Understanding Air-Passengers' Volitional Behavior Toward Compliance with Aviation Health and Safety Guidelines : Evidence from Indian Domestic Passengers

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Abstract

Purpose : This study aimed to understand the air passengers' rationality and morality associated with the volitional compliance behavior of health and safety guidelines for a healthy and safe air travel experience.

Methodology : The design of the research framework was based on integrating the theory of planned behavior and norm activation theory. Four hundred seventeen domestic air passengers participated in the study through an online questionnaire distributed through social media. Path analysis was carried out using covariance-based structural equation modeling for hypotheses testing.

Findings : The study established that attitude toward behavior, perceived behavioral control, and personal norms significantly affected air passengers' volitional compliance behavior. It was also confirmed that "personal norms" partially mediated the effect of "attitude towards compliance behavior" and "perceived behavioral control."

Practical Implications : This study provided adequate evidence to understand the components that influence the volitional behavior of passengers toward compliance with health and safety guidelines.

Originality : The study provided novel insights into integrating behavioral theories associated with rationality and morality into understanding volitional behavior.

Keywords : **air-passenger, aviation, volitional compliance behavior, health and safety guidelines**

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The safety of passengers has been an area of concern in the aviation industry. Air transportation is considered a safe mode of transport despite the reported few cases of fatal air accidents (Naboush & Alnimer, 2020); however, the outbreak of the pandemic in 2020 disrupted the aviation industry and caused airlines to relook at the health and safety of both passengers and employees (ground staff and crew members) (Lamb et al., 2020; Sun et al., 2021). The safety of passengers is at the core of every airline's customer policy. The air carrier is liable for damage (death or bodily injury) sustained to passengers onboard and while embarking and disembarking. Deadly infections of diseases caught by passengers during flights also constitute accidents (The Warsaw Conventions – 29), and the airline will be held liable (Naboush & Alnimer, 2020). Thus, the airlines implement health and safety guidelines framed from time to time for civil aviation to eliminate the possibility of air accidents or the onboard spread of contagious diseases.

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The aviation industry has been characterized by "high customer contact" service and "inseparable delivery," where crew members deliver service to passengers in an airtight fuselage. Here, passengers are sitting near fellow passengers and crew members. Because of this proximity, airlines and passengers must exercise extreme caution and take all necessary procedures to ensure a healthy atmosphere and safe circumstances at terminals, onboard, and throughout other service delivery and consumption (Sun et al., 2021; Zhang, 2020).

IATA and ICAO, global authorities for regulating civil aviation, issue and mandate specific prevention and protection guidelines and expect airlines to undertake and ensure volitional compliance by their staff and passengers (Salari et al., 2020). Moreover, air passengers are also expected to cooperate with the crew members to maintain a healthy and safe environment onboard and at every touchpoint with ground staff, crew members, and other copassengers (Dube et al., 2021). However, many instances of air passengers flouting norms have been reported, putting the health and safety of ground staff, crew members, and copassengers at risk (Naboush & Alnimer, 2020).

Airlines are extensively making efforts to improve and restructure the ground and onboard facilities in the expectation that it will help to prevent health and safety protocol violations (Salari et al., 2020). Also, passengers are regularly requested to comply with health and safety guidelines for a safe service experience, as volitional engagement in sustaining a healthy environment is desired for a completely safe environment (Plohl & Musil, 2021; Shanka & Kotecho, 2023). The sociopsychological factors associated with the passengers' volitional compliance with health and safety guidelines must be explored through the study to ensure voluntary participation. This study aims to understand the air passengers' socio-psychological factors associated with deliberate compliance with health and safety guidelines issued by airlines.

The prominent theory that has been widely used in describing human behavior in various contexts is classical psychological theory. This theory posits human behavior into three sequential components, *cognitive–affective–conative* stages (Lavidge & Steiner, 1961). The theory of reasoned action (TRA) (Ajzen & Fishbein, 1980, 2000) and the theory of planned behavior (TBP) (Ajzen, 1991), an extension of the TRA, are based on this framework. Because of its flexibility and capacity to clarify and discover rational variables that impact people's conduct, researchers have extensively employed the theory of planned behavior in various circumstances to analyze people's behavior (Ceccato et al., 2007; Hagger et al., 2016).

Another framework of Schwartz (1977), norm activation theory (NAT), is widely accepted for understanding the psychological factors that shape people's behavior. Schwartz (1997) posits that moral norms are the immediate antecedent of individual behavior. This study tries to understand passengers' volitional compliance behavior with health and safety guidelines by integrating the components of the TPB and NAT.

This study thus proposes to study the passengers' behavior by providing more nuanced insight into the formative factors of passengers' volitional compliance with health and safety guidelines. Also, it was identified through a literature review that there is scant evidence on the use of behavioral theories to postulate air passengers' behavior toward volitional compliance with guidelines, and this study attempts to fill this gap.

Specifically, this study has the following objectives:

- To explore the determinants of air passengers' volitional behavior toward health and safety guidelines compliance.
- To identify how the personal norms of a person influence behavior toward volitional compliance with guidelines.
- To develop a robust research model for understanding volitional compliance behavior and empirically validate it.

The research objectives are accomplished by identifying the determinants of volitional behavior from the

theory available in the literature. Furthermore, conceptualizing and empirically validating the research model using covariance-based structural equation modeling through AMOS 23 is undertaken.

The outcomes of this study have the following implications: First, those factors influencing people's behavior toward volitional compliance with rules and regulations are documented. Second, the study would assist the policymakers in framing appropriate strategies to promote volitional compliance behavior, i.e., minimum interference of government machinery to establish order in society by following guidelines without fear of penalty. Third, this study will develop a robust model that future researchers will apply in various other contexts, such as road and industrial safety.

Theoretical Framework and Hypotheses

Air passengers' volitional compliance with health and safety guidelines is obligatory (Plohl & Musil, 2021). However, the case of a breach of volitional compliance is still being heard. The primary purpose of this study is to investigate the rationality and morality behind air passengers' volitional compliance with health and safety guidelines. In the extant literature, the theoretical framework: TRA and TPB (Bhagat & Ravi, 2018; Jose & Koshy, 2018; Kesharwani & Roy, 2017; Nandi & Singh, 2021; Shah & Malik, 2019; Solanki & Sheth, 2015; Srivastava & Mahendar, 2018; Swaminathan & Viswanathan 2015, 2016) have been extensively used to study the intention and behavior. However, NAT has been mostly ignored in exploring peoples' volitional behavior (Gearing et al., 2011; Guo et al., 2016; Liao et al., 2011; McEachan et al., 2011; Nivette et al., 2021; van Kesteren et al., 2007). Ajzen (1985, 1991) proposed the TPB based on rational factors that other researchers have widely used to envisage and elucidate various volitional compliance behaviors. In the health context, the TPB framework is applied in the study of people's behavior related to the prevention of malaria (Abraham et al., 1999), volitional drug compliance (Conner et al., 1998), condom use (Thomas et al., 2014), promoting breastfeeding (Guo et al., 2016), and preventing the influenza pandemic (Liao et al., 2011), as well as promoting physical activity like cycling (Kirk & Rhodes, 2012).

Another prominent theory of Schwartz (1977), NAT, was also preferred by most researchers to explain volitional compliance behavior, exploring morality as an important factor behind volitional behavior. This theory was applied to research HPV vaccination (Juraskova et al., 2012), male contraceptive use (van Kesteren et al., 2007), polio immunization (Musa, 2015), and complying with COVID-19 guidelines (Shanka & Kotecho, 2023). It is evident from extant literature that TPB has been mainly preferred to explain rational behavior. At the same time, NAT is chosen to describe the role of morality in explaining volitional behavior.

This study's prime objective is to understand air passengers' volitional compliance behavior toward health and safety guidelines. The integration of the components of the TPB and NAT is based on the evidence available in the extant literature that both rationality and morality held by the people influence volitional compliance with health and safety guidelines (Gearing et al., 2011; Nivette et al., 2021). First, it is essential to identify the factors affecting volitional behavior to understand air passengers' compliance with health and safety guidelines. An extensive literature survey revealed that the theoretical framework of Fishbein and Ajzen (1975, 1980), i.e., the TRA, was mainly preferred. This theory posits that "the person's attitude toward behavior" and "the subjective norms" are the strongest predictors of "behavior." Where the *attitude toward behavior* refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question," and the *subjective norm* refers to "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188).

A meta-study by Sheeran and Taylor (1999) discovered a favorable connection between attitudes toward condom use and subjective norms on intention to wear condoms. Similarly, Godin and Kok (1996) found the same association in their meta-studies of various health-related behaviors. Moreover, several other studies and meta-analyses (Randall & Wolff, 1994; Sheeran & Orbell, 1998) on health-related behavior exhibited the combined

effects of attitude and subjective norms on behavioral intentions. Moreover, the study by Greene et al. (1997) and Park (2000) established that individuals with a favorable attitude toward behavior are likely to act positively, and those with an unfavorable attitude toward behavior will likely avoid action or act negatively.

The TPB (Ajzen, 1985), an extension of TRA, was suggested to predict and explain human behavior in specific contexts where people have incomplete volitional control; the components of the TPB mirror those of TRA except for *perceived behavioral control,* which is added to the TPB. *Perceived behavior control* refers to "people's perception of ease or difficulty performing the behavior of interest" (Ajzen, 1991, p. 183). The meta-analysis to analyze the impact of perceived behavior control on behavior found a significant impact (positive causal relationship) on behavior (Ajzen, 1991; Godin & Kok, 1996; Hausenblas et al., 1997). The meta-analysis of the combined ability of attitude, subjective norms, and perceived behavior control to predict behavior reported improved knowledge of three predictors (Ajzen, 1991; Godin & Kok, 1996; Sheeran & Taylor, 1999).

Grounded on TPB postulates (see Ajzen, 1991) and the above explanations, it is argued that air passengers' volitional compliance toward guidelines is not due to stipulation (obligation) or fear of penalty but an outcome of behavioral, normative, and self-control belief. Behavior belief is about volitional compliance with health and safety measures that will protect their lives. The normative belief is that not following guidelines will invite wrath from the co-passenger, crew member, and significant others (family and friends). According to this idea, passengers are subject to societal pressure that affects their willingness to comply with health and safety regulations voluntarily. While a person's self-control belief (control belief) measures how simple it would be to follow the rules, it encourages volitional compliance behavior. The aforementioned justification and reasoning lead to the following hypotheses:

- **Ha1 :** The attitude of air passengers toward volitional compliance positively influences the volitional compliance with guidelines.

- **Ha2 :** The subjective norms of air passengers positively influence the volitional compliance with guidelines.

- **Ha3 :** The air passengers' perceived behavioral control positively influences the volitional compliance with guidelines.

Although TPB proved itself to be a robust and efficient model to explain human behavior, Ajzen (1991) further suggested the inclusion of additional predictors to enhance the explanatory power of the model (Hamilton et al., 2020; Manstead & Parker, 1995; Parker et al., 1995; White et al., 2015). On the advice of Ajzen (1991), this study further integrates the NAT component, "personal norm," with the TPB, which includes moral aspects of a person in understanding the volitional compliance behavior. Including the NAT components with TPM, a more robust model to understand volitional behavior can be developed that would be able to explain a more comprehensive explanation of volitional compliance behavior.

Schwartz (1977) promulgated the NAT, explaining how personal (moral) norms affect an individual's behavior, i.e., moral beliefs or moral obligations. Schwartz considered that not only the perceived social pressures (subjective norms) but also personal feelings of moral obligation influence an individual's behavior (Ajzen, 1991; Gorsuch & Ortberg, 1983; Pomazal & Jaccard, 1976; Schwartz & Tessler, 1972). The feeling of moral obligation is generated when an individual activates the internalized cognitive structure of value and norms on facing a particular situation or soliciting to behave as an expectation and obligation originating in social interaction (Schwartz, 1977). The activation of personal norms happens in the ordinary course of socialization; it is activated by the individual's realization that his/her action or procrastination will bring social cost or benefit (Schwartz & Tessler, 1972). Most of the research that theorized prosocial behavior focused on volitional compliance with general social norms, e.g., social responsibility (Berkowitz & Daniels, 1963), equity (Walster et al., 1970), the norm of giving (Leeds, 1963), and helping motorists in distress (West et al., 1975).

Ajzen (1991) also supported the idea that moral obligation influences behavior in parallel with attitudes, subjective norms, and perceptions of behavioral control. The personal norm added to the components of TPB adds predictive power. Based on NAT postulates, it is argued that the air passengers' volitional compliance behavior of guidelines is a function of personal feeling or belief of moral obligation or responsibility induced by the awareness of the severity of consequences (Ajzen, 1985, 1991; Schwartz, 1977). Based on the above explanation, the following hypotheses are proposed :

↳ **Ha4 :** The air-passenger-activated personal norms positively influence volitional compliance with guidelines.

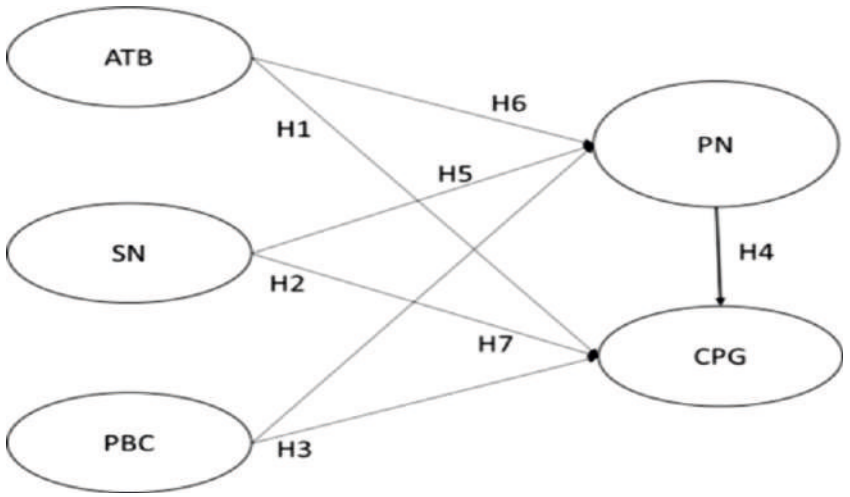
↳ **Ha5 :** The air passengers' perceived social norms positively influence volitional compliance with guidelines.

Here, it is also essential to postulate how the activation of the personal norm is associated with the other components of TPB, i.e., attitude toward behavior and perceived behavioral control.

The TRA posits that attitude toward behavior influences volitional behavior (Ajzen, 1985). The attitude toward behavior is the extent to which a person has a positive or negative evaluation of his/her behavior. When a person feels the action of self as potentially useful (favorable), it eventually activates norms and values in the cognitive structure of that person (Schwartz & Tessler, 1972). Such as, in the case of a pandemic, air passengers know that – COVID-19 is infectious, and fellow passengers, ground staff, and crew members' health can be at risk if they do not follow prevention guidelines. Following the guidelines depends upon the attitude of passengers toward the health and safety of fellow passengers, which activates moral obligation for compliance (Schwartz, 1977). Thus, the attitude toward volitional compliance engenders a moral obligation to follow health and safety guidelines to minimize the spread and ensure a healthy travel experience. Based on the above explanation, it is hypothesized that :

↳ **Ha6 :** The air passengers' attitude toward volitional compliance positively influences air passengers' activated personal norms for volitional compliance.

Figure 1. ***Conceptual Research Framework***



Note. The research framework (see Figure 1) shows the relationships between the variables : attitude towards volitional compliance behavior, personal (moral) norms *(PN)*, subjective norms *(SN)*, perceived behavioral control *(PBC)*, and volitional compliance with guidelines *(CPG).*

Perceived behavior control, the TPB component, refers to the perceived ease or difficulty of performing the behavior of interest. Schwartz (1977) stated that the individual's self-recognition of the ability to control behavior is required for personal norm activation. Personal norm activation will be aborted when individuals recognize that they cannot control behavior (Schwartz, 1977). The research evidence supports that the intuition to help varies with the self-perceived ability to perform helping action. Perception of inability neutralizes the moral obligation of the behavior of interest (Schwartz, 1977). This phenomenon could be explained since the air passengers know that they can comply with guidelines such as in case of taking measures to check the spread of contagious disease, wearing masks and gloves, keeping social distance, and regularly using sanitizers, which are easy activities to contain the spread of the infection on board, and this will eventually arouse the feeling of obligation to follow the prevention guidelines strictly. Based on the above explanation, it is hypothesized that :

↳ **Ha7 :** The air passengers' perceived ability toward volitional compliance positively influences the air passengers' personal norm for volitional compliance.

Thus, the air passengers' volitional compliance with guidelines (CPG) depends on attitude toward volitional compliance behavior (ATB), subjective norm (SN), perceived behavioral control (PBC), and personal norm (PN) (Figure 1).

Methodology

This study aims to understand the air passengers' volitional compliance behavior with health and safety guidelines to ensure a healthy and safe travel experience. The TPB and NAT theory are integrated to understand behavior. A descriptive cross-sectional (empirical) study was designed for the study, and the research model and hypotheses were framed. Primary data were collected using an online questionnaire developed for distribution through social media to people with domestic flying experience. Construct validity and reliability of the scale were tested using confirmatory factor analysis; further hypotheses were tested using covariance-based structural equation modeling using IBM AMOS 21.

Participants

The minimum sample size ($n = 385$) needed for the study was determined using formulae suggested by Krejcie and Morgan (1970). The data were collected using an online questionnaire designed for this purpose. Social media sites Facebook and LinkedIn were used to reach respondents with domestic flying experience. A questionnaire was created, and screeners enabled only domestic (Indian) air passengers to complete the form. Data were collected from July to August 2021. A total of 417 filled questionnaires were received. The demographical profile of the respondents was male (54%); female (46%) respondents. Respondents aged between 25 and 55 were 69%, 13% were less than 25, and 17% were more than 55 years old. The monthly income of respondents between ₹ 30,000 and ₹ 100,000 was 64%, while respondents with a monthly income of more than ₹ 100,000 were 27%.

Questionnaire

For this study, an online survey questionnaire in two sections was developed. The first section was about obtaining the demographic profile of the respondents. This section also included screening questions. The second section had 18 measurement scale items to understand air passengers' volitional compliance with health and safety guidelines. In the extant literature, it is evident that studies measure behavior despite measuring behavior intention (see Amin & Chewning, 2015; Jeong & Kim, 2016; Rhodes & Blanchard, 2006; Wu et al., 2017). Thus, this study

proposed measuring the factors affecting air passengers' volitional compliance behavior during the COVID-19 pandemic. The scale items were borrowed from Shanka and Kotecho (2023) and further modified to meet the research requirement in the aviation context (Plohl & Musil, 2021).

In the study, attitude towards behavior (ATB), subjective norms (SN), and perceived control behavior (PCB) of TPB (Ajzen, 1991; McGuckin et al., 2012) were included with the personal norm component of the NAT (Nordfjærn & Zavareh, 2017; Schwartz, 1977; van Kesteren et al., 2007). Other components of NAT, such as awareness of consequences and denial of responsibility, were dropped after consulting the aviation practitioners, as they suggested that the air passengers are aware of the causes and consequences of infectious disease; also, there is no way that the enforcement authority of civil aviation around the world accepts a denial of responsibility (nonvolitional compliance). The Appendix contains a list of the measurement scale items. A 5-point Likert scale measuring agreement and disagreement was used to score each response.

Reliability and Validity

To establish the reliability and validity of the measurement scale, first, dimensionality was examined using exploratory factor analysis. Second, Cronbach's alpha was used to confirm instrument validity (Hair et al., 2014). Furthermore, confirmatory factor analysis (CFA) was used to establish convergent and discriminant validity of the measurement scale (Anderson & Gerbing, 1988).

Dimensionality in the measurement scale was established by employing principal component analysis with varimax rotation on 18 measurement items using IBM SPSS 23. The exploratory factor analysis produced five distinct factors explaining 77.15% of the variance. Sample adequacy measurement (KMO) was found to be 0.890. Bartlett's test of sphericity ($\chi^2 = 5293.21$, $df = 153$, $p<0.0001$) was found to be highly significant ($p<0.001$). KMO close to 1 indicates that the pattern of correlations is relatively compact, and so factor analysis yields distinct and reliable factors (Kline, 2005); also, a significant Bartlett's test of sphericity established that the original correlation matrix was not an identity matrix, establishing the relationships between the variables (Kline, 2005).

Table 1 shows that these measurement items have related qualities loaded on the same factors, demonstrating

Table 1. ***Dimensionality Analysis Results (n = 417)***

Items	*ATB*	*SN*	*PBC*	*PN*	*CPG*
	$\alpha = 0.85$	$\alpha = 0.82$	$\alpha = 0.83$	$\alpha = 0.86$	$\alpha = 0.94$
ATB_1	0.77	–	–	–	–
ATB_2	0.67	–	–	–	–
ATB_3	0.81	–	–	–	–
ATB_4	0.76		–	–	–
SN_1	–	0.81	–	–	–
SN_2	–	0.89	–	–	–
SN_3	–	0.82	–	–	–
PBC_1	–	–	0.83	–	–
PBC_2	–	–	0.85	–	–
PBC_3	–	–	0.68	–	–
PBC_4	–	–	0.68		–
PN_1	–	–	–	0.69	–
PN_2	–	–	–	0.90	–

PN_3	–	–	–	0.87	–
CPG_1	–	–	–	–	0.86
CPG_2	–	–	–	–	0.85
CPG_3	–	–	–	–	0.81
CPG_4	–	–	–	–	0.81

Note. Extraction Method : Principal Component Analysis.

Rotation Method : Varimax with Kaiser Normalization.

Rotation converged in six iterations.

dimensionality. Additionally, for items included in each component, Cronbach's alpha was between 0.7 and 0.9, considered satisfactory (Kline, 2005). Consequently, the accuracy and validity of measurement tools are validated. To establish the convergent and discriminant validity of the measurement scale, Hair et al. (2014) suggested CFA. The CFA was carried through AMOS 23. The fit indices of the measurement model, chi-square, are found to be significant ($\chi^2 = 335.52$; $df = 123$, $p < 0.001$), suggesting different population-based and structural-based covariance matrices (Hair et al., 2014). Other goodness of fit indices, GFI = 0.92; AGFI = 0.89; CFI = 0.97; NFI = 0.94, are near the value (0.90) as per the recommended value by Bagozzi and Yi (1988). Also, the root-mean-square error of approximation (RMSEA) is 0.06, indicating a perfect fit between the population covariance matrix and the proposed model (Hair et al., 2014; Kline, 2005).

Additionally, it is noted that the standardized factor loading for all measurement items is greater than 0.50 and significant (p<0.01) (see Table 2). According to this finding (Hair et al., 2014), each measurement item in the 'multi-item scale' is suitable for explaining the characteristics of each construct. The internal validity is determined by estimating the composite reliability and the average variance extracted, as suggested by Bagozzi and Yi (1988). The composite reliability value for all the constructs, as shown in Table 2, ranges between 0.80 and 0.95, which is significantly higher than the threshold that Hair et al. (2014) recommended (0.7). Additionally, it is clear from Table 2 that the average variance measure derived has a range between 0.50 and 0.80, explaining the variance of more than 50%, which is significantly higher than the value (0.5) suggested by Fornell and Larcker (1981).

Table 2. ***Scale Item and Confirmatory Factor Analysis Results***

Construct	Indicator	Standardized Factor Loading (λ)	Error Variance *(e)*	Construct Reliability (CR)	Average Variance Extracted (AVE)
Attitude towards volitional compliance *(ATB)*				0.84	0.58
	ATB_1	0.67***	0.55		
	ATB_2	0.91***	0.18		
	ATB_3	0.78***	0.39		
	ATB_4	0.67***	0.56		
Subjective norm *(SN)*				0.84	0.63
	SN_1	0.77***	0.40		
	SN_2	0.90***	0.19		
	SN_3	0.70***	0.51		
Perceived behavioral control *(PBC)*				0.82	0.55
	PBC_1	0.65***	0.57		

PBC_2	0.80***	0.36		
PBC_3	0.92***	0.15		
PBC_4	0.53***	0.72		
Personal norm *(PN)*			0.88	0.71
PN_1	0.70***	0.50		
PN_2	0.91***	0.17		
PN_3	0.90***	0.18		
Volitional compliance with guidelines *(CPG)*			0.95	0.81
CPG_1	0.94***	0.11		
CPG_2	0.92***	0.16		
CPG_3	0.87***	0.25		
CPG_4	0.88***	0.23		

Note. *** Significant at *p*-values < 0.01.

Maximum likelihood ratio Chi-Square (χ^2) = 335.52; p<0.01, df = 123, CFI = 0.96, RMR = 0.05,

GFI = 0.92, AGFI = 0.90, RMSEA = 0.05, $\frac{\text{Chi–Square}}{df}$ = 2.72

CR = $\frac{(\Sigma\lambda)^2}{(\Sigma\lambda)^2 + \Sigma e}$; AVE = $\frac{\Sigma\lambda^2}{n}$ (n is the number of items in each construct).

Table 3. ***Correlation Matrix of Interconstructs and Square Root of AVE in Diagonals***

	ATB	***SN***	***PBC***	***PN***	***CPG***
ATB	***0.76***	–	–	–	–
SN	0.31**	***0.80***	–		–
PBC	0.63**	0.36**	***0.74***		–
PN	0.49**	0.27**	0.44**	***0.85***	–
CPG	0.71**	0.36**	0.67**	0.51**	***0.90***

Note. ** Significant at *p*-values < 0.01.

The discriminant validity for each measure is confirmed using the Fornell and Larcker (1981) criteria, that is, the square root of the average variance extracted from each construct should be greater than the corresponding interconstructs' correlation coefficients. The discriminant validity is demonstrated by the fact that in Table 3, the square root of the average variance derived from each construct is greater than the corresponding interconstruct correlation coefficients. Additionally, it is clear from Table 3 that there is a significant correlation coefficient (p<0.01) between all of the constructs, which ranges between 0.50 and 0.70.

Common Method Bias

Podsakoff and Organ (1986) suggested checking common variance between endogenous and exogenous variables when primary data is collected from the same respondents. Harman's (1967) one-factor test was performed to check the common variance. When all the items are subjected to principal axis factoring without rotation to extract one factor (Podsakoff et al., 2012), it produces a 41% common variance. According to Podsakoff et al. (2012), if a single factor test accounts for more than 50, the dataset is considered free from standard method bias and fit for path analysis.

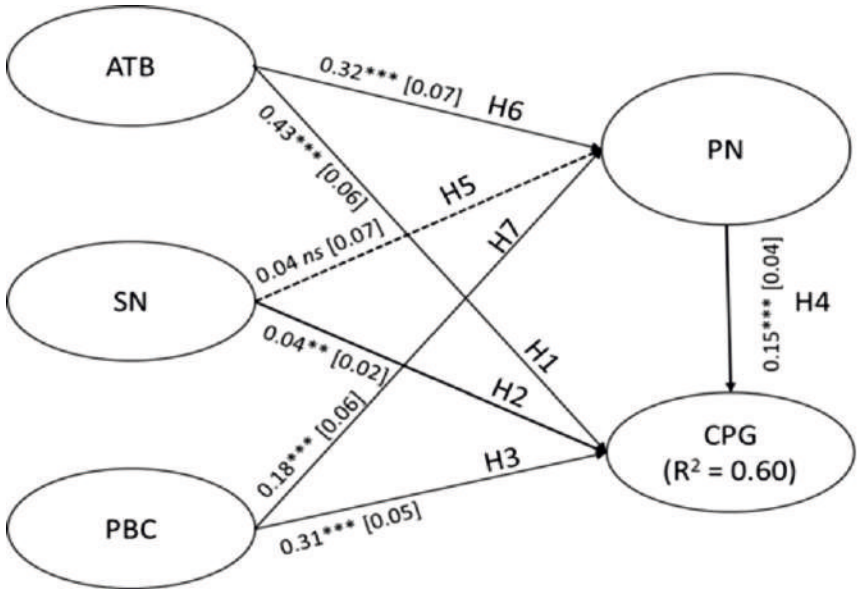
Analysis and Results

Hypotheses Testing

As Anderson and Gerbing (1988) suggested, path analysis is employed using AMOS 23 to test the hypothesized relationships between the constructs in the structural model. Before hypotheses testing, the fitness of the structural model is assessed. The model fit indices $\chi^2 = 335.52$ ($df = 123$), $p<0.001$, are highly significant. Thus, the structural model fails to fit the population covariance matrix in the absolute sense. Bagozzi and Yi (1988) suggested assessing other model fitness indices. The model fitness indices $\chi^2/df = 2.72$ is found to be in the acceptable range (<3); also, GFI = 0.92; CFI = 0.96; TLI = 0.95; and RMSEA = 0.06; all fit indices are within the range (>0.90 for CFI; GFI; TLI and <0.08 for RMSEA) as per the recommended value by Bagozzi and Yi (1988). The model fit indices (RMSEA) establish that the observed covariance matrix of the constructs of interest in the structural equation model is reasonably close to the population covariance matrix.

The proposed relationship between the constructs (hypotheses) is assessed after establishing the structural model's fitness. Figure 2 displays the path analysis (SEM) findings as standardized path coefficients among the constructs. The findings displayed in Figure 2 show that the direct effect of "attitude towards the volitional compliance behavior" on the "volitional compliance with guidelines" is positive and significant ($\beta_{ATB\rightarrow CPG} = 0.43$, $p<0.01$); thus, hypothesis Ha1 cannot be rejected. Next, the direct effect of "subjective norm" on the "volitional compliance with guidelines," that is, hypothesis Ha2, is also found significant ($\beta_{SN\rightarrow CPG} = 0.045$, $p<0.05$); hence, Ha2 failed to be rejected. Furthermore, the hypothesized direct effect of "perceived behavioral control" on the "volitional compliance with guidelines" is found to be positive and significant, supporting Ha3 ($\beta_{PBC\rightarrow CPG} = 0.317$, $p<0.01$).

Figure 2. ***Structural Model***



Note. The results represent the unstandardized path coefficients of the structural model. Model fit: ($\chi^2 = 335.52$ ($df = 123$), $p<0.001$), $\chi^2/df = 2.72$; GFI = 0.92 ; CFI = 0.96 ; TLI = 0.95 ; RMSEA = 0.061) ; ***$p<0.01$; **$p<0.05$; value in the parenthesis report std. err. value of the estimate ; solid lines denote significant estimates at the 5%.

Additionally, it is evident from the findings of path analysis given in Figure 2 that the hypothesized relationship (Ha4), that is, "personal norm" directly affects the "volitional compliance with guidelines," is found to be positive and significant ($\beta_{PN\rightarrow CPG} = 0.154, p<0.01$); thereby, Ha4 cannot be rejected.

However, the findings of path analysis in Figure 2 suggest that hypothesis Ha5, i.e., the positive and direct effect of "subjective norm" on the "personal norm" is insignificant ; thus, rejecting hypothesis Ha5 ($\beta_{SN\rightarrow PN} = 0.048, p>0.05$). However, the hypothesized relationship (Ha6) testing the direct effect of "attitude towards volitional compliance behavior" on the "personal norms" is found to be significant ($\beta_{ATB\rightarrow PN} = 0.324, p<0.05$), establishing Ha6. The hypothesis Ha7, which tests the direct effect of "perceived behavioral control" on the "personal norm," is also found to be positive and significant ($\beta_{PBC\rightarrow PN} = 0.187, p<0.01$). Thus, Ha7 is also accepted.

The results of the hypotheses test are provided in Table 4. Path analysis results and model fit indices together help to establish that "attitude towards volitional compliance behavior," "subjective norm," "perceived behavioral control," and "personal norms" are the determinants of air passengers' volitional compliance with guidelines (CPG).

Table 4. ***Structural Path Analysis and Hypotheses Testing***

Path	Estimate (Std.)	Std. Err.	*t*-value	Hypotheses Test
Hypotheses Testing				
Ha1 : *ATB → CPG*	0.41***	0.06	7.01	Failed to reject
Ha2 : *SN → CPG*	0.08**	0.02	1.97	Failed to reject
Ha3 : *PBC → CPG*	0.32***	0.05	5.70	Failed to reject
Ha4 : *PN → CPG*	0.14***	0.04	3.28	Failed to reject
Ha5 : *SN → PN*	0.09 (ns)	0.02	1.71	Rejected
Ha6 : *ATB → PN*	0.33***	0.07	4.62	Failed to reject
Ha7 : *PBC → PN*	0.20**	0.06	2.88	Failed to reject

Note. *** $p<001$; ** $p<0.05$; ns : nonsignificance.

Table 5. ***Direct, Indirect, and Total Effects of Components of TPB and NAT on Volitional Compliance***

Path	Effect	Std. Estimate	Std. Err.	*p*-value
ATB → CPG	Indirect effect	0.480**	0.026	0.004
	Direct effect	0.410**	0.105	000
	Total effect	0.458**	0.100	000
SN → CPG	Indirect effect	0.013ns	0.011	0.062
	Direct effect	0.080**	0.042	0.043
	Total effect	0.093**	0.043	0.026
PBC → CPG	Indirect effect	0.029**	0.017	0.016
	Direct effect	0.320**	0.097	0.001
	Total effect	0.349**	0.099	000
PN → CPG	Indirect effect	---	---	---
	Direct effect	0.144**	0.058	0.006
	Total effect	0.144**	0.058	0.006

Note. ** $p<0.05$; ns- nonsignificant.

Table 5 presents the additional findings of direct effect, indirect (through personal norms) effect, and total effects of "attitude towards volitional compliance behavior," "subjective norm," and "perceived behavioral control" on "volitional compliance with guidelines." The results show that "attitude towards volational compliance behavior" has a significant direct (0.410, $p<0.001$), indirect (0.04, $p<.001$), and total (0.458, $p<0.001$) effect on "volitional compliance with guidelines," establishing partial mediation by "personal norms" in the association between "attitude towards volitional compliance behavior" and "volitional compliance with guidelines." In contrast, "subjective norm" has no indirect (0.013, $p>0.05$) effect; instead, it has a significant direct (0.080, $p<0.05$) and total (0.093, $p<0.05$) impact on "volitional compliance with guidelines." Additionally, it is clear from Table 5 that there are substantial impacts of "perceived behavioral control" on "volitional compliance with guidelines," that is, direct (0.320, $p<0.01$), indirect (0.029, $p<0.01$), and total (0.350, $p<0.001$) levels. Thus, these additional findings suggest that the dimensions of the TPB and NAT meaningfully elucidate the air passengers' volitional compliance behavior of health and safety guidelines. The dimensions of these theories can explain 60% ($R^2 = 0.60$, $p<0.01$) of the total variance in the air passengers' volitional compliance with aviation health and safety guidelines.

Discussion

This study aims to understand the determinants of air passengers' volitional compliance behavior with health and safety guidelines. This study contributes to understanding the role of sociopsychological factors and underlying air passengers' rational and moral values in compliance with procedures. Drawing a research model integrating TPB and NAT components, the model explains about 60% of the variance in air passengers' volitional compliance behavior with guidelines. The study also provides empirical evidence that attitude toward volitional compliance behavior, PBC, SN, and personal (moral) norms significantly contribute to air passengers' volitional compliance behavior. This result is consistent with Ajzen's (1991) TPB postulates; Conner et al.'s (1998) study of understanding volitional drug compliance; Jeong and Kim's (2016) study of volitional compliance with handwashing behavior; and McGuckin et al.'s (2012) study of self-monitoring volitional compliance to prevent chronic illness.

Concurrently examining the role of moral norm activation on volitional compliance behavior, the study establishes that attitude toward the volitional compliance behavior and the PBC activate the feeling of moral obligation toward volitional compliance. In contrast, subjective norms do not engender a feeling of the moral obligation of volitional compliance. Furthermore, the study suggests that the effect of attitude towards the volitional compliance behavior and perceived behavior control on the volitional compliance behavior directly and through the feeling of moral obligation, i.e., personal (moral) norms, partially mediate this effect. This result is consistent with Shanka and Kotecho's (2023) findings, who concluded that attitude toward volitional compliance behavior and PBC indirectly contributed to volitional compliance behavior through personal norms. Also, the results of this study indicate that normative beliefs are relevant in volitional compliance behavior but do not arouse moral belief, i.e., the feeling of obligation for volitional compliance with guidelines. This result is inconsistent with Shanka and Kotecho's (2023) findings. This is due to the air passengers' perception of "significant others." The study operationalizes the subjective norm by including copassengers and crewmembers to exert normative influence; since they are not perceived as significant others, the feeling of obligation does not arise (not supporting H5).

In addition, this study validates the applicability of the NAT component and integration with the TPB in understanding the rationality and morality behind the air passengers' volitional compliance with guidelines. An integrated model shows that behavior and control beliefs lead to volitional compliance and are the primary drivers of moral belief for compliance with guidelines. In contrast, normative beliefs lead to volitional compliance but do not arouse moral belief. Finally, adopting a structural equation modeling approach to establish the relation

between the variables, this study contributes to advancing literature on air passengers' volitional compliance behavior.

Managerial Implications

The findings of this study suggest the crucial role of air passengers' attitudes towards volitional compliance behavior (0.458, $p<0.001$) and perceived behavior control (0.349, $p<0.001$) on volitional compliance with guidelines. This research finding has an important implication for aviation authorities and policymakers. Notably, it is suggested to include a campaign to induce air passengers to follow and engage in appropriate behavior inside the terminal and onboard. Persuasive messages should be designed to influence the perception of air passengers about the easiness of following the appropriate behavior, and these messages should also be in an easy-to-understand format. Also, supplementary information and essential support should be provided to the air passengers at the airport terminals and in the aircraft. Passengers also need to be educated about how to wear protective equipment and take preventive measures. The signboards should be installed, mentioning standard operating procedures.

The study also highlights the significance of individual norms or the sense of duty (0.14, $p<0.001$) in relation to volitional compliance. The study finds a link between arousal of the sense of duty to adhere to preventative measures and a positive attitude toward volitional compliance (0.33, $p<0.001$) and behavior control (0.20, $p<0.001$). Therefore, the campaign should emphasize making air passengers aware of the terrible consequences of breaking the prevention measures for themselves, their loved ones, other passengers, the crew, their families, and society. Knowing the repercussions will encourage passengers to rigorously follow the rules or feel bad for breaking them by instilling a sense of moral obligation in them.

Air carriers will benefit from this study's model's ability to forecast passengers' compliance with rules while onboard. This research model will assist in identifying disruptive passengers in the air to prevent them from boarding and mishaps caused by passengers' negligence or a failure to follow safety precautions.

Conclusion

This study aims to analyze the air passengers' volitional compliance behavior with guidelines. We got the idea to conduct this study due to recorded instances of flouting guidelines by passengers (Dube et al., 2021). Safe travel is ensured by exploring the volitional compliance behavior of air passengers. The research framework's design combines elements from the TPB and NAT components. The volitional compliance behavior is greatly influenced by "attitude toward the volitional compliance behavior," "perceived behavioral control," and "the personal norm." Personal norms partially mediate the effect of attitude toward volitional compliance behavior and perceived behavior control on volitional compliance with guidelines. Airline authorities and policymakers can use the findings to design the promotional campaign, also educating air passengers about their responsibility to help create a good environment and a pleasant traveling experience.

Limitations of the Study and Scope for Future Research

The present study has some limitations. Although the study's findings align with the theoretical framework of TPB, in the study where self-reported measures were used, some measured variables are prone to the socially desirable response. The social desirability was reduced by assuring respondents of their anonymity to ensure their honest answers. Some attention was also paid to overcoming the shortcomings of the samples. Since social media was used to reach out to prospective respondents, it may be possible that the sample gathered was biased toward volitional compliance.

The study also brings out exciting possibilities for future research. Studies in the future should try to expand the proposed model by considering other important factors influencing volitional compliance, such as "trust in air carriers," "ability for a safe flying experience," "convenience of complying with health and safety measures," "air passenger's personality traits," "fear of sanction of No-Flying-List," etc. (Yıldırım et al., 2021). Future studies may also be conducted on the volitional compliance behavior of ground staff and crew members.

The research model in this study does not include studying the effect of demographic profile on volitional compliance behavior due to theoretical limitations in explaining the relationship. Future studies should include demographic variables to determine the effect on volitional compliance behavior. This study includes participants from India only; future studies may include respondents from other nationalities. Future studies can also be conducted on passengers' volitional compliance behavior during long, medium, and short-haul flights. Future studies on service quality might be conducted by including the variable - 'air carrier's act or omissions to ensure the health and safety of the passengers.'

Authors' Contribution

Kamal Jaiswal conceptualized the idea, did a literature search, and did the final manuscript editing and language and grammar check. Balgopal Singh drafted the questionnaire, collected data, did statistical analysis, and wrote the first draft of the manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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Appendix. ***The Measurement Scale***

ATB	
I believe wearing a mask as a health and safety measure is good.	*ATB_1*
I believe that social distancing as a health and safety measure is wise.	*ATB_2*
I believe that using a sanitizer as a health and safety measure is advantageous.	*ATB_3*
I believe that following health and safety measures is meaningful.	*ATB_4*
SN	
My friends approve of my decision to follow health and safety measures.	*SN_1*
My family believes I should follow health and safety measures.	*SN_2*
My copassengers and crew members want me to follow the health and safety measures.	*SN_3*
PBC	
I do have self-control over wearing the mask as a health and safety measure.	*PBC_1*
I believe I have the ability to follow the health and safety measures.	*PBC_2*
I believe I have the discipline to follow social distancing as required by the health and safety measures.	*PBC_3*
I believe I can strictly follow the health and safety measures.	*PBC_4*
PN	
I have a moral obligation to follow health and safety measures.	*PN_1*
I feel that I should follow the health and safety measures to the best of my ability.	*PN_2*
I would feel guilty when I didn't follow the health and safety measures.	*PN_3*
CPG	
I comply with the health and safety measures.	*CPG_1*
I act according to the health and safety measures.	*CPG_2*
I carry out my responsibility to follow the health and safety measures.	*CPG_3*
I use appropriate prevention measures to protect myself.	*CPG_4*

Note. Adapted from Shanka and Kotecho (2023) and Plohl and Musil (2021).

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