances the perception of sanitation as essential for well-being and social development (Singh & Gupta, 2021).

Overall, the findings illustrate that the successful adoption of SBM in the Nilgiris tribal communities requires a balanced combination of knowledge-building, social reinforcement, supportive conditions, and experiential learning. The integration of UTAUT and TPB has proven effective in identifying how intention and usage emerge through cognitive, social, and structural influences. The results highlight that for tribal communities, behavioural change is not merely an individual process but a socially negotiated and experience-driven transformation.

8. IMPLICATION

The findings of this study provide several important implications for theory, policy, and practice, particularly in the context of sanitation adoption among tribal communities in the Nilgiris district. The results highlight the behavioural, social, and structural dimensions that need to be considered for enhancing the long-term effectiveness of the Swachh Bharat Mission (SBM).

Theoretical Implications

This study contributes to behavioural research by demonstrating the relevance and applicability of both the Theory of Planned Behaviour (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT) in understanding sanitation adoption within indigenous communities. While these models are frequently applied to technology and consumer behaviour, their successful integration in the tribal sanitation context extends their theoretical scope. The study validates the importance of awareness, social influence, perceived behavioural control, and facilitating conditions as key predictors of behavioural intention—consistent with Ajzen (1991) and Venkatesh et al. (2003).

Furthermore, the strong influence of usage practices on attitude and perceived importance emphasizes the role of experiential learning in shaping sustained sanitation behaviour. This adds depth to existing behavioural models by highlighting that real-life experience reinforces positive attitudes and strengthens perceived value, especially in culturally rooted communities.

Practical Implications

The study provides practical insights for programme implementers, NGOs, and local facilitators working to improve sanitation practices among tribal households. The strong effect of awareness suggests that behavioural change communication must remain a central focus. Community-based awareness drives, participation-oriented activities, and culturally tailored messages can enhance understanding and acceptance of hygienic practices.

Since social influence emerged as a significant factor, leveraging community leaders, tribal elders, self-help groups, and youth volunteers can create strong social momentum for sanitation adoption. Practical support mechanisms, such as water provision, maintenance assistance, and access to cleaning supplies, can enhance perceived control and boost confidence to sustain toilet usage.

Policy Implications

For policymakers and government agencies, the study underscores the need for more holistic and community-centred sanitation interventions. While infrastructure creation under SBM has been largely successful, long-term usage and behavioural change require continued post-implementation support. Policies must go beyond toilet construction to include maintenance support, water infrastructure, hygiene education, and monitoring to prevent regression to open defecation.

Additionally, policy frameworks should adopt tribal-sensitive approaches that respect cultural traditions, lifestyle patterns, and community structures. Empowering local tribal institutions and panchayats to co-lead sanitation initiatives can increase trust, participation, and ownership. Continuous reinforcement through training, community monitoring groups, and behavioural nudges will help sustain the positive outcomes achieved through SBM.

Social Implications

The findings also carry broader social implications for community health and well-being. Consistent toilet usage not only improves hygiene but also enhances dignity, safety (especially for women and children), and quality of life. As sanitation becomes normalized, a cultural shift towards cleanliness, health consciousness, and environmental responsibility can emerge within the tribal community. Over time, such behavioural transformation can contribute to reduced disease burden and improved social development outcomes.

9. CONCLUSION

The present study sought to examine the behavioural determinants influencing the adoption and usage of digital platforms among tribal communities by integrating the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behaviour (TPB). The findings confirm that Awareness, Social Influence, Perceived Behavioural Control, and Facilitating Conditions positively shape Behavioural Intention, which in turn significantly influences Usage Pattern. Furthermore, Usage Pattern was found to enhance both Attitude and Purchase Intention, demonstrating the extended value of the integrated model in understanding digital adoption behaviour in tribal settings.

The results reinforce prior evidence that awareness and social influence serve as strong predictors of individuals' intention to adopt technology (Venkatesh et al., 2003; Ajzen, 1991). In tribal contexts, social norms and community influence play a crucial role in shaping acceptance behaviours, making Social Influence a critical factor. The significant relationship between PBC and behavioural intention further aligns with TPB assumptions that individuals' perceived control over behaviour directly influences their decision to adopt digital services (Ajzen, 1991). Facilitating conditions, such as access to smartphones, internet connectivity, and training, were also found to strongly support behavioural intention, consistent with UTAUT's assertion that infrastructural support fosters technology usage (Venkatesh et al., 2003). The positive linkage between behavioural intention and usage pattern confirms that intention is a strong direct predictor of actual usage. Additionally, this study extends theoretical understanding by demonstrating that increased digital usage contributes to a more favourable attitude and stronger purchase intention—indicating that technology usage can empower tribal individuals to make more confident economic decisions.

Overall, this research provides empirical support for the integration of UTAUT and TPB models to analyse digital adoption behaviour within marginalized communities. The study concludes that enhancing awareness, strengthening community-level support, improving digital confidence, and ensuring proper infrastructural facilities are essential for promoting higher technology adoption among tribal populations. This integrated model offers a valuable theoretical and practical foundation for policymakers, NGOs, and development agencies working toward digital empowerment and inclusion of tribal communities.

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