

Development and Validation of News Addiction Scale

Ghulam Ishaq

Lahore Leads University

Saba Ghayas and Adnan Adil

University of Sargodha

The current study was undertaken in order to construct a psychometrically sound measure of news addiction for Pakistani people. The research comprised of three studies. The first study dealt with the development of News Addiction Scale (NAS) for Pakistani people. The items of the scale were empirically determined for content validation and an exploratory factor analysis was undertaken on a purposive sample of 247 individuals (men = 183, women = 64; with a mean age of 40.1 years, $SD = 15.2$ years). Thirty items were subjected to Principal Axis Factoring and the resulting scree plot and Eigenvalues evidenced a single factor solution with 19 items, which accounted for 53.96% of the variance. In the second study, a confirmatory factor analysis was carried out on a sample of 240 participants and the results revealed an excellent model fit to the data, which validated the unidimensional structure of the scale. Study III of the present research was conducted on a purposive sample of 100 individuals and it provided a convincing evidence of convergent validity of the scale as significant positive correlation was observed between news addiction and behavioral activation and concurrent validity as individuals with more duration of exposure had significantly higher mean score on the NAS. Across the two studies, the Cronbach alpha of the scale remained $\geq .90$. These pieces of evidence suggested that NAS would be a promising indigenous measure of news addiction.

Keywords. News addiction, scale construction, factor analysis, internal consistency, construct validation

Ghulam Ishaq, Department of Psychology, Lahore Leads University, Pakistan.

Saba Ghayas and Adnan Adil, Department of Psychology, University of Sargodha, Pakistan.

Correspondence concerning this article should be addressed to Adnan Adil, Department of Psychology, University of Sargodha, Pakistan. Email: livespirit786@yahoo.com

In the recent past, limited sources of news were available to the people of Pakistan, but with the advent of information explosion and the resulting progress in technology in the fields of print, electronic, and cyber media, sources of news have multiplied substantially. For instance; people of Pakistan are no more dependent on the state-owned Pakistan Television and Pakistan Radio as the only sources of electronic media. Currently, there are more than 56 news channels. Similarly, about three decades ago, the Daily *Jang* and the *Nawa-e-Waqat* were the only newspapers with circulations at the national level but today more than 40 national daily and weekly newspapers are being published (All Pakistan Newspaper Society, 2017). Finally, the boom in the telecommunication and cyberspace industry in Pakistan during the couple of previous decades have made social media such as Facebook, Twitter, and YouTube as viable and instant news source. Moreover, many agencies and cellular service providers share news through mobile text messages. News headlines in the form of breaking news and news bulletins after every hour on the electronic media have grabbed the attention of the viewers. Increased prevalence of news addiction is the result of availability of increased variety of news channels and sources. Constantly following the news may make one feel connected to the world, but one may actually be less engaged in real life. Worst of all, news stories may not be an accurate portrayal of events, are designed to hook viewers for advertising dollars, and perpetuate a catastrophic mindset. According to Shirkey (2008), news is the communication of particular information on current events, which are not previously known. People's interest in geopolitical issues, sports, crime, and terrorism can promote news habituation. Subsequently, this habituation can become news addiction which may lead to certain adverse consequences (Pavlina, 2006). This addiction can be conceived as a particular type of behavioral addiction in which individual frequently performs non-drug related behavior (Malenka, Nestler, & Hyman, 2009).

Typically, the term addiction has been perceived as the drug ingestion (Rachlin, 1990), but currently, the definition of addiction has been broadened to encompass different types of behaviors which do not have any link to ingestion of drugs, for instance, gambling (Griffiths, 1990), playing of video game (Fisher, 1994; Keepers, 1990), technological addictions (Griffiths, 1995), exercise (Adams & Kirkby, 2002; Morgan, 1979), computer addiction (Shotton, 1991), cell-phone addiction (Choliz, 2010), online sex addiction (Griffiths, 2012), online shopping addiction (Clark & Calleja, 2008), workaholism (Andreassen, Hetland, & Pallesen, 2010), and cyber addiction (Beard, 2005).

Diagnostic models such as DSM-5 and ICD-10 do not lay down the criteria for the clinical diagnosis of behavioral addiction. The term behavioral addiction is not labeled as a diagnostic category in the DSM-5 because American Psychiatric Association (2013) believes that there is insufficient peer-reviewed evidence to establish the diagnostic criteria and course descriptions needed to identify these behaviors as mental disorders. Individuals experiencing behavioral addiction have compulsions to repeatedly perform a rewarding behavior despite any negative consequences to the individual's mental, physical, social, and/or financial well-being (Parashar & Varma, 2007; Stein, Hollander, & Rothbaum, 2010). In the realm of behavioral addiction, news addiction is relatively a new term and it was first coined by Pavlina (2006). According to Dillof (2008), curious aspect of the news provides evidence to its addictive nature: it makes us anxious, especially if the news is bad. It is also stated that boredom is more painful than anxiety and anxiety is a cure for boredom (McCormick, Fundeiburk, Lee, & Hale-Foiight, 2005). The news events that are unfolding provide drama and excitement for those suffering from news addiction. Boredom is associated with meaninglessness while news stories provide coherent narratives that give shape and structure to the chaos of existence. Finally, news stories offer explanations for our discontentment. It is also reported by Radwan (2015) that processing news can result in instant mood changes, which may explain why individuals may become addicted to the news. In real life, the relationship between the news a person consumes and his mood is usually more complex that it sometimes cannot be noticed on the conscious level.

Issue of behavioral addiction were targeted by many researchers (Andreassen, Torsheim, Brunborg, & Pallesen, 2012; Dong, Huang, & Du, 2011; Gearhardt et al., 2009; Nichols & Nicki, 2004); however, being a new term, news addiction is not yet explored and no scale is yet developed to measure the level of news addiction. According to Potenza (2015), people with different behavioral addiction show problematic behaviors in every field of life. Because, the essential feature of behavioral addiction is the failure to resist an impulsive, drive, or temptation to perform an act that is harmful to the person or to others (American Psychiatric Association, 2000). Each behavioral addiction is characterized by a recurrent pattern of behavior that has this essential feature with in a specific domain. The repetitive engagement in these behaviors ultimately interferes with the functioning in other domains (Grant, Potenza, Weinstein, & Gorelick, 2010).

Behavioral addiction is often preceded by feelings of tension or arousal before committing the act and pleasure, gratification or relief at the time of committing the act (American Psychiatric Association, 2000). The ego-syntonic nature of these behaviors is experientially similar to the experience of substance use behaviors. This contrasts with the ego-dystonic nature of obsessive-compulsive disorder. However, both behavioral and substance addictions may become less ego-syntonic and more ego-dystonic over time, as the behavior (including substance taking) itself becomes less pleasurable and more of a habit or compulsion (Brewer & Potenza, 2008; Potenza, Koran, & Pallanti, 2009), or becomes less motivated by positive reinforcement and more by negative reinforcement such as relief of dysphoria or withdrawal (Grant et al., 2010).

In response to environmental stimuli, the theory viewing personality through a psychophysiological approach basically considers activation systems namely behavioral activation system (BAS), which has a neurological basis (Park, Lee, Jung, Lee, & Choi, 2013). BAS is responsible for the activation behaviors in response to reward (positive affection). Moreover, this activation makes individual potentially sensitive to the rewards and creates incentives to explore them (Erdle & Rushton, 2010). Various findings have shown that an increase, decrease, or loss of balance in the operation of this system is associated with a reduced life quality and several psychiatric and psychosomatic disorders. For example, an increase in BAS activity influences substance abuse and behavioral addiction such as internet addiction (Newman, MacCoon, Vaughn, & Sadeh, 2005). Studies have also shown that high BAS sensitivity is associated with admission to addictive behaviors. In a comparative study between students with internet addiction and alcoholism, it was shown that students with internet addiction were found to be higher on BAS (Kim & Lee, 2011). These research evidences could be extrapolated to infer that behavioral addictions such as news addiction should be positively correlated with BAS.

Therefore, this specific type of behavioral addiction, that is, news addiction needs more attention for wide and better understanding of its clinical, epidemiological, neurobiological, and cultural features. The scale being developed in the present study will help in clinical practices for the formal assessment of clients with any abnormal inclination towards news and it will eventually help in the prevention and treatment of various types of behavioral addictions. It will also help explore the nomological network of news addiction and may pave the way to theory development in relation to the predictors and outcomes of news addiction. On the basis of these potentials of the

news addiction scale, one can plan the interventions for the people with news addiction. Keeping in view the importance of news addiction and its impact on the social and psychological life of victims, current research was planned to develop an indigenous scale of news addiction.

Method

The present research comprised of three studies. Study 1 dealt with the development of News Addiction Scale. In study 2, the factorial structure of the News Addiction Scale was confirmed on a separate sample through confirmatory factor analysis. The third study established the evidence for the convergent and concurrent validities.

Study 1: Development of News Addiction Scale

The development of News Addiction Scale was completed in three phases. In Phase 1, pool of initial items was generated by literature review and focused group discussions. Subsequently, final items were selected by taking opinion of subject experts. At the end of study 1, exploratory factor analysis was undertaken in order to explore the factorial structure of the News Addiction Scale.

Phase 1: Generation of item pool. Initial items were generated with the help of literature review and focused group discussions (FGDs). In order to identify the contents covered by news addiction, pertinent literature on behavioral addiction was reviewed. With the help of literature, failure to resist an impulse, distraction in routine work, repetitive engagement in the addictive behaviors, and personal reinforcement or satisfaction on being engaged in the addictive behavior were identified as the main themes of news addiction.

Three FGDs were conducted in order to generate items for contents identified from the literature review. Each focus group comprised of 6 to 8 participants and the total number of participants was 22. Participants of the first focus group were with the experts in the field of psychometrics, counseling, and clinical psychology. The sample of the experts comprised of three teachers of Department of Psychology, University of Sargodha and three participants were from the field of clinical and counseling psychology. All experts had consistently been involved in research and had broad knowledge and experience of psychometrics. This FGD provided the foundations for understanding the construct of news addiction.

The second focus group was conducted with the participants with the habituation of news. The sample was recruited through purposive sampling. In this FGD, the sample was probed relevant to the issues faced by the excessive use of news channels or reading of news through different media including electronic, print, or social media. The issues like interest to be aware of news, feeling of satisfaction after listening news, increase in repetition of news related behavior or increment of time duration for news, delayed of important works during the time of news, distraction in routine work if news were not listened to and finally avoiding any type of interruption in news like gossiping, commercial ads interval or any technical faults were found in second FGD.

With the help of these two focus groups, 86 items were generated. The third FGD was conducted to finalize the response type and appropriateness of items with the line of major themes from the first two FGDs. This focus group was conducted with the expert in the fields of psychometrics, counseling and clinical psychology. The sample of the experts comprised of two teachers of Department of Psychology, University of Sargodha, two participants were from the field of clinical and counseling psychology and one was MPhil (Applied Psychology) student and one was Ph.D. (Applied Psychology) scholar. The experts finalized the 78 items and suggested removing 8 items due to the repetitions of same domain, unclear statements, and double meaning statements. Panel of experts also suggest us to follow the Likert-type response format and gave two reasons for this suggestions. One was according to the nature of our statements, that is, specified. Second was according to nature of news addiction construct, that is, latent (unobservable individual characteristics). Additionally, they finalized that Likert-type scales are most recommended for Cronbach's Alpha, that is, used for internal consistency which is common in psychometric practices.

Phase 2: Experts' opinion. In order to confirm the response format and to eliminate the overlapping, unnecessary items and to ensure the face and content validity, committee approach was undertaken. Five experts included three MPhil degree holders, one PhD scholars, and one PhD degree holder. All judges were competent enough and were having the experience of test construction. In the light of experts' opinion, overlapping and unnecessary items were eliminated. Their suggestions were incorporated relevant to the amendments in the statements of certain items. Consequently, number of items in the item pool reduced from 78 to 30. The experts endorsed

the suggestion of the third FGD and approved 5-point agreement Likert type response format for the News Addiction Scale.

Phase 3: Exploratory factor analysis. In the final phase of Study I, an exploratory factor analysis was carried out to select final items for News Addiction Scale for determining the factorial structure of the scale. An independent sample was taken for this purpose.

Sample. Purposive sample of 247 subjects including both men ($n = 184$) and women ($n = 63$) was selected from almost all main cities of Punjab (Lahore, Multan, Bahawalpur, Dera Ghazi Khan, Faisalabad, and Sargodha). The sample ranged in age from 20 to 70 years ($M = 40.1$, $SD = 15.2$). According to the inclusion criteria of the sample, only those individuals were recruited who were at least matriculate and had at least one-hour exposure to the news (including print, electronic, and social media) per day. Majority of the respondents (about 63%) were employed in banks and hospitals, whereas 20% were students of colleges and universities and housewives. The rest of the participants were self-employed individuals in their businesses.

Measure. The initial form of News Addiction Scale comprising of 30 items was used to collect data for factor analysis. Responses were obtained on 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*) with minimum and maximum possible score was 30 and 150 respectively. There was no negative item in scale. The greater score on scale was an indicator of participant's greater news addiction and low score reflected lower level of news addiction. Demographic information breakdown is given below.

Results. In order to evaluate the adequacy of sample size, KMO and Bartlett tests were applied and KMO of .85 suggested excellent sampling sufficiency (Kaiser, 1974). Furthermore, Bartlett's test of sphericity was also found to be significant which yielded evidence for the factorability of the data. Principal axis factoring with varimax rotation method was used to explore the factor structure of NAS. Scree plot and Eigenvalues greater than 1 were the determinants of the number of factors (Kim & Mueller, 1978). Factor structure and scree plot revealed a single factor solution for the NAS. Nineteen items were retained on the basis of loading $\geq .50$ and all other items were excluded due to low loadings. Single factor solution accounted for 53.9% of cumulative variance and loadings of items ranged from .68 to .78.

Table 1

Single Factor Solution for the Items of News Addiction Scale Through Principal Axis Factoring (N = 247)

Item No.	λ	h^2	r
1	.78	.60	.81
2	.73	.53	.70
3	.71	.50	.76
4	.68	.46	.71
5	.76	.57	.77
6	.73	.52	.74
7	.74	.55	.73
8	.75	.57	.80
9	.70	.48	.80
10	.72	.52	.68
11	.77	.59	.71
12	.73	.53	.72
13	.76	.57	.64
14	.70	.49	.82
15	.75	.56	.79
16	.73	.53	.65
17	.73	.54	.70
18	.78	.61	.71
19	.71	.50	.59
Eigen Values	10.25		
Variance explained	53.96%		

Note. r = item-total correlation

The mean score of NAS was 45.23 with a standard deviation of 16.02. The potential range of the scale was 19-95; while, the actual range was 32-90. The distribution of the scale was symmetrical as coefficient of skewness was .30 indicating normal distribution of news addiction which justified the choice of parametric tests for further testing. The Cronbach's alpha of the scale was .93, which indicated that NAS was an internally consistent measure of news addiction.

Study 2: Confirmatory Factor Analysis

The factorial structure of the NAS as explored in the EFA in Study 1 was subjected to confirmatory factor analysis; while, IBM AMOS 20.0 version was used in order to confirm the measurement model of NAS for ensuring the factor structure and dimensionality of the instrument.

Sample. An independent sample of adults ($N = 240$) including both men ($n = 177$) and women ($n = 63$) was purposively recruited from Lahore, Multan, Bahawalpur, Dera Ghazi Khan, Faisalabad, and

Sargodha. The sample ranged in age from 20 to 60 years ($M = 30.5$, $SD = 16.2$). The minimum requirement of education of sample was matriculation and all participants had at least one-hour exposure to the news per day. Majority of the respondents (about 60%) were employed in banks and hospitals, whereas 23% were students of colleges and universities and housewives. The rest of the participants were self-employed individuals in their businesses.

Instrument. A 19-item News Addiction Scale was used to collect data on news addiction on a response format of 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Subsequently, minimum and maximum possible score was 19 and 95; respectively. The scale demonstrated excellent level of internal consistency in study I ($\alpha = .93$). None of the items was reverse coded.

Procedure. Participants of the study were approached at different locations (homes, schools, colleges, universities, banks, and hospitals due to participants' nature of job. Main purpose of the study was explained to them. After briefing, the informed consent was taken from participants by assuring that the information taken from them will be kept confidential and would be used only for study purpose and then questionnaire was given to a sample of 300 subjects and were requested to provide honest and accurate information. Maximum number of participants returned the questionnaire on the spot while others took some time. At the end, participants were appreciated and thanked for their cooperation. Small number of sample entities was recruited in order to counter the problem of losing data, incomplete data, random responses, and failure to get the form back. Participants showed highest support and cooperation for gathering data, and 268 out of 300 forms were returned, while 240 were found to be suitable for study. Factor analysis was carried out after ascertaining assumptions (i.e. sample size, normality, outlier detection, correlation matrix, and commonalities).

Results. The confirmatory factor analysis of the NAS demonstrated that the data fitted well with the proposed measurement model as indicated through various indices of model fit ($\chi^2 (151) = 267.81$, $p = .00$; $CFI = .96$; $GFI = .91$; $RMSEA = .05$; $p_{close} = .18$).

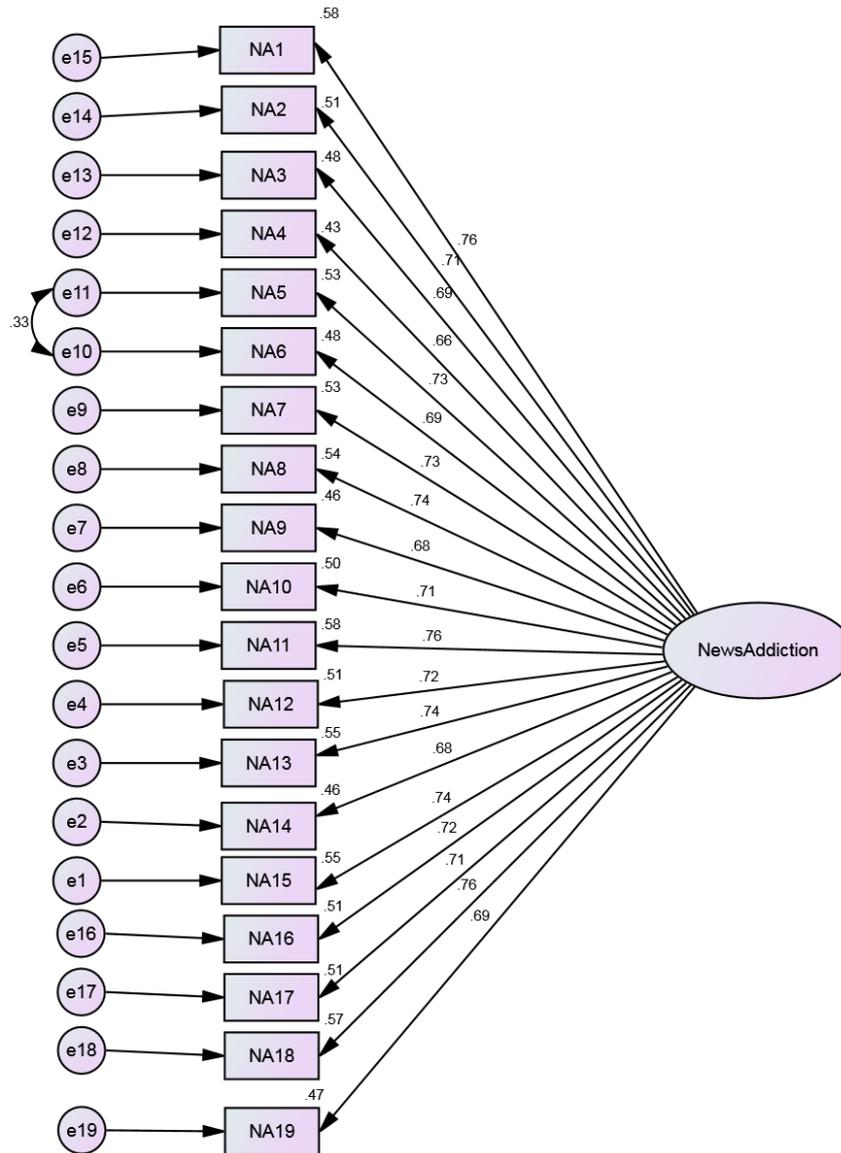


Figure 1. Measurement Model of News Addiction Scale.

Results presented in Figure 1 based on confirmatory factor analysis revealed that the factor loadings ranged from .68 to .78 and a single factor comprising of 19 indicators demonstrated excellent fit to the data. The factorial structure of the scale also demonstrated convincing evidence for the construct validity of the scale as the 19

items had very high loadings on the latent single factor of news addiction.

The mean score of NAS was 40.15 with a standard deviation of 15.21. The potential range of the scale was 19-95 while the actual range was 30-90. The distribution of the scale was symmetrical as coefficient of skewness was .57 indicating normal distribution of news addiction which justified the choice of parametric tests for further testing. The Cronbach's alpha of the scale was .95, which indicated that NAS was an internally consistent measure of news addiction.

Study 3: Determination of Psychometric Properties of News Addiction Scale

Study 3 was intended to establish the empirical evidence for the validity of the NAS. For this purpose, evidences for the concurrent validity and convergent validity of the NAS were determined.

Sample. An independent sample ($N = 100$) was purposively recruited from Lahore, Multan, Bahawalpur, Dera Ghazi Khan, Faisalabad, and Sargodha. The sample's age ranged from 20 to 70 years ($M = 40.1$, $SD = 15.2$). The minimum requirement of education of sample was matriculation. The inclination towards news was asked and then respondents were included in study if they were inclined.

Measures. NAS developed in the first study was used to collect data on news addiction. An open-ended question was also included, which asked the respondents to indicate the amount of time (in hours) that they spent while listening, reading, watching, or discussing news (using any form of media including print, electronic, and social media).

Behavioral Activation Subscale. A 13-item Behavioral Activation Subscale of Behavioral Inhibition and Behavioral Activation Scale (Carver & White, 1994) was used to measure behavioral activation on a 4-point Likert scale (*very true for me* = 4 to *very false for me* = 1). The score ranged from 13 to 52 with no negatively phrased item. The high score of BAS showed the high sensitivity of activation of behavior and lower score showed vice versa. According to Abbasi, Sadeghi, Pirani, and Vatandoust (2016), the two week test-retest reliability of BAS scale was found to be .78. For current sample, Cronbach alpha of .86 was achieved.

Results. Outcomes of the Pearson Product Moment correlation indicated that News Addiction Scale (NAS-19) appeared to have convergent validity as it was found to be positively correlated with Behavioral Activation Scale ($r = .61, p < .001$).

Table 2

Means, Standard Deviations, Cronbach's Alpha and Correlation Matrix of News Addiction and Behavioral Activation (N = 100)

Scales	<i>M</i>	<i>SD</i>	<i>A</i>	1	2
1. News Addiction Scale	46.35	5.33	.93	-	.61*
2. Behavioral Activation Scale	64.86	21.26	.86		-

* $p < .001$.

In order to establish the concurrent validity of the NAS, the median duration of exposure to the news per day is calculated, which came out to be 3.03 hours. On the basis of this median value, the mean score of individuals who have less than 3-hour exposure to the news is compared to that of individuals who had ≥ 3 -hour news exposure per day through independent sample *t* test. The findings reveal significant mean difference [$t(98) = 4.04, p < .001, \text{Cohen's } d = 2.83$] in news addiction as mean score on NAS of individuals with more exposure to the news is significantly higher than that of individuals with less exposure to the news. This established the evidence for the concurrent validity of the NAS because it accurately distinguish between the individuals with heavy exposure to the news and the ones with relatively low exposure to the news.

Discussion

The main purpose of the present study was to construct a valid and reliable screening instrument to assess news addiction for Pakistan people. Based on review of the literature and focus group discussion, 86 items were developed on the identified themes. In the light of FGDs and experts' opinion, overlapping and unnecessary items were eliminated. Consequently, number of items in item pool reduced from 86 to 30. In order to assess the psychometric characteristics of NAS, data were drawn on two different occasions; before EFA (sample 1 = 247 participants) and before CFA (sample 2 = 240 participants). While sample 1 was used to determine the dimensional structure of NAS using exploratory factor analysis; sample 2 was used to confirm the dimensional structure which is obtained using confirmatory factor analysis, which provided evidence

for the construct validity of the scale. As a result of the exploratory factor analysis, one factor emerged comprising 19 items. Confirmatory factor analysis provided evidence of the single factor structure.

NAS shows positive correlation with behavioral activation as BAS is accountable for the activation behaviors in response to compensation (positive affection). In other words, BAS makes individual potentially sensitive to the rewards and creates incentives to explore them. The result was supported by the previous studies which were conducted on various types of behavioral addiction such as Facebook and internet addiction (Yen, Ko, Yen, Chen, & Chen, 2009). Since watching, reading, or listening to the news satisfies the news addiction, therefore, activation of BAS is likely to be one of the underlying neural mechanism of news addiction. Thus, the significant and strong positive correlation between NAS and BAS establishes convincing evidence for the convergent validity of the NAS. Furthermore, the significantly higher mean score of individuals on the NAS who had more duration of exposure to the news as compared to that of their counterparts with less duration of exposure to the news provided evidence for the concurrent validity of the NAS.

Despite the multiple recent accounts for the explanation of behavioral addictions (Petry et al., 2016; Starcevic & Aboujaoude, 2017), the role of conditioning or associative learning still needs to be investigated in behavioral addictions. The conceptualization of behavioral addiction in terms of associative learning appears to be the most parsimonious explanatory model of the contemporary status of behavioral addictions in the DSM-5 (Richard, James, & Tunney, 2017). Majority of the studies on the behavioral addictions highlighted that the addictive behaviors are reinforcing and may become habitual through operant conditioning (Andreassen, 2015; Grall-Bronnec et al., 2015; Shepherd & Vacaru, 2016).

In accordance with the pertinent literature, it is believed that addiction to news may also develop through the process of operant conditioning as being abreast of the latest happening in one's sociocultural context may boost one's self-esteem and the arousal that one may experience after listening to the sensational news may act as powerful reinforcers for sustaining the news addictive behavior. It is also imperative to observe the source of reinforcement. Richard et al. (2017) urged that research should investigate whether the reinforcement is coming from the addictive behavior itself or there are certain environmental, situational, or circumstantial cues that could lead to the addictive behavior. In case of news addiction, it is believed that reinforcement is emanating from both the sources. Listening to

the news may foster a sense of being expert and well-informed about the national and international issues, which is the inherent reinforcing value of the news. The hourly news breaks, breaking headlines, the music associated with hourly news, the news tickers running even on the entertainment channels may serve as the situational cues that reinforce the addictive behavior.

Limitations and Implications

There have been some notable limitations of the present study. Data were only collected from Pakistani adults. Consequently, the findings are not generalizable to other countries and other provinces of Pakistan. All data were collected through self-report measure, which may lead to common method variance. Given that the NAS was developed and validated on Pakistani samples, it need to be validated in other languages and cultures to further test its factor structure, validity, and reliability. The NAS can be used to assess the consequences of news addiction by exploring its relationship with different personality dimensions, depression, social anxiety, work productivity and many others variables, which seem to be related to behavioral addiction.

Conclusion

The present study provided groundwork for investigation of the construct of news addiction. It further helped in better understanding of the phenomenon of news addiction from cultural-specific vantage point. The results of this study supported the notion that news addiction is a construct that had negative connotations in our culture. In the light of findings of the current research, news addiction could be defined as a news addict gets a sense of pleasure out of listening to the news. This feeling of gratification reinforces one to repeat their behavior of listening to the news again. Such a repetitive behavior though gives one a sense of satisfaction, it disturbs one's daily routine and hampers in one's completion of important tasks in hand. Based on the sample, assumption is tested, it is concluded that the 19-item NAS has good psychometric properties with an established single factor model confirming the structure with an excellent fit.

References

- Abbasi, M., Sadeghi, H., Pirani, Z., & Vatandoust, L. (2016). Behavioral activation and inhibition system's role in predicting addictive behaviors of patients with bipolar disorder of Roozbeh Psychiatric Hospital. *Iranian Journal of Nursing and Midwifery Research*, 21(6), 616-625.

- Adams, J., & Kirkby, R. J. (2002). Excessive exercise as an addiction: A review. *Addiction Research and Theory, 10*(5), 415-438.
- All Pakistan Newspaper Society. (2017, December, 1). *The rise of media in Pakistan*. Retrieved from <http://www.apns.com.pk/contact-us/index.php>
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (DSM-IV TR). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publication.
- Andreassen, C. S. (2015). Online social network site addiction: A comprehensive review. *Current Addiction Reports, 2*(2), 175-184.
- Andreassen, C. S., Hetland, J., & Pallesen, S. (2010). The relationship between workaholism, basic needs satisfaction at work and personality. *European Journal of Personality, 24*(1), 3-17.
- Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook Addiction Scale. *Psychological Reports, 110* (2), 501-517.
- Beard, K. W. (2005). Internet addiction: A review of current assessment techniques and potential assessment questions. *Cyber Psychology and Behavior, 8*(1), 7-14.
- Brewer, J. A., & Potenza, M. N. (2008). The neurobiology and genetics of impulse control disorders: Relationships to drug addictions. *Biochemical Pharmacology, 75*(1), 63-75.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*(2), 319-328.
- Choliz, M. (2010). Mobile phone addiction: A point of issue. *Addiction, 105*(2), 373-374.
- Clark, M., & Calleja, K. (2008). Shopping addiction: A preliminary investigation among Maltese university students. *Addiction Research and Theory, 16*(6), 633-649.
- Dillof, M. (2008). *Are you addicted to the news?* Retrieved from <http://deeperquestions.com/news-addiction-2/>
- Dong, G., Huang, J., & Du, X. (2011). Enhanced reward sensitivity and decreased loss sensitivity in Internet addicts: An fMRI study during a guessing task. *Journal of Psychiatric Research, 45*(11), 1525-1529.

- Erdle, S., & Rushton, J. P. (2010). The general factor of personality, BIS-BAS, expectancies of reward and punishment, self-esteem, and positive and negative affect. *Personality and Individual Differences, 48*(6), 762-766.
- Fisher, S. (1994). Identifying video game addiction in children and adolescents. *Addictive Behaviors, 19*(5), 545-553.
- Gearhardt, A. N., Corbin, W. R., & Brownell, K. D. (2009). Preliminary validation of the Yale Food Addiction Scale. *Appetite, 52*(2), 430-436.
- Grall-Bronnec, M., Bulteau, S., Victorri-Vigneau, C., Bouju, G., & Sauvaget, A. (2015). Fortune telling addiction: Unfortunately, a serious topic about a case report. *Journal of Behavioral Addictions, 4*(1), 27-31.
- Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *The American Journal of Drug and Alcohol Abuse, 36*(5), 233-241. doi: 10.3109/00952990.2010.491884
- Griffiths, M. (1990). The cognitive psychology of gambling. *Journal of Gambling Studies, 6*(1), 31-42.
- Griffiths, M. (1995). Technological addictions. *Clinical Psychology Forum, 76*(1), 14-19.
- Griffiths, M. D. (2012) Internet sex addiction: A review of empirical research. *Addiction Theory and Research, 20*(1), 111-124.
- Griffiths, M. D., King, D. L., & Delfabbro, P. H. (2012). Simulated gambling in video gaming: What are the implications for adolescents? *Education and Health, 30*(1), 68-70.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36.
- Keepers, G. A. (1990). Pathological preoccupation with video games. *Journal of the American Academy of Child & Adolescent Psychiatry, 29*(1), 49-50.
- Kim, D. Y., & Lee, J. H. (2011). Effects of the BAS and BIS on decision-making in a gambling task. *Personality and Individual Differences, 50*(7), 1131-1135.
- Kim, J. O., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues*. New York: Sage.
- Malenka, R. C., Nestler, E. J., & Hyman, S. E. (2009). *Molecular neuropharmacology: A foundation for clinical neuroscience* (2nd ed.). New York: McGraw-Hill.
- McCormick, B. P., Fundeiburk, J. A., Lee, Y. & Hale-Foiight, M. (2005). Activity characteristics and emotional experience: Predicting boredom and anxiety in the daily life of community mental health clients. *Journal of Leisure Research, 37*(2), 236-253.

- Morgan, W. (1979). Negative addiction in runners. *Physician and Sports Medicine*, 7(1), 56-69.
- Newman, J. P., MacCoon, D. G., Vaughn, L. J., & Sadeh, N. (2005). Validating a distinction between primary and secondary psychopathy with measures of Gray's BIS and BAS constructs. *Journal of Abnormal Psychology*, 114(2), 319-330.
- Nichols, L. A., & Nicki, R. (2004). Development of a psychometrically sound Internet Addiction Scale: A preliminary step. *Psychology of Addictive Behaviors*, 18(4), 381-388.
- Parashar, A., & Varma, A. (2007). Behavior and substance addictions: Is the world ready for a new category in the DSM-V. *CNS Spectrums*, 12(4), 257-263.
- Park, S. M., Park, Y. A., Lee, H. W., Jung, H. Y., Lee, J. Y., & Choi, J. S. (2013). The effects of behavioral inhibition/approach system as predictors of internet addiction in adolescents. *Personality and Individual Differences*, 54(1), 7-11.
- Pavlina, S. (2006). *Overcoming news addiction*. Retrieved from <https://www.stevepavlina.com/blog/2006/09/overcoming-news-addiction>
- Petry, N. M., Rehbein, F., Gentile, D. A., Lemmens, J. S., Rumpf, H. J., Mößle, T., ... & O'Brien, C. P. (2016). Griffiths et al.'s comments on the international consensus statement of internet gaming disorder: Furthering consensus or hindering progress? *Addiction*, 111(1), 175-178.
- Potenza, M. (2015). Perspective: Behavioral addictions matter. *Nature*, 522, 7557-7560. doi:10.1038/522S62a
- Potenza, M. N., Koran, L. M., & Pallanti, S. (2009). The relationship between impulse control disorders and obsessive-compulsive disorder: A current understanding and future research directions. *Psychiatry Research*, 170(1), 22-31.
- Rachlin, H. (1990). Why do people gamble and keep gambling despite heavy losses? *Psychological Science*, 1(1), 294-297.
- Radwan, F. (2015). *Why are some people addicted to the news?* Retrieved from http://www.2knowmyself.com/whysomepeople_addicted_to_news.
- Richard J. E. James, R. J. E., & Tunney, R. J. (2017). The need for a behavioral analysis of behavioral addictions. *Clinical Psychology Review*, 52, 69-76.
- Shepherd, R. M., & Vacaru, M. (2016). What is the future path of recovery for excessive psychic hotline callers? *International Journal of Mental Health and Addiction*, 14(6), 1039-1046.
- Shirkey, C. (2008). *Here comes everybody: The power of organizing without organizations*. London: Penguin.

- Shotton, M. (1991). The costs and benefits of computer addiction. *Behavior and Information Technology*, 10(3), 219-230.
- Starcevic, V., & Aboujaoude, E. (2017). Internet addiction: Reappraisal of an increasingly inadequate concept. *CNS Spectrums*, 22(1), 7-13.
- Stein, D. J., Hollander, E., & Rothbaum, B. O. (2010). *Textbook of anxiety disorders*. Washington, DC: American Psychiatric Publication.
- Yen, J. Y., Ko, C. H., Yen, C. F., Chen, C. S., & Chen, C. C. (2009). The association between harmful alcohol use and Internet addiction among college students: Comparison of personality. *Psychiatry and Clinical Neurosciences*, 63(2), 218-224.

Received 28 January 2020

Revision received 28 February 2021