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## Do Government Interventions Moderate Psycho-social Factors and Sanitation Behaviour? Study of Rural Uttar Pradesh in India

**Dr. Vibhuti Tripathi**

Assistant Professor, SMS, MNNIT, Allahabad, Uttar Pradesh, India

**Suresh Kumar**

Research Scholar, SMS, MNNIT, Allahabad, Uttar Pradesh, India

### **Abstract:**

*Access to enhanced sanitation is remaining big challenge to the entire world. Almost all developing countries lack full access of sanitation including India. Now sanitation subject becomes relevant for the study purpose at current scenario. Study aimed to test whether the Government interventions moderate the relationship between the Psycho-Social factors and change in Sanitation Behaviour of people toward enhancing the sanitation facilities at home. Study has been conducted in rural villages in Uttar Pradesh, Sample size were 596 and collected through convenience sampling. It is found that Government interventions play a moderating role in influencing the decision toward enhancing the sanitation facilities at home. It may be suggested that government should focus on monitoring the sanitation programme on gross root level, and establish coordination between local officials and community members. The study shows that females are more concerned about the health and safety of their family members. The finding can be a guiding light in designing strategies to encourage the participation of women and identify them as change agents.*

**Keywords:** Government policies, sanitation, community members

### **1. Introduction**

Adequate sanitation is the basic need and fundamental human right universally. Access to adequate sanitation for all is an assurance of reduced illness and pre-mature deaths, especially among children. Nearly 2.1 billion of global population gained access to improved sanitation facilities since 1990. By the year 2015, 68 per cent of the population globally was using sanitation facilities. Although it is an impressive achievement it is still far from the 2015 Millennium Development Goal target as stated by United Nations, which announced to reduce the proportion of the population without access to improved sanitation to 25 per cent in the year 2015. In 2015, 2.4 billion people still lack an improved sanitation facility and among them almost 950 million people still practice open defecation. (<http://www.data.unicef.org/watersanitation/sanitation.html#sthash.CQHh44Hi.dpuf>, assessed on 04-08-2016). The data of UNICEF marked dissimilarities in sanitation coverage between rich & poor and urban & rural world. In rural areas, 45.3% households reported to have sanitary toilets.

In urban areas, 88.8% households reported to have sanitary toilets (Swachhta Status Report, 2016, by NSSO, Govt. of India). Aligning with the Millenium Development Goal, government of India has launched various sanitation adoption campaigns to encourage participation of various stakeholders, communities and individuals to adopt good sanitation behaviour. The study attempts to identify the socio-psychological factors which influence the sanitation behaviour. The researchers also assessed the moderating role of government interventions to influence sanitation adoption.

### **2. Literature Review**

Improved access to sanitation is directly related to development agenda in low-income countries. (United Nations, 2013; Sahoo et.al.2015). According to World Health Organization factors relating to improved access to water, sanitation and hygiene contribute to 88 per cent of all diarrhoeal diseases causing nearly 1.5 million deaths every year (World Health Organisation (WHO), 2013; Sahoo et.al. 2015). Millennium Development Goal (Target 7.C) by United Nations targets to halve the proportion of population without having sustainable access to safe drinking water and basic sanitation by 2015 (United Nations, 2013, p. 46). While 2012 figures indicate that 36 per cent of the world's population lack access to improved sanitation, the sanitation component of MDG is projected to be unachievable by different experts (JMP, 2013; JMP, 2014; Sahoo et.al. 2015) The fact arises as a key impediment in accomplishing other MDGs related to poverty reduction, gender equality and access to health facilities (Peter et.al., 2015; Hesselbarth, 2005;). 60% of the total global population practicing open defecation resides in India while two-thirds of the Indian population lives with unimproved sanitation (WHO and UNICEF, 2014; Sahoo et.al. 2015).

With an objective to increase sanitation coverage and speed up the rural sanitation growth which would lead to achieving universal access to sanitation facilities by 2012, India launched the Total Sanitation Campaign (TSC) in 1999. After incorporation the campaign

influenced modest progress in sanitation coverage (Patil et al., 2014), while it was critiqued for its top-down approach mainly focusing on infrastructure development. However, the user and community-driven approach of TSC by incorporating financial incentives for below poverty households increased sanitation coverage, actual use of toilets still remains low (Boisson et al., 2014). Researchers have also highlighted the role of socio-psychological factors like long time habits, an opportunity to “take in the fresh air”, more comfortable to defecate in open as deterrents in adopting usage of toilets (Coffey et al., 2014). Policy discussions on sanitation have been focusing on health impact of poor sanitation coverage and adoption on children under the age of 5 years and women. Women are vulnerable to unhygienic conditions and inadequate sanitation due to unique nature of health and security risks (Cheng et al., 2012) including high maternal mortality risk from unhygienic birthing practices and poor infection control (Fisher, 2006). Experts like de Lange, (2013) has highlighted the importance of developing gender-responsive sanitation programmes keeping in mind environmental, social and physical needs of women. Agencies like United Nations and UNDP have emphasized on gender-sensitive sanitation approach to develop an environment of equity and dignity for women (UN, 2008; Gender and Water Alliance & UNDP, 2006; Sahoo et al. 2015). These suggest the countries worldwide to develop contextualized understanding of relation between sanitation environment and physical and psychological wellbeing of females while developing sanitation programmes where adequate sanitation facilities are lacking. The absence of sanitation services puts additional pressure of health risks on families who are already socially, economically and psychologically (Nallari, A. 2015) challenged. Poor sanitation facilities are not only linked to sickness but also to health expenditures and adverse impact on livelihood of poor (Chambers, 2009b; Sahoo et al. 2015).

Governments at central and state levels in India have adequately promoted and supported the cause of sanitation through financial incentive and training by engaging ASHA, a government supported facilitator and Village Chief (Gram Pradhan) to promote health, hygiene and sanitation, yet there is a lack of dedicated staff to mobilize the community at local government level, which acts as an impediment. (<http://nagahealth.nic.in/ASHA.htm>, assessed on 20-08-2016;

[http://panchayatiraj.up.nic.in/Acts%20And%20Rules%20Pdfs/Panchayat%20Raj%20Act\\_1947\\_ch4.38-50.pdf](http://panchayatiraj.up.nic.in/Acts%20And%20Rules%20Pdfs/Panchayat%20Raj%20Act_1947_ch4.38-50.pdf), assessed on 20/08/2016). This void is addressed by the government by encouraging Non-Government Organizations (NGOs) to fill this gap in government sanitation services. NGOs can take up the role as trainers and facilitators to deal with spreading awareness about the benefits of sanitation adoption and breaking the cultural and attitudinal barriers.

Sanitation in India is witnessing a paradigm shift. Government of India has rechristened the Total Sanitation Campaign (TCS) to Swachha Bharat Mission (SBM) meaning Clean India Mission, supported by multibillion-dollar commitment to widen the sanitation coverage, which has not been done by any government in history (Government of India, 2015). Government has considered new and creative strategies which reflect user needs and preferences for encouraging people to embrace good sanitation practices.

### 2.1. Research Hypothesis

Literature review indicates that Government of India has acquired the role not only as financial facilitator for developing sanitation infrastructure but also a role as a missionary to create awareness and influence sanitation behaviour of inhabitants. The psycho-social factors influence the sanitation adoption and may be moderated by various interventions. It is prudent for a researcher to identify the moderating role of government interventions on sanitation behaviour. To achieve objectives, following research hypothesis is framed

**H1:** Government Interventions moderate the relationship between Psycho-social influencers and sanitation behaviour. To test these hypotheses moderated regression analysis is done using Process macro in SPSS developed by Preacher and Hayes (2004).

### 3. Research Methodology

According to SBM (G): Uttar Pradesh on Move, State Sanitation coverage as on 31.03.2016 (in percentage) is 44.13%. According to Swachh Status Report 2016, 90.5 percent of the total rural population in Uttar Pradesh does not have adequate access to sanitation facility in comparison to 17.7 percent of urban people. The wide gap between rural and urban sanitation coverage in the state whereas the government initiatives are focusing more on the rural areas has prompted the researchers to undertake villages of Uttar Pradesh for the study. 10 villages of the state were visited to collect responses from 596 respondents, out of which 516 were found valid for the study purpose. To address the objective of the study moderated regression analysis is done using Process macro in SPSS developed by Preacher and Hayes (2004). Moderation variable is a conditional variable that specifies various conditions under which a given independent is related to a dependent variable. The moderator explains the conditions in which Dependent variable and Independent variable interact to highlight a change in the direction or magnitude of the relationship between them. A moderation effect could be (a) Enhancing, where increase in the moderator would decrease the effect of the independent variable on the outcome (DV); (b) Buffering, where increasing the moderator would decrease the effect of the predictor on the outcomes; or (c) Antagonistic, where increasing the moderator would reverse the effect of the predictor on the outcome (Elite Research LLC, 2004-2013).

After literature review 6 items under the Psycho-social factor, 3 items under sanitation behaviour and 5 items under government intervention have been identified for the study. These factors were tested for validity by testing Cronbach's Alpha. All the factors were found valid with Cronbach's Alpha ranging between .760 to .883 (Tables 1)

Factor	Items	Factor Loadings	Cronbach's Alpha
	Risks to women and girls	.800	.840
	Psychosocial stress	.799	
	Health issue	.761	
	Community support for making toilet	.743	
	Equity and dignity	.724	
	Modern life style	.615	
Sanitation Behaviour (Dependent Variable)			
Factor	Items	Factor Loadings	Cronbach's Alpha
	Mindset of people has been changed relating to sanitation	.892	.883
	Aware about good sanitation practices	.886	
	People motivate other to adopt good sanitation practices	.867	
Government interventions (Moderating variable)			
Factor	Items	Factor Loadings	Cronbach's Alpha
	Financial support for making toilet	.758	.760
	Gram Pradhan (Village Chief) motivate the villagers to make toilet	.742	
	Availability of Water	.680	
	Role of ASHA in motivating the villagers to make the toilet	.600	
	Advertisements on adoption of sanitation	.583	

Table 1: Psycho-Social factors (Independent Variable)

#### 4. Data Analysis

Moderated regression analysis is done using Process Macro to identify the moderating influence of Government interventions on the relationship between Psycho-social factors and sanitation behaviour. Results are mentioned in table 2.

	Model 1 (dependent variable)		
	Unstandardized coefficient (B)	S.E.	T
Constant	1.9279 *	.0760	25.3828
Psycho-social Factors	.3020 ***	.0842	3.5881
Government Interventions	-.0142 *	.0827	-.1712
Interaction (Psycho-social Factors * Government Interventions)	.1797 ***	.0869	2.0675
F	4.2747*		
R <sup>2</sup>	.1101		
Change in R <sup>2</sup>	.0232		

Table 2: Model Summary  
 \* $p < .001$ , \*\* $p < .01$ , \*\*\* $p < .05$   
 Model 1

To test the hypothesis that whether Government Interventions moderate the relationship between Psycho- Social Factor and change in sanitation behaviour. Moderated regression analysis is done using Process macro in SPSS developed by Preacher and Hayes (2004). In the first step two variable - Psycho-Social factor and Government Intervention were included. These variable accounted for a significant amount of variance in Sanitation behaviour  $R^2 = .1101$ ,  $F(4.2747)$ ,  $p < .001$ . To avoid the potentially problematic high multicollinearity with the interaction term, the variable was centered and an interaction term between Psycho- Social Factor and Government Interventions was created (Aiken & West, 1991).

Next, the interaction term between Psycho- Social Factor and Government Interventions was added to the regression model, which accounted for a significant proportion of variance sanitation behaviour, Change in  $R^2 = .0232$ ,  $F = 4.2747$ ,  $p < .05$ ,  $b = 1.9279$ ;  $p < .001$ .

Examination of the interaction plot (figure 1) showed on enhancing effect of Government Intervention on Psycho- Social Factors Sanitation behaviour in.

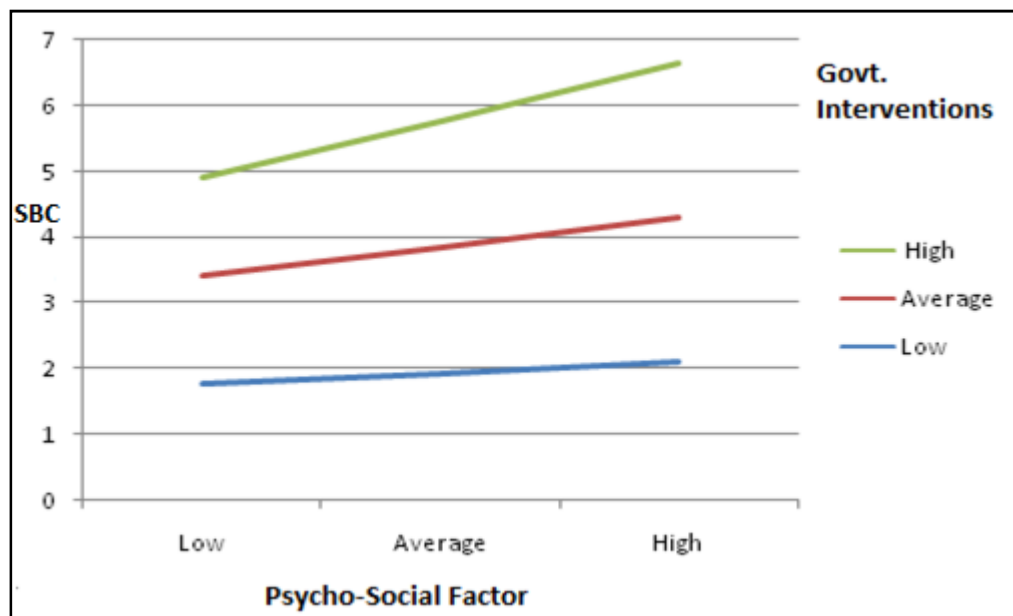


Figure 1

## 5. Conclusion and Suggestion

The survey found out that government intervention has a moderating relationship between Psycho-Social factors and Sanitation Behaviour of rural people in Uttar Pradesh. Higher efforts made by the government not only in terms of financial assistance for developing the infrastructure but ASHA, a trained staff in village to promote good sanitation behaviour and advertisements have positively influenced the sanitation behaviour. It is suggested that government be more focused on monitoring the programme on gross root level and establish coordination between local official and community members like Village heads and other opinion leaders. The studies have suggested that women are more concerned with the health of their family, incorporating the fact Government of India may encourage their participation and involvement in influencing the sanitation behaviour and also creating awareness.

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