Think Before Getting Addicted to Smartphones !

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Abstract

In the present times, individually, everyone, knowingly or unknowingly, has acquired a habit of integrating cell phone usage with their day to day lives. Perpetually, this has developed an addiction towards smartphones. Philanthropists and academicians are inclined towards knowing whether this habit is really an act of updating to make oneself more tech - savvy or whether such a habit makes any value addition to our lives. Henceforth, it was quite essential to investigate the effect of smart cellphone usage on behavioral issues of people and to determine what kind of changes are brought in an individual's psyche and psychology due to excessive usage of smartphones. Previous studies focused more on understanding the different aspects of smartphone usage but rarely tried to determine what happens if anyone uses smartphones in excess. In our research, we established the triangulate relationship between smartphone usage, technostress, and conflict behavior. We determined whether smartphone usage leads to technostress impacting an individual's conflict behavior or whether technostress mediates this relationship. The study was conducted among respondents in the age bracket of 17 - 66 years representing various social strata. This research was quantitative in nature and used SEM to validate the relationship between smartphone addiction, technostress, and conflict behavior. The results of the research concluded that there was a significant impact of smartphone addiction on conflict behavior. This research has strong implications for HR managers to design various OD interventions for employees ; philanthropists/counselors to start movements for youngsters and older people to harmonize their intra-personal issues.

Keywords : **smartphone addiction, technostress, conflict behavior, interventions**

Paper Submission Date : June 18, 2018 ; Paper sent back for Revision : April 1, 2019 ; Paper Acceptance Date : May 10, 2019

In developed countries, technology has captivated consumers with it. This charm of technology has persistently allowed people to spend much time on technology than on any other activity (Griffiths, 1999 ; Roberts & Pirog, 2012).

Smartphones have become a chosen product or even a necessity for more and more people. Wang, Xiang, and Fesenmaier (2014) proposed a framework that integrated factors shaping the adoption, use, and impact of smartphones among users. Usage of smartphones has convicted many users to the depth of restlessness, as they themselves cannot keep from looking into their phones after every few seconds/minutes. In India, online

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DOI : 10.17010/ijom/2019/v49/i7/145402

commerce has taken a good shape and has increased the access to Internet connectivity for smartphone users (Kurup & Jain, 2018). It has been observed that smartphone users have a habit of checking their phones first thing in the morning and the last thing they look at before going to sleep. Oulasvirta, Rattenbury, Ma, and Raita (2012) conducted a research and found that their respondents checked their phones 34 times a day, not because they really needed to check that many times, but because it simply became a habit. Apparently, this habit of using smartphones has manifested a theory that excessive use of phones results in multiple disorders in the human body like stress, conflict behavior, etc. (Bianchi & Phillips, 2005 ; Oulasvirta et al., 2012 ; Takao, Takahashi, & Kitamura, 2009). Eventually, many had contradictory views regarding this theory that the habitual use of smartphone elevates stress for psychological and biological reasons. Brod (1984) coined a word 'technostress' as a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner, which is amalgamated in this study to point out the stress caused due to smartphone usage (as citied in Prabhakaran & Mishr, p. 131). In late studies, technostress was defined as a phenomenon of end users facing stress due to information and communication overload (Ragu - Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008). Generally, usage of smartphones are drivers of entertainment, relaxation, or way to relieve stress as this kind of usage crops instant enjoyment, but on the other hand, it can also be accompanied by losing volitional control for other important activities (Thomée, Härenstam, & Hagberg, 2011). Lee, Cheung, and Chan (2015) revealed in their research that smartphone use encompasses certain key dimensions of behavioral addiction : salience, mood modification, tolerance, withdrawal, conflicts, etc. India has witnessed a gradual growth among Internet users : from 2.8 billion in 2014 to estimated 6.5 billion in 2020 (Murthy & Kumar, 2015).

Many studies conducted in the past understood and determined the impact of cell phone usage on personality

Table 1. Definitions of Constructs

Variable	Author	Definition
Smartphone Addiction	Bianchi & Phillips (2005); Oulasvirta, Rattenbury, Ma, & Raita (2012) ; Takao, Takahashi, & Kitamura (2009)	Excessive usage and habitual checking on missed calls or messages may result in conflict usage and even lead to mobile phone addiction for smartphone users.
	Davis (2001) ; Charlton & Danforth (2007) ; Turel, Serenko, & Giles (2011)	The hunger for more technology has consequences such as excessive usage of technology, high level of involvement in technology, and finally, technology addiction results in mobile phone addiction.
Technostress	Brod (1984)	Technostress is a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner.
	Ragu - Nathan, Tarafdar, Ragu-Nathan, & Tu (2008)	Technostress is the phenomenon of end users experiencing stress due to information and communication overload.
	Brillhart (2004)	The explosive growth of end - user computing and networking technologies enhances the severity of technostress.
Conflict	Janssen and Van de Vliert (1996)	Conflict behavior is an individual's intended or displayed outward reaction to the conflict issue experienced.

and psychological variables of behavior (Roberts &Pirog, 2013) and testified that certain psychological traits might influence ability to endure stress or make a person vulnerable to stress.

Review of Literature

This research intends to explore how smartphone addiction leads to stress (technostress) as a result of the massive use of technology (Bianchi & Phillips, 2005; Takao et al., 2009). Many researchers in the past conducted research considering heavy usage of smartphones resulting in behavior disorders by focusing on personality traits as variables to measure. Ragu - Nathan et al. (2008) explored that excessive use of smartphones can lead to technostress and the same can be measured in various dimensions. This research attempts to investigate the relative impact of smartphone usage on technostress and conflict behavior, and also examines whether smartphones have any mediating effect on conflict behavior or not. We have chosen interpersonal conflict, intrapersonal conflict, and professional/academic conflict as three antecedents to measure conflict behavior. The popularity of smartphones has emerged as one of the basic phenomena for one and all across the globe.

In light of the literature found in many research studies that were reviewed, Salomon (1986) and Line, Jain, and Lyons (2011) proposed that smartphone addiction may lead to effects on an individual level. On contrary to these views related to smartphone addictions and its negative effect, many other researchers supported usage of smartphone as a reliver of nervousness and indulging into fun activity for the users (Hirschman, 1992 ; Roberts & Pirog III, 2013 ; Takao et al., 2009).

The globe has become one platform, possibly due to the manner in which technology has introduced itself in various fronts. Mobile phones have connected people from different walks of life to one place anytime. Conversely, there are growing apprehensions for smartphones which actually sometimes take away from social interfaces or interactions. However, mobile applications in smartphones having social media tools and games with Internet facility have increased the usage rate really fast (Zheng & Lionel, 2010). Few antagonistics have strong support for smartphone usage, and according to them, smartphones compliment many functions of every day life, are portable in nature, and offer more enthralled "users value" to consumers (Park & Han, 2013). Massive use of smartphones has apparently become the potential driver to develop an addictive behavior among users, which is evidently inhibiting in their lives.

Many researchers have diagnosed how addiction symptomology even applies to excessive smartphone use like distortion of time spent on phone, behavioral conflicts, and negative effects on our social and work lives (Kwon et al., 2013 ; Line et al., 2011).

Many studies have concluded that the effects of excessive use of smartphones has a significant impact on mental and physical health of an individual. Jenaro, Flores, Gómez - Vela, González -Gil, and Caballo (2007) and Sim, Gentile, Bricolo, Serpelloni, & Gulamoydeen (2012) pointed out in their research that society has witnessed substantial increase of compulsive technology use, which results in cell phone addiction.

In the past, several studies proposed a theory stating that usage of smartphones can interfere in an individual's life to an extent that there is a gradual loss of relationships (Miller - Ott, Kelly, & Duran, 2012 ; McDaniel & Coyne, 2014 ; Sprecher, Hampton, Heinzel, & Felmlee, 2016) also resulting into addiction as well as reduced capacity to enjoy leisure (Janković, Nikolić, Vukonjanski, & Terek, 2016 ; Lepp, Li, Barkley, & Salehi - Esfahani, 2015 ; Mok, Choi, Kim, Choi, Lee, Ahn, & Song, 2014). It is very common in today's time that excessive usage and dependency on technology has proven to be unhealthy for human beings. This has emerged as one of the major causes of being physically or mentally unfit and gives rise to many physical as well as psychological diseases. Many studies have concluded that working at work or on the move using communication technological devices creates technostress. Technostress has a significant influence on work - life conflict as well.

Apparently, there are several apprehensions related to technology adoption and usage, and as a result, there is a

firm belief that work - life boundary and roles have become vague causing inter or intrapersonal conflicts. A study conducted by Elhai, Dvorak, Levine, and Hall (2017) concluded that technostress may result from the use of new technologies even after work and during holidays (e.g., using smartphones for checking emails or continuing to work through a messenger after working hours), thereby influencing job satisfaction and work - life conflict.

Research Gap and Objectives of the Study

As extracted from the review of literature, one can profoundly say that heavy usage of a smartphone has its repercussions in life. Smartphone addiction has its own consequences on an individual's personal and professional life, on his/her health, and sometimes, it impacts one's mental or psychological status very seriously. However, this study tries to investigate in what terms the smartphone addiction can hamper the physical and psychological status of human beings. The core of the study refers to heavy usage of smartphones leading to technostress, and this kind of technological stress may have repercussions on an individual's behavior as well as developing conflict behavior. In anticipating this, many researchers have stated that heavy usage of smartphones also leads to various psychological and physiological issues. In the ensuing section, we focus on few aspects of smartphone usage and the outcomes on individuals facing the issues of technostress and conflict smartphone behavior. The main objective of the study is to find out the relationship between smartphone usage, technostress, and conflict behavior. Along with this, the research majorly focuses on determining whether conflict behavior has any significant impact on an individual's inter/intra or academic/work life or not and if yes, then which out of these three majorly get impacted by this.

The following are the hypotheses framed for this study :

- **H1:** Smartphone addiction has a significant effect on creating technostress.
- **H2:** Technostress significantly mediates the relationship between smartphone usage and conflict behavior.
- **H3:** Smartphone addiction has a significant effect on an individual's conflict behavior.

The Rationale of the Study and Proposed Model

Today, everyone is keen in keeping himself/herself more updated and connected with the use of technology. People are spending more time on smartphones to get connected with their loved ones than in actually connecting with them in person, resulting into various repercussions out of this usage of technology. These kind of behavioral developments cause imbalances in their personal as well as professional premises. This research contributes to some emerging issues of smartphone usage by probing whether loss in volitional process leads to smartphone addiction and whether this smartphone addiction results in increasing a user's technostress levels, while generational differences are considered in the relationships between smartphone usage and technostress ; in addition, we will also try to find out the impact of technostress on individual behavior in terms of conflict.

Smartphones have now become an integral part of our day to day lives. Studies have provided evidence that if an individual uses a smartphone in excess, he/she will definitely face negative impacts on his/her well - being. Akyildiz, Lee, Vuran, and Mohanty (2006) kept this kind of addiction under the category of behavioral addictions. Technology has its own advantages and disadvantages, and one of them is that excessive use can inculcate behavior of frustration, overburden with work and assigned responsibilities, or even end up in multiple kinds of stress diseases. This kind of physical or behavioral disorder has been named as technostress by researchers. The defining attributes and pragmatic drivers of technostress have been investigated in many research studies conducted in the past. Brod (1984) stated that technostress is a modern disease of adaptation caused by an inability

to cope with the new computer technologies in a healthy manner. Technostress is the phenomenon of end users experiencing stress due to information and communication overload (Ragu - Nathan et al., 2008). The explosive growth of end-user computing and networking technologies enhances the severity of technostress (Brillhart, 2004). Brod (1984), a clinical psychologist, derived a disease called as technostress as an outcome of over usage of technology as well as an inability to deal with information communication technology (ICT) in a healthy manner further resulting into disparaging forces for the employees as well as for companies also (Ayyagari, Grover, & Purvis, 2011). Eventually, in some research, it was stated that technostress even reduces job satisfaction, work commitment, innovation, and productivity.

Many studies have signified the effect of technostress varying across individuals. However, a handful contribution made by Raghu - Nathan et al. (2008) worked on a definite set of measures based on age, gender, literacy, skills, etc. propagating that males undergo more technostress than females ; with growing age, individuals feel more stressed as compared to stress felt in early stages of life ; and computer knowledge and expertise brings more stress for those who have less expertise of the same.

Technostress can be defined as the outcome of excessive usage of information technology and creates stress among users. Like a coin, everything has two sides, so does information technology. Human interaction with information technology may result into many consequences that are negative in nature such as attitude phobia and anxiety pertaining to mobile/smartphone usage, behavioral disorders, etc. (Wright & Cropanzano, 199). Hence, it is very important for one to know the way of managing his/her phone usage as well as preventing technostress into his/her life (Kuo, Chen, Yang, Yang, Yu, & Hu, 2009). Brod (1984) anticipated that when human beings fail to cope with more advanced and upgraded technologies, the probability of having technostress increases. Adding to this, he also averred that technostress is a difficult situation for adaptation caused by the use of recent technology by either people or organizations. Another definition of technostress was given by Arnetz and Wiholm (1997) as being a state of excitement experienced in certain people who are dependent on computers in their work. Contradictory to this, Figueiredo (1994) defined technostress as a kind of computer literacy and acceptance of digital technologies. In much prior research, technostress was defined as one of the aspects of stress pertaining to technological usage. Ayyagari et al. (2011) defined that there are assured characters of technology which are directly proportionate to stress like heavy usability, intrusiveness, and dynamism.

In today's working environment, technology has become an integral part of our functioning. It has been observed that people who are too addictive to technological devices - all their direct or indirect speech is influenced by these kind of devices and their usage. Many times, people sitting around their social or personal group use a smartphone to talk/message, even if they are sitting next to each other. This habit of using a smartphone has severe effect on their physical and mental health. This sometimes gets converted into individual conflict behavior limiting him/her to outperform, disrupts work - life balance, reduces ability to do productive work, and so on. Although studies have been done in the past on determining the effect of over usage of smartphones, and this area has gained significant importance, but still, many aspects are still untouched. This research also attempts to analyze whether smartphones generate technostress and whether this may also result in individual conflict behavior or not.

Hunter and Perreault Jr. (2007) conducted extensive research and reported that use of smartphones has incremental effects on different aspects of an individual's performance, therefore, it is important to investigate the effects of technostress on one's behavior. Some of the research extracts have well explained the way to manage technostress, but many of them have explained that the physiological disorders like mental illness may be followed by psychological disorders like indecisiveness, depression, anxiety, frustration or anger, lack of control and confidence, restlessness, etc.

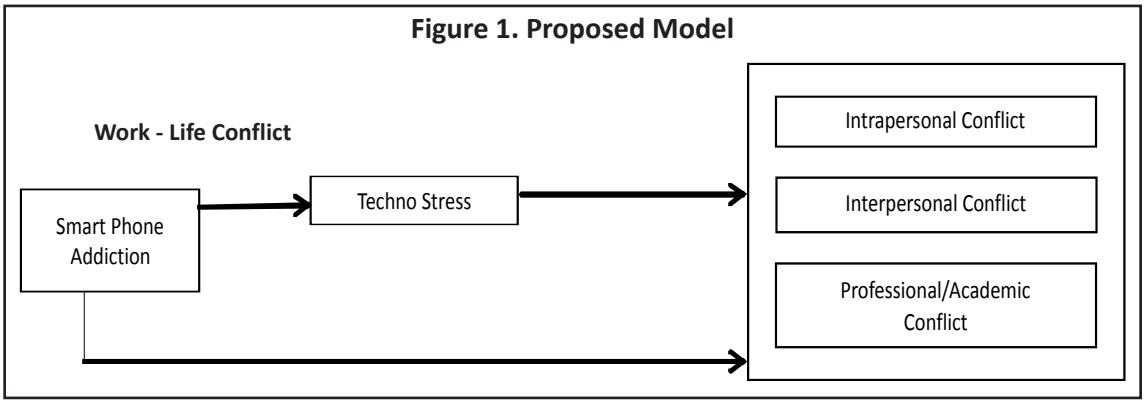
In a working environment, using a mobile phone while working can result in multitasking and cause technostress that can lead to poor job performance. Similarly, technostress can also affect users' satisfaction.

Lukoff and Gackenbach (2004) mentioned that some individuals use the Internet in dysfunctional ways that leads to social isolation and deteriorating work performance. If technostress accounts for more stress on a more general level, we expect this form of general stress to influence organizational outcomes in the form of decreased job satisfaction.

Research Methodology

(1) Sample and Procedure : The study employed a descriptive research design wherein, a quantitative research methodology was used to test the proposed research model (Figure 1). A structured questionnaire consisting of 31 questions was used to collect data through an online survey. Snowball sampling method was used to collect data from respondents including students, housewives, and working professionals residing in India. A hyperlink to the online questionnaire was sent to 735 respondents via email and the respondents were also requested to forward the questionnaire to their friends, colleagues, and relatives. The data collection process was carried out from December 2017 to February 2018. A total of 325 valid responses were received, indicating a response rate of 44.2%, which was reasonable for studies of this scale. Out of the total participants, 49.5% of the respondents were females and 50.5% were males. The age of the respondents ranged between 17 years to 66 years with mean as 29.8 years and standard deviation as 10.5 years. Out of the total sample, 36% respondents were students, 31.7% were working professionals, and 32.3% were housewives. The sample is an indicative group to test the research model as smartphones are very popular among students and housewives. Moreover, working professionals excessively use smartphones for online shopping while at work. Furthermore, including respondents from all over the country allow for a generalization of findings to represent the overall Indian context.

Figure 1. Proposed Model



(2) Measurement : The scales for all the constructs of the research model were adapted from previous studies carried out in the context of smartphone addiction and conflict behavior. Specifically, 12 items were used to measure smartphone addiction (SA), which were adapted from Karadağ et al. (2015) and 6 items were adapted from Lee, Cheung, and Chan (2015) to measure technostress (TS). Conflict behavior (CB) is a multidimensional construct including three dimensions namely intrapersonal problems (IntraP), interpersonal problems (InterP), and academic/professional problems (APP). With respect to the adapted measurement items for this construct, three items were used to measure IntraP, four items for InterP, and three items were used to measure the APP. Each item was measured using a 5 - point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Apart from these items, three demographic questions (age, gender, and profession) were also included in the questionnaire. Age was measured in years ; whereas, gender and profession were measured using a nominal scale.

The questionnaire was developed and administered in English language and was checked for content validity

Table 2. Descriptive Statistics

Item Code	Item Description	Mean	Standard Deviation	Skewness	Kurtosis
SA1	I miss planned works due to smartphone usage.	2.62	1.177	.327	-.795
SA2	I have a hard time concentrating in class/workplace due to smartphone use.	2.57	1.204	.301	-.911
SA3*	I feel pleasant or excited while using a smartphone.	2.54	1.378	.314	-1.190
SA4*	I am able to get rid of stress with smartphone use.	3.14	1.256	-.232	-.954
SA5	I won't be able to stand without having a smartphone.	2.72	1.331	.230	-1.112
SA6*	I feel impatient and fretful when I am not holding my smartphone.	2.31	1.303	.581	-.830
SA7*	Not being able to use my smartphone would be as painful as losing a friend.	2.76	1.361	.152	-1.181
SA8	I constantly check my smartphone so as not to miss conversations between other people on social media.	2.68	1.205	.257	-.874
SA9**	My fully charged battery does not last for one whole day.	2.82	1.559	.157	-1.468
SA10	I use my smartphone longer than I intend.	2.97	1.231	-.017	-.995
SA11**	I have tried time and again to shorten my smartphone use time, but failed all the time.	2.67	1.206	.266	-.869
SA12**	The people around me tell me that I use my smartphone too much.	2.58	1.292	.265	-1.068
TS1**	I am forced by my smartphone to live with very tight time schedules.	2.37	1.165	.473	-.606
TS2	I am forced to change habits to adapt to new developments in smartphones.	2.38	1.118	.433	-.589
TS3**	I have to sacrifice my personal time to keep current on new smartphone technologies.	2.31	1.183	.649	-.422
TS4	I feel my personal life is being invaded by smartphone technologies.	2.45	1.153	.386	-.734
TS5	I do not find enough time to study and upgrade my technology skills on smartphones.	2.46	1.153	.376	-.747
TS6	I am threatened by people with newer smartphone technology skills.	2.44	1.166	.409	-.740
IntraPP1	Using smartphone causes me sleep deprivation.	2.58	1.337	.206	-1.285
IntraPP2	I experience physical problems (e.g., backache, fatigue, or headache) because of smartphone usage.	2.22	1.206	.741	-.377
IntraPP3	My health gets worse because of using a smartphone.	1.84	.978	1.024	.439
InterPP1**	I miss real life social engagements because of using a smartphone.	2.27	1.293	.758	-.525
InterPP2	I give up or reduce social activities because of using a smartphone.	2.07	1.153	.865	-.177
InterPP3	Others in my life complain about my smartphone usage.	2.22	1.187	.772	-.146
InterPP4	I neglect others (e.g., friends or family) because of using a smartphone.	1.95	1.062	.955	.212
ProfAcadP1	My work or studies suffer because of using a smartphone.	2.47	1.203	.479	-.675
ProfAcadP2	Using a smartphone often interferes with my work or my studies.	2.57	1.138	.404	-.525
ProfAcadP3	I am not able to fulfill my role obligations at my workplace/ college because of usage of a smartphone.	2.17	1.082	.829	.153

Note. *SA : Smartphone Addiction, TS : Technostress, IntraPP : Intrapersonal Problems, InterPP: Interpersonal Problem, ProfAcadP: Professional/Academic Problems

Note. **Item was dropped from further analysis.

by experts from a University. Before administering the questionnaire to actual respondents, pilot testing was done with 30 randomly chosen subjects in November 2017. Based on the pilot test results, few items were deleted and a few items were modified in the questionnaire. To avoid skewing of the results, the data collected in pilot-testing was excluded from the final phase of data collection.

Analysis and Results

(1) Descriptive Analysis : The descriptive statistics for each construct in the proposed research model is presented in the Table 2. As reported in Table 2, there is sufficient evidence to support univariate normality of all the items as all values of skewness are below their cutoff point 3 and all kurtosis values are less than 8 (Kline, 2011 ; West, Finch, & Curran, 1995). Moreover, except for few items (SA3, SA4, SA6, SA7, SA9, SA11, and SA12), the critical ratios for both skewness and kurtosis for all items are found to be within the recommended limits of -2 and +2 (Kline, 2011), which indicates support for multivariate normality in the data. However, these items were dropped from further analysis because of their low factor loadings.

(2) Structural Equation Modeling (SEM) : The structural equation modeling (SEM) technique was employed in the study to test the relationships between the constructs within the proposed model. The two-stage SEM approach (Anderson & Gerbing, 1988 ; Schumacker & Lomax, 2010) was used, beginning with the measurement model for testing the reliability and validity of the instrument and then estimating the structural model.

(i) Measurement Model

↳ **Model Fitness :** The measurement model was examined to test the model fitness and to establish the reliability and validity of the model constructs. For testing the model fitness ; firstly, the confirmatory factor analysis (CFA) is conducted with the first order model. The main fit indices including CMIN/*df*, GFI, AGFI, CFI, NFI, RMR, and RMSEA are tested to evaluate the model fitness. As can be noticed from the Table 2, all the indices could not reach their recommended threshold values in the initial first order CFA model. Therefore, certain reassessments were done so as to increase the model fitness (Anderson & Gerbing, 1988 ; Bagozzi & Yi, 1988). To ensure the indicator reliability, the items (SA3, SA4, SA12, TS3, InterP1) having standardized regression weights (factor loadings) less than 0.4 were dropped (Reinartz, Haenlein, & Henseler, 2009). Apart from this, based on the modification indices, it is observed that SA7 and TS1 have higher unacceptable values. Hence, these items are also removed from the model. Besides, by inspecting standardized residual covariance, SA9 and SA11 are found to have higher values than their recommended threshold level of ±2.58 (Hair, Anderson, Tatham, & Black, 1995). Therefore, these two items are also removed.

After these modifications, the first order CFA model is tested again, and the model fitness improves significantly, as expected. Even though the value of chi-square ($\chi^2 = 391.3$, $DF = 122$, $p = 0.000$) is still significant,

Table 3. Measurement Model

Fit Index	Recommended Value	Initial First Order Measurement Model	Modified First Order Measurement Model	Second Order Model
χ^2	NS at $p < 0.05$	2691.75	391.3	406.55
df	N/A	340	122	126
χ^2 / *df*	<5	7.917	3.207	3.227
Goodness of Fit Index (GFI)	>0.90	0.643	0.903	0.901
Adjusted Goodness of Fit Index (AGFI)	>0.80	0.574	0.841	0.839
Comparative Fit Index (CFI)	>0.90	0.778	0.960	0.959
Normed Fit Index (NFI)	>0.90	0.754	0.944	0.942
Root Mean Square Residuals (RMR)	<0.10	0.187	0.065	0.068
Root Mean Square Error of Approximation (RMSEA)	<0.08	0.146	0.073	0.075

Table 4. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Smartphone Addiction (SA)	0.935	0.862	0.724
Technostress (TS)	0.956	0.803	0.754
Intrapersonal Problems (IntraP)	0.812	0.788	0.702
Interpersonal Problems (InterP)	0.820	0.769	0.627
Academic/Professional Problems (APP)	0.875	0.768	0.660

Table 5. Discriminant Validity

	SA	TS	IntraP	InterP	APP
Smartphone Addiction (SA)	0.851				
Technostress (TS)	0.524	0.868			
Intrapersonal Problems (IntraP)	0.608	0.607	0.839		
Interpersonal Problems (InterP)	0.551	0.659	0.742	0.791	
Academic/Professional Problems (APP)	0.607	0.604	0.791	0.723	0.813

the remaining fit indices of the modified first order measurement model are found to be within their recommended values (Table 2).

Once the first order CFA model is found to be fit, the second order CFA model is tested by hypothesizing conflict behavior (CB) as a higher order construct based on the three lower order constructs: IntraP, InterP, and APP. All the factor loadings are found to be greater than 0.7, which indicates that CB loads well on its three constructs. As seen in Table 3, the fit indices (except chi-square) of the second order model are found to be within their threshold values, indicating adequate goodness of fit to the data.

↳ **Reliability and Validity :** As shown in Table 4, all the constructs exhibit adequate levels of reliability with Cronbach's alpha coefficients (Nunnally, 1978) and composite reliabilities (Hair et al., 1995) greater than the cut-off point of 0.7. Also, the AVE values of all the constructs are greater than their threshold value of 0.5 (Hair et al., 1995) and all AVE values are less than the corresponding CR values indicating sufficient convergent validity (Table 3). Also, as reported in Table 5, all the correlation estimates between the constructs are found to be less than the maximum level of 0.85 (Kline, 2005) and all the constructs have $\sqrt{AVE}$ greater than their inter-correlation estimates with other corresponding constructs. This provides sufficient evidence to support discriminant validity of the model constructs.

(ii) Structural Model : After achieving satisfactory results of the measurement model, the constructs are used to examine the structural model for testing the hypothesized relationships. The fit indices of the structural model are found to be as follows: $\chi^2 / df = 3.227$, GFI = 0.989, AGFI = 0.839, CFI = 0.959, NFI = 0.942, RMR = 0.068, and RMSEA = 0.073. The fit indices indicate that the structural model has adequate goodness of fit to the data.

The results of the path coefficients (see Figure 2) indicate that all the hypotheses are supported. Particularly, technostress is found to be significantly affected by smartphone addiction ($\beta = 0.524$, C.R = 9.808, $p < 0.001$) and conflict behavior is found to be significantly affected by technostress ($\beta = 0.470$, C.R = 9.040, $p < 0.001$). Conflict behavior is also significantly influenced by smartphone addiction ($\beta = 0.415$, C.R = 7.583, $p < 0.01$), thereby indicating that technostress partially mediates the relationship between smartphone addiction and conflict

Figure 2. Structural Model Results

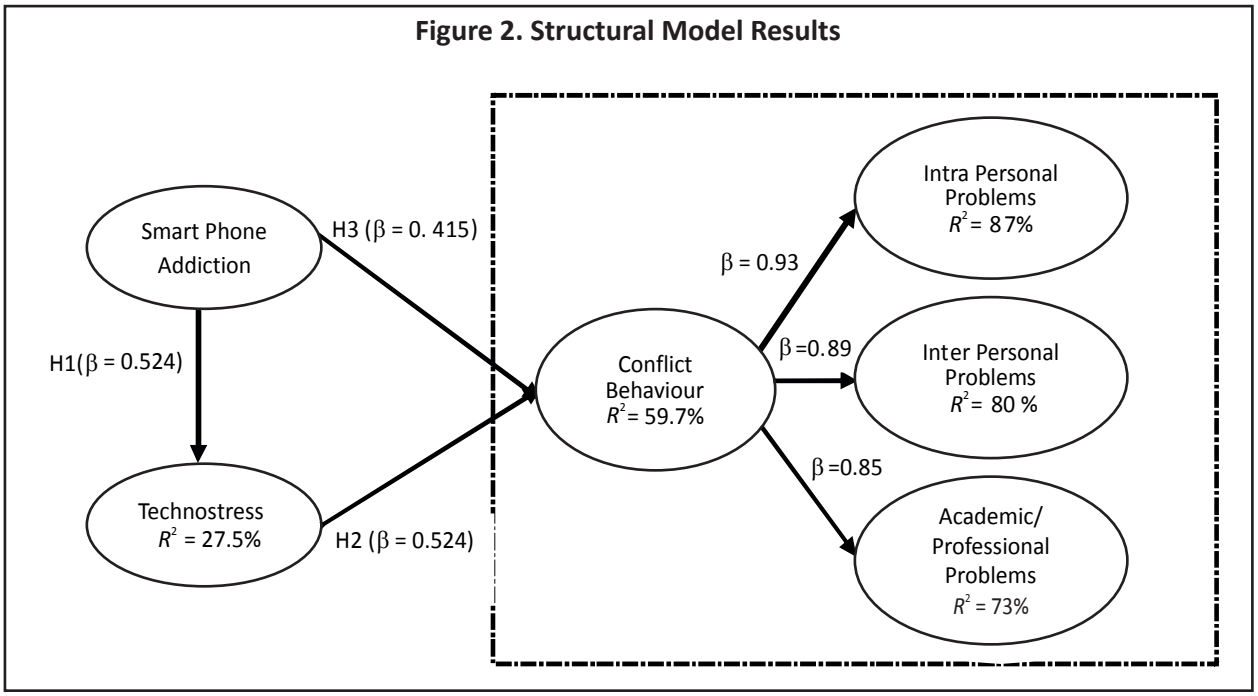


Table 6. Direct, Indirect, and Total Effects

Path	Total Effect	Direct Effect	Indirect Effect
SA->TS	0.524	0.524	...
TS->CB	0.470	0.470	...
SA->CB	0.661	0.415	0.246
SA->IntraP	0.616	...	0.616
SA->InterP	0.591	...	0.591
SA->APP	0.564	...	0.564
TS->IntraP	0.438	...	0.438
TS->InterP	0.420	...	0.420
TS->APP	0.401	...	0.401

Note. *SA: Smartphone Addiction, TS: Technostress, IntraPP: Intrapersonal Problems, InterPP: Interpersonal Problem, ProfAcadP: Professional/Academic Problems, CB: Conflict Behavior.

behavior. Therefore, all the hypotheses H1, H2, and H3 are supported. Moreover, the R^2 values indicate that smartphone addiction explains 27.5% variation in technostress and both smartphone addiction and technostress explain 59.7% variation in conflict behavior. Also, the R^2 values for IntraP, InterP, and APP are found to be 87% 80%, and 73%, respectively, which reflect a good contribution of all three constructs in conflict behavior.

The model is also examined for analyzing the direct effects, indirect effects, and total effects between the constructs. The Table 6 indicates that the total effect of SA on CB is 0.661 out of which the direct effect is 0.415 and indirect effect is 0.246. The indirect effect is attributed to the mediating effect of TS in the relationship between SA and CB. Since the indirect effect is lesser than the direct effect of SA on CB, we can interpret that TS weakly mediates the relationship between SA and CB. Also, the direct effect of SA on TS is more than the direct effect of SA on CB. Further, it can be noticed that the indirect effect of SA on IntraP (0.616) is more than that on InterP

Table 7. Comparative Research Findings

Author	Variables	Outcome Variable	Remarks	Our Findings
Bianchi & Phillips (2005) ; Takao, Takahashi, & Kitamura (2009)	Smartphone, Personality Traits	Behavioral Disorders	Causes behavioral disorders	All past studies were conducted using one variable for their studies ; whereas, our study considered two variables as determinants and also determined the mediating role of one variable on other.
Ragu - Nathan, Tarafdar Ragu - Nathan, & Tu (2008)	Excess usage of smartphones	Technostress	Further this can be measured on different dimensions.	
Salomon (1986) ; Line, Jain, & Lyons (2011)	Smartphone addiction	Individual level	Creates technostress and conflict behavior.	
Hirschman (1992) ; Roberts & Pirog III (2013) ; Takao, Takahashi, & Kitamura (2009)	Conflict Behavior	Reliever of nervousness and indulging into fun.	Smartphones can be a medium for this.	
Hunter & Perreault Jr. (2007)	Smartphone	Individual performances	Significantly impacts individual's performance.	
Our research	**Smartphone**	**Technostress and conflict**	**Technostress mediates the impact of smartphones.**	

(0.591) and APP (0.564). Similarly, the indirect effect of TS on IntraP (0.438) is more than that on InterP (0.420) and APP (0.401). This indicates that out of the three dimensions of conflict behavior (CB), smartphone addiction (SA) and technostress (TS) majorly contribute to intrapersonal problems as compared to interpersonal problems and academic/professional problems.

(3) Comparative Research Findings : A comprehensive analysis of research done in the past and with the present is presented in the Table 7 showing that this study signifies the relationship between smartphone usage, stress (techno), and conflict behavior of an individual.

Discussion and Conclusion

The research purpose is to determine the relationship between smartphone addiction, technostress, and conflict behavior. The data was extracted from 325 respondents from the age group of 17 - 66 years, out of which 49.5% and 50.5% respondents were females and males, respectively. The total percentage of respondents comprised of 36% students, 31.7% working professionals, and 32.3% housewives.

The prominent observations made in the research are : firstly, the results of the research reveal that smartphone addiction is a strong predictor of technostress (Salomon, 1986; Line et al., 2008). Excessive use of smartphones leads to technostress among the users and further leads to conflict behavior. Furthermore, it has also been observed that smartphone usage has a direct impact on users' conflict behavior as well (Kwon et al., 2013.). Apparently, the results also reveal that examining the effect of smartphone addiction on conflict behavior is partially mediated by technostress, and it is found that direct effect of smartphone addiction is more on conflict behavior than the indirect effect. Secondly, on an agreeable note, it is observed that there is a significant impact on conflict behavior on an individual's work-life (Lee et al., 2015). Further, the results also reveal that the effect of conflict behavior is more on the intra-personal problems than inter - personal and academic professional performances. Taken altogether,

the findings of the research indicate that smartphone addiction increases technostress among individuals and further leads to conflict behavior, and eventually, smartphone addiction has a direct effect on individual's conflict behavior ; whereas, there is a lesser mediating effect of technostress on conflict behavior. One interesting finding of the study reveals that conflict behavior has a strong impact on an individual's intra/inter and academic performance (87%, 80%, and 73%, respectively) and intrapersonal issues are one of the major areas where there is a high impact of conflict behavior, which may lead to multiple health hazard issues.

Research Contribution and Managerial Implications

This research significantly contributes to various theoretical aspects of study on smartphone usage and its repercussions on users' mental and health-related issues. In the past, several types of research studies have been done either to investigate the effect of smartphone addiction on creating technostress or to determine whether smartphone addiction leads to conflict behavior or not. This research is different and a step ahead from the previous studies as it not only tries to determine whether there is any significant relationship between smartphone addiction, technostress, and conflict behavior forming a triangular relationship, but also tries to determine the direct and indirect effect of smartphone usage on conflict behavior. Secondly, we also try to investigate if this triangular relationship exists, and whether technostress mediates the effect between smartphone addiction and conflict behavior or not, and if yes, then at what intensity it mediates between smartphone addiction and conflict behavior. Though few studies conducted in the past found the effect of smartphone usage on individual performances, Hunter and Perreault (2007) reportedly said that there was an incremental effect of smartphone addiction on conflict behavior tampering different aspects of performance, but failed to mention the variables of performance. On the other hand, this research not only shows a significant relationship between smartphone addiction and conflict behavior, but also mentions the outcome effect of conflict behavior on performance indicators like interpersonal, intrapersonal, and academic professional performances. Out of these three variables, intrapersonal issues are strongly impacted by conflict behavior. Extending this understanding, the future implications of this research have some worthy suggestions for HR managers to design various OD interventions for employees where some indoor or outdoor recreational activities can help employees to manage their intrapersonal issues. Philanthropists/ counselors can conduct some health checkup camps or workshops for youngsters and older people to balance their intrapersonal problems arising due to smartphone usage.

Limitations of the Study and Scope for Future Research

Apart from useful insights present in the existing research, there are several limitations, which can be addressed in future research. The first limitation of the study is the use of cross-sectional design for investigating the mediating effect of technostress. Establishing a variable as a mediator is a difficult process because causation can be inferred only when many strict assumptions are met, including perfectly reliable measures, correct temporal design, and no omitted confounders (Feldman, Contreras, Karlin, Basolo, Matthew, Sanders, & Serrano, 2016). Therefore, future studies may use longitudinal data to investigate the role of technostress as the mediator of the relationship between smartphone addiction and conflict behavior. Second, the data was not categorically used to determine the demographical impact of smartphones on conflict behavior. There is a possibility that there may be age or sex wise difference on the conflict behavior of an individual. Secondly, we have chosen random sampling; thirdly, the participants may not represent any specific workplace ; so, maybe, there can be a change on the impact of smartphone usage among people working in different types of work cultures, having different nature of work, and industries where they are working.

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