

# Factors influencing the attitude, subjective norms and perceived behaviour control among people living with HIV towards adherence to treatment: Evidence from India

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**Abstract:** This study conducted to identify the factors which influence the antecedents of three key constructs of the theory of planned behaviour (TPB) i.e. Attitude, Subjective Norms, and Perceived Behavioural Control towards adherence to Anti-Retroviral Therapy (ART). An estimated 2.13 million people are living with HIV and around 1.49 million people are on ART in India in March 2021. To assess the adherence to ART and factors influence the behaviour of people living with HIV, a questionnaire was designed, personally administered and data was collected from 415 respondents living with HIV (PLHIV). The adherence to ART was measured on age, gender, education, and location with the help of a questionnaire. Correlation analyses with key construct of TPB were performed to analyse the data and key construct of TPB found influential by more independent variables like health consciousness, normative belief, and compliance to normative belief, difficulty in access to ART facility, treatment and indirect cost at significant level.

**Keywords:** Attitude; Drug Adherence; HIV/AIDS; Intention; Theory of Planned Behaviour

## Introduction:

On June 5, 1981, the Centre for Disease Control identified new clinical entity named AIDS among Men who have sex with Men (MSM) (S. Kumar, Jain, & Jangid, 2017) (CDC, 2001) and India's first case identified in 1986 (Paranjape & Challacombe, 2016). It is estimated that 23.9 lakh people are living with HIV infection in India (NACO, 2020). As HIV is manageable disease and it can be managed with the help of Antiretroviral Treatment with >95% drug adherence.

The theory of Planned Behaviour (TPB) provides useful information for the construction of intention and behaviour. This theory is used in public environmental and public health, hospitality and sports tourism, environmental science, business, management, educational research, and applied psychology (Bosnjak, Ajzen, & Schmidt, 2020), fruits and vegetable studies, changing beliefs about the physical activities and exercise, voluntary intentions, drug adherence, seeking psychosocial and preventive help ('Glanz, 'Rimer, & 'Viswanath, 2015). In this study, the TPB tested towards adherence to ART and identified factors which influence the constructs of TPB. Patient adherence is essential to the successful execution of a health or disease management program. However, it was found that about one-quarter of client fails to follow the direction of clinicians (Nutor et al., 2020) and ensuring suggested drug adherence considerable primary challenge for health practitioner (Munro, Lewin, Swart, & Volmink, 2007).

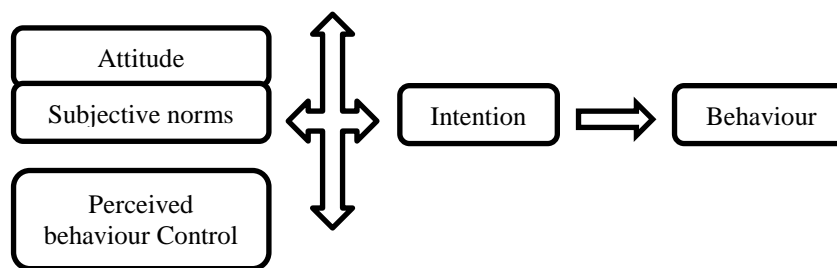
## Methods:

This study was qualitative and quantitative in nature and explored factors which influence the key construct of TPB towards the adherence behaviour of the client who is taking ART medicines. First, the qualitative elicitation study was conducted for development of the data collection instrument. In the elicitation study, the pre-defined questionnaire on the TPB was used for focus group discussion and further new questions were added. While collecting the data from clients, informed consent was taken and stated in Hindi, English, and Punjabi language. To analyses, the primary data collected and run through Statistical Package for Social Science (SPSS V.20). Double data entry system was used to minimize the data entry error.

The study was conducted in Delhi. The population of Delhi was 11 million as per the census of 2011 and according to estimation, the prevalence of HIV in Delhi in 2020 was 0.22% (NACO, 2020). The estimated numbers of PLHIV were 67,943 (2019). A total of 48,672 people knows their status, and out of that 36,544 are on ART in Delhi. In this study, on ART PLHIV adults >18 years were interviewed. All data collected from the pre-defined questionnaires through the snowball data collection method. The questionnaire was translated into Hindi and English and asked in Punjabi wherever required.

## About the Theory of Planned Behaviour (TPB):

The new construct 'perceived behaviour control' added to the TPB (Ajzen, 1991). The essential factor in the Theory of Reasoned Action mentioned Intention remained the same in the TPB. Motivational factors are the indication of how hard people are willing to try the implement the behaviour (Munro et al., 2007). As per overall rule, the stronger the intention, increase the chances of performing the behaviour. The TPB was one of the utmost competent and prominent theories for the prophecy of various types of behaviour (Bosnjak et al., 2020).

**Figure 1: The model of Theory of Planned Behaviour**

In the field of HIV/AIDS and drug adherence, various theories recommended and tested. These theories have different characteristics, which influenced the adherence behaviour and intention among PLHIV. According to a study, factors associated with low adherence reported as forgetfulness, being away from home, unintended changes in daily routine, overwhelmed, fear of drug resistance and side effects, fear of breach of confidentiality (Ahmed, Farooqui, Syed Sulaiman, Hassali, & Lee, 2019). A study reported 36% of the respondent had <95% drug adherence and reasons of less adherence were financial constraints, forgetfulness, less support from family, social stigma and discrimination, side effects ART of medication, alcohol consumption (Achappa et al., 2013). According to a survey, education was leading factor in the adherence to ART medication. A research study revealed that different types of factors, e.g., society, economic condition, stigma, disclosure, social support, food and hunger, individual-level factors involved in the use of traditional medicine, acceptance of HIV status, lifestyle or behaviour (Ahmed et al., 2019). Medication or treatment-related factors- treatment efficacy, side effects, pill burden and regimen complexity, treatment, and monitoring factors, provider patient's relationship and structural level factors inadequate staff, provider attitude, drug supply, user free, and acceptability. This research also suggested that a particular intervention to improve ART adherence (Ahmed et al., 2019). According to, reasons for non-adherence depended upon the psychological and treatment-related characteristics among the People Living with HIV infection.

## Results:

### Demographic Profile of PLHIV:

The data shows that the sample consists of 415 respondents in four age groups. The highest number of respondents were from 25-34 (47.80%). A total of 92.3% of respondents were below 45 years of age. The gender-wise distribution of the sample is as follows: male (56.40%), female (38.30%), and third gender (5.30%). According to residential distribution, (18.30%) respondents were from the rural area, and the rest of the respondents were from the urban area; urban (36.10%), urban slums (15.70%), and semi-urban (29.90%). Total 84.30% of respondents reported to be engaged in full-time or part-time work out of which 28.20% were in the organized sector (government or private), 35.20% were working in the unorganized sector, and the remaining 36.60% were self-employed. The finding shows that no participants reported having an income above 50,000/-. The majority of participants (42.20%) earned less than 10,000/- per month. There were (15.70%) of respondents who reported having no permanent monthly income. The education-wise distribution shows that (28.90%) passed the elementary, and (19.00%) passed the matriculation. Total (41.20%) respondents have passed the higher secondary or graduation.

### Impact of age, gender, education and residential location on drug adherence to ART:

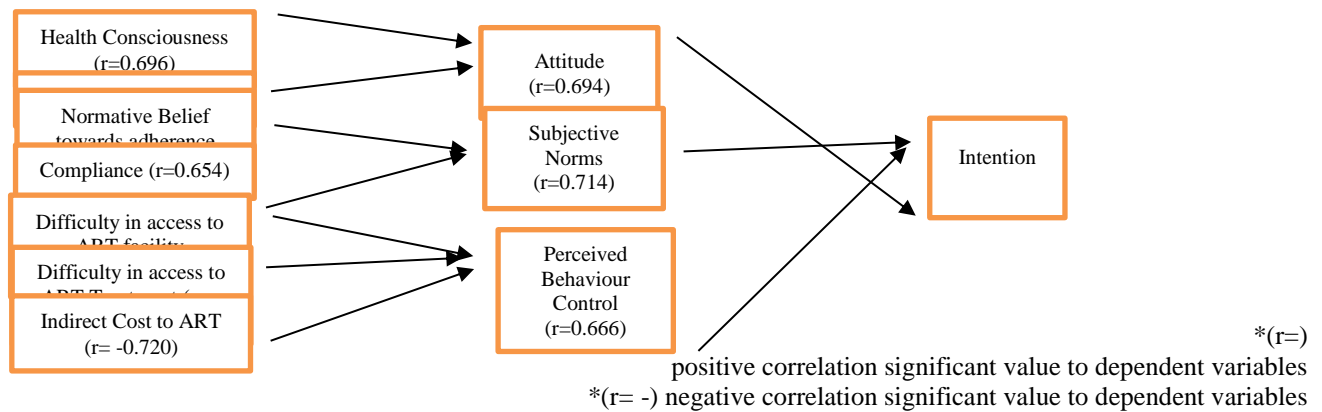
This study investigates the impact of demographic variables on adherence to ART. It was found that demographic variables, i.e., age, gender, education, and residence location affected ART adherence. It was suggested that the new construct affected by the demographic variables which support building the intention to adhere to ART. It was found in the previous studies which support the current study that education is needed to improve the social life of PLHIV (Kose, Mandiracioglu, Mermut, Kaptan, & Ozbek, 2012), poor social relationship among different location and role of education are key component leads the adherence behaviour (A. Kumar, Girish, Nawaz, Balu, & Kumar, 2014; Sherr et al., 2014).

In this study, it was found that as age increased, the adherence to ART among PLHIV decreased. It means age is factor that influence the adherence. Among the gender, females (66.67%) reported more adherence than male (64.10%). On the other hand, Trans Genders reported (40.91%) adherence which put them on higher risk. Education also found significant influential factors towards adherence to ART where illiterate group of respondents reported 44% adherence and graduate respondents reported 88.37% adherence. In between, elementary (55%), matric (59.49%), higher secondary (61.18%) adherence reported. Interestingly, PG and above educated respondents less adherence than graduate which further can be studied. As per the residence location, urban (78.67%) and rural (59.21%) respondents' higher adherence than semi urban (56.45%) and urban slums (49.23%).

### Correlation Analysis: Factors corelated to key construct of Theory of Planned Behaviour:

The correlational analysis was performed to determine the direction and magnitude of the relationships between the constructs. Further, new construct tested with the TPB i.e. health consciousness and belief about adherence to ART with attitude, normative belief about adherence to ART, compliance with adherence to ART normative belief with subjective norms, and access to ART facility with subjective norms and the difficulty of access to ART facility and indirect cost to ART with perceived behaviour control. These new entrants have been identified during the elicitation study and tested with dependent variables of TPB. The results of correlation analyses amongst various constructs of the TPB. The results found that intention found positively correlated with subjective norms ( $r=0.714$ ), attitude towards adherence ( $r=0.694$ ), and perceived behaviour control ( $r=0.666$ ). The correlations were found significant at the .001 level among all three variables. Further, on the second level, attitude towards adherence to ART was found positively correlated with health consciousness ( $r=0.696$ ) & beliefs about adherence ( $r=0.705$ ). Subjective norms were found positively correlated with a normative belief about adherence to ART ( $r=0.532$ ) & compliance with adherence to ART ( $r = 0.654$ ). Finally, perceived behaviour control was found negatively correlated with the difficulty of access to ART facility ( $r= - 0.693$ ), the difficulty of access to ART treatment ( $r= - 0.705$ ), and the indirect cost of ART ( $r= - 0.720$ ). All correlation coefficients, at the 2nd level, were found significant at the .001 level. The results of correlational analyses were found as expected with the application of TPB and found significantly correlated with each other.

**Figure 1: Explored factors which influence the key construc of TpB towards adherence behaviour among PLHIV**



**Discussion:**

This study aims to identify new variables of TPB and builds the variables which influence the adherence intention of PLHIV. In this study, seven dependent variables identified and tested the applicability of TPB on adherence to ART among PLHIV. The coefficient value of all the variables i.e. intention to adherence to ART, attitude towards adherence to ART, health consciousness, belief about the adherence to ART, subjective norms, normative belief about the adherence to ART, compliance with adherence to ART, perceived behaviour control, difficulty of access to ART facility, difficulty of access to ART treatment and indirect cost to ART treatment. All the variables were indicated durable internal consistency among all the given variables. At the first level, Intention to Adherence to ART has taken as the dependent variable, and three independent variables were the attitude toward adherence to ART, Subjective Norms for Adherence to ART, and Perceived Behavioural Control for Adherence to ART. The model was found statistically significant accounting for almost 70% of the variance in the intention of adherence to ART. All three independent variables were found significant. In this study, it was found that attitude towards adherence to ART (61%), subjective norms for adherence to ART (52%), perceived behaviour control for adherence to ART (69%) of the variance in intention to adherence to ART. The Subjective Norms ( $r=0.714$ ) construct found the strongest correlation with the intention of adherence to ART of the three independent variables, i.e., attitude, subjective norms, and perceived behaviour control. The strength of the TPB constructs found attitude toward adherence to ART (0.69), subjective norms for adherence to ART (0.71), and perceived behaviour control (0.66).

**Conclusion:**

As the findings of the research suggested that age, gender, education, and location influenced the adherence behaviour of PLHIVs. As age increased, the adherence behaviour decreased, and as education increased, the adherence increased significantly. So, from the beginning of the treatment, disease education should ne focused and regular counselling to be given to the client. It was found that the gender is also influence the adherence behaviour as third gender has poor adherence then males and females. People from urban and rural having good adherence to comparatively semi-urban and urban slums. As evidenced in the data analysis, health consciousness and belief are positively correlated with attitude, normative belief and compliance to normative are positively correlated to subjective norms and difficulty in access to ART facility, treatment and indirect cost to ART. To bridge this gap, link ART centres can be expended and travel support to collect the medicine can be provided to the clients. The effectiveness of the TPB has been established in previous research studies over the last two decades and theory successfully predicts the behavioural intention in various contexts, i.e., health, education, technology uses. However, this model is widely used in the field of health and measure adherence behaviour. In this study, factors influence the key construct variables of TPB in the context of ART adherence to behavioural intention. The results of this study shows that all three constructs of TPB influence the adherence

behaviour whereas other new factor variables were identified that influence the construction of TPB. This study also signifying to make changes in counselling strategy and increased the interaction with the patients while visit at the ART centres. Moreover, further suggests continuing research and the Implication of these new variables.

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