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## **Construction and standardisation of smartphone dependence scale**

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### **Abstract**

There has hardly been anyone who may survive without a smartphone these days. This device has penetrated into the lives of human beings in such a manner that it has over powered the day to day activities. This research aimed to develop Smartphone Dependence Scale (SDS-YH). It was used to survey in 2020 with high reliability and validity. The purpose of this study was to explore the dependence of individuals on smartphone and identify the Mean, SD, Correlation, Validity and reliability of the Smartphone Dependence Scale (SDS-YH). The sample consisted of 600 individuals from all over India. The year 2020 was a year of catastrophe with the sudden onset of COVID-19. The investigators observed a sudden augmentation of usage of gadgets and ICT devices due to switching over to online mode as the whole world was pushed into the confinements of their homes. The scale was the need of the hour. 55 items were finalized after pilot testing. The statistical techniques were applied through SPSS. The findings of the research indicated N=600, Mean =149.34, SD= 29.08, Correlation = 0.88 and Reliability= 0.91.

**Keywords:** Construction, smartphone dependence scale

### **Introduction**

Smartphones play a crucial role in everyone's life these days. They have tremendous effect on the life of people of all strata of the society. The onset of COVID-19 has intensified the usage of smartphones in each sector of society. Learning being imperative to growth, smartphone has assisted learning activities in all spheres of life. The prevalence of use of smartphone has continuously been on the rise since its invention. Though smartphone has made the Earth a smaller place and its contributions towards the human society have been Immense but on the other hand the chains of dependence of human on smartphone have been extremely strong. There has hardly been anyone who may survive without a smartphone these days. This device has penetrated into the lives of human beings in such a manner that it has over powered the day to day activities. Be it a student, a housewife, a shopkeeper, a business magnet, a senior citizen, smartphone has penetrated into everyone's life. Humans have been using it for diverse purposes.

### **Development of the test**

A Likert type five point scale was developed to measure the dependence of people on Smartphone in their daily lives. Before constructing the scale, concerned literature- offline and online, discussions with different strata of the society and psychologists were held. As the scale was to be used for 600 people aged 16 plus years, hence students of schools, colleges, universities, teachers, lecturers, professors, working professional, non-working male & female, retired personnel etc. were confided in to develop questions. They were to judge whether the items measured the dependence on smartphone. Resultantly, a preliminary form of a Likert type five point scale having 60 items was constructed. This draft of questions was shared with all the strata of the society. Errors in the language of four questions and repetition of one of the questions was pointed out. The investigators made the required changes. As the items were arranged in a random manner, the suggestions about the sequencing of the questions were also brought into consideration and the final draft of SDS was prepared with 55 questions. Then, the SDS- five points Likert Scale was tested through Pilot testing. Only such items were retained which were unanimously judged. The final version of the test has been standardized on 600 people all over India in the age above 16 years.

**Standardization procedure**

The scale was administered (Both in offline and online modes) on a sample of 600 individuals all over India.

**Validity**

The validity of the scale was measured through judgement by people undertaking the scale so that the representativeness of the sample of items can be confirmed. Item analysis validity coefficients were determined for each item by biserial correlation method and strong relationship between values only such items were retained which yielded.

**Reliability**

Reliability of the Smartphone Dependence Scale was determined by various methods. Firstly, Reliability of the scale was determined by Cronbach-Alpha method. Next, the scale was tested by split-half method. The test was first divided into two equivalent halves and the correlation calculated for these half tests. From the reliability of the half test, the self-correlation of the whole test was calculated by using Guttman Split-Half Coefficient method. Test-retest method also showed high reliability which is tested by Pearson Correlation.

**Table 1:** Table are given below:

Method Used	Reliability Coefficient
Cronbach’s Alpha	.91
Test-Retest method	.88
Guttman Split-Half Coefficient	.867
Spearman-Brown Coefficient	.872

**Administration of the test**

It is a self-administering scale which can be used on an individual basis as well as with reasonable sized groups. General instructions are printed on questionnaire Smartphone Dependence Scale. There is no time limit to fill the questionnaire. However, the time normally taken by the subjects is approximately half an hour. Before administering the scale, it is advisable to emphasize verbally that the ticked response should be checked before handing back over to the instructor. The subjects are to be assured that their responses would be kept confidential. Moreover the emphasis should be put that all the questions should be answered and there is no wrong and right response. Hence a frank option is expected.

**Scoring**

Inventory can be scored by hand only on the hard copy. The scale is designed to be an aid in finding the dependence. The scoring is on Five Point alternatives, viz., Never, Rarely, Sometimes, Often and Always which is as per Table-4.

**Table 2:** Scoring System

Alternatives	Never	Rarely	Sometimes	Often	Always
Score	1	2	3	4	5

The range of score is 55 to 275.

**Table 3:** Norms for Interpretation of Level of Job Satisfaction

221-275	Highly dependent on Smartphone
166-220	Above average dependence on Smartphone
111-165	Moderately dependence on Smartphone
56-110	Below average dependence on Smartphone
0-55	Not dependence on Smartphone

**Statistical results**

Statistical results for the Smartphone Dependence Scale for 600 individuals have been given in Table-4.

**Table 4:** Scale Statistical Results

N	Mean	Variance	Std. Deviation	No. of Items
600	149.3433	845.949	29.08520	55

Statistical Results for Smartphone Dependence Scale show Mean value as 149.3433 and Variance as 845.949. SD value for the sample of 600 is 29.0820 and the number of items in the scale are 55.

**Conclusion**

Looking at the various statistical measures of the test, the scale in hand is a valid and satisfactory tool for measuring dependence of individuals on smartphones. This can lead to further research and investigation in the area.

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