FACTOR ANALYSIS OF IMPACT OF SMARTPHONE ON USERS

(CASE STUDY IN AHLONE TOWNSHIP)

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Abstract

Mobile smartphones had improved communication in society via the social media. Most of the smartphone users face were locked on the smartphone screen. That was a significant challenge for the positive and negative impacts. The study focuses on identifying different dynamic factors among the impacts on smartphone users with age group between 15 to 49 years at Ahlone Township. In this study, a two-stage random sampling was used to obtain the sample respondents. A face to face interviewing method, was applied to collect data from 356 respondents at randomly selected wards. The interview questions were constructed by a five-point Likert scale and offline data collection tools (KoBoToolbox) was used. According to factor analysis, it was found that the main impact of smartphones are "Social", "Health", "Communication and Emotional", "Addiction" and "Negative Impact". Although almost all the respondents suffer from health-related symptoms, two symptoms namely Tinnitus and Occiput pain were associated with frequent usage to the smartphone. Moreover, the study recommended to provide health knowledge and educational awareness to the public. Further researches on identified factors, using other models are be recommended.

Keywords: smartphone, health-related symptoms, different dynamic factors

1. Introduction

Mobile smartphones improved communication among society, hence, the expression, Social Media. Users thought to get complete update information and communication network. Some were not using other items such as newspaper, journal, television, radio and books. Smart phone is very Frequent related with people as accessories. Mobile smartphone users have gone up to 33 million out of 54 million

people in Myanmar, Smartphone usage rate is reported at 80% (Digital in Asia,2017). Internet users in Myanmar increased by 97% in 2017, 70% are using smartphone (Internet in Myanmar, 2017).

In 2018, there were 20,335,000 Facebook users in Myanmar. The majority of them were men 62%, and women 38% and also people aged 18 to 34 were the largest Facebook user group (NapoleonCat, 2018). Nowadays, smartphones had become more essential accessories in society. Most of the smartphone users face were locked on the smartphone screen. That was a significant challenge on the positive and negative impacts. In Myanmar, millions of smartphone users can get not only social happiness, improve knowledge but also can get depression, and unhappiness, and anger issues.

Therefore, the study aims to find out the main key factors related to the impact on smartphone users were explored by using factor analysis in Ahlone township. Therefore, the study aims to find out the main key factors related to the impact on smartphone users were explored by using factor analysis in Ahlone township. Then to describe the socio demographic characteristic of smartphone users, and to explore the association between frequent usage of smartphone symptoms.

2. Data and Methods

In this study, the two stages sampling method was used to select the smartphone users in Ahlone Township. This survey was conducted to identify to the main key factors for the Smartphone user. The data collection completed in May 2019. In addition, descriptive analysis was used to identify the socio-demographic situation of smartphone users, and chi-square tests is used for variables which were Health symptoms and Frequent usage to Smartphone. And Factor analysis was used to find out the impact of smartphone on users.

The study was conducted in Ahlone township, Yangon. It covers 10269 household and 50689 population. There are 10 wards in the township. There were three different types of household density at the township. It was based on their ward area scale and the primary data of permanent living household in Ahlone township. The required sample size was calculated using the following "unknown sample size for estimation of population formula". The sample size needs to collect 356 Households respondents' smartphone users age between (15 to 49) years at selected three wards.

The data collection used KoBoToolbox (Offline data collection system). It had more effect on data collection mechanism. In the study, the initiative was to collect the minimum sample size for pilot testing. Based on the results of pilot testing, assessment was continued in the data collection process. The data collection method used Face to Face interview. The study constructed questionnaire which included five-point Likert scale (1 being strongly disagreed and 5 being strongly agreed), and quantitative data collection method.

Firstly, collected data were checked daily updated figure in KoBoToolbox dashboard. The completed sample size collected from KoBoToolBox were downloaded from the data dashboard. Then, data were analyzed by using Statistical Package for the Social Science (SPSS) Version 24 and Microsoft Spreadsheet Excel software (2016). In this analysis, socio-demographic characteristics of smartphone users and their correlations were calculated by descriptive statistics, and Factor Analysis model and parallel test.

3. Result and Discussion

In this study, the number of male respondents was 12% more a female respondent rate in Ahlone township. Age group between 25 to 39 years highly responded to this study. The education status 59% of respondents have bachelor degree. According to the Myanmar Information Management Unit Township Profile, 98.5% was literate for 15-year-olds and above at Ahlone Township.

Table (1) Distribution of Smartphone Users by Occupations

Occupations	Number of Respondents	Percentage
Student	5	1.4
Government employees	24	6.7
Private employees	52	14.6
SME	183	51.4
NGO	39	11.0
Jobseeker	15	4.2
dependence	8	2.2
Own Business	18	5.1
Daily Worker	7	2.0
Other	5	1.4

Total	356	100.0

In Ahlone township, the total number of employments to population ratio are total 52.82 (male:66.30, female:40.55) in 2014 (source from Population and Housing Census). A significant increase can be seen in 51.4% of respondents who are using smartphone as SME owner at Ahlone township. However, respondents did not respond "No Income" category. Therefore, the total number of respondents were totally income by individually. It was having two options, direct income and indirect income. During the assessment, 94.4% of respondents were have direct income and other 5.6% of respondents were have indirect income. Moreover, most of the respondents was significant using with Mi Brand Smartphone at Ahlone township.

Table (2) Distribution of Respondents Primary using Telecom Service

Telecom Operators	Number of Respondents	Percentage
MPT	154	43.3
Telenor	96	27.0
Ooredoo	65	18.3
Mytel	41	11.5
Total	356	100.0

Nowadays, most of the people are using more than one Telecom SIM card. That depend on their service package and mobile bill deduction rate per minutes. Therefore, most of the respondents were using multiple SIM card. According to the respondents MPT and Telenor companies were highly usage by respondents at Ahlone township. About 61% of respondents were suffered in Chronic Nuchal pain, about 50% of respondents were suffered Headache and occiput pain, round about 35% of respondents were suffered wakeful, Dizziness, Amnesia, Tinnitus and eye pain. 21% of the respondents were suffered redeye. Therefore, the number of respondents smartphone users were have some affect in health status. In additional, Tinnitus and Occiput-pain of two symptoms were an association between Frequent usage to the smartphone.

Table (3) Result of Chi Square Test for Association between Frequent usage of Smartphone and Symptoms

Symptoms	Pearson Chi-Square Value	Degree of Freedom	Significance
Tinnitus within one month	6.123	1	**0.013**
Headache within one month	0.824	1	0.364
Dizziness within one month	0.405	1	0.525
Absent minded within one month	0.019	1	0.891
Wakeful within one month	2.379	1	0.123
Red eye within one month	0.054	1	0.817
Eye pain within one month	2.227	1	0.136
Occiput pain within one month	9.289	1	**0.002**
Back-pain within one month	0.071	1	0.790

In the reliability analysis, the Cronbach's alpha coefficient was calculated as 0.888 by examine on the 40 items total statistics.

Table (4) Reliability Analysis Result

Cronbach's Alpha	N of Items
.888	40

Therefore, reliability test is high level of internal consistency and accepting the reliability test. SPSS Output for Kaiser-Meyer-Olkin (KMO) and Bartlett's Test, Principal component and factor analysis are very suitable to analyze the survey data since KMO measure of sampling adequacy is 0.846 and Bartlett's Test of Sphericity sig is 0.000.

Table (5) Kaiser Meyer Olkin (KMO) and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.846
Bartlett's Test of Sphericity	Approx. Chi-Square	5290.84
	Df	780
	Sig.	0.000

Factor analysis first run, output of total variance was presented to extract associated eigenvalues with 12 common factors which was eigenvalue greater than 1. The percentage of total variance was described 22.685%, 6.052%, 5.053%, 4.651%, 4.326%, 3.713%, 3.486%, 3.263%,2.904%, 2.841%, 2.728% and 2.611% respectively. This was 64.312% of the total variance attributable to 12 factors and other 28 factors are only about 35.688% of the variance.

Second section presents the smallest average squared partial correlations was 0.114 and the smallest average 4rth Power partial correlation is 0.0004 and the number of factors corresponding value was 5. Therefore, MAP test was indicated that five factors.

O'Connor's Parallel Analysis was indicated that six factors and Velicer's Minimum Average Partial (MAP) Test were indicated that five factors in the Original 1976 MAP test, and the Revised 2000 MAP Test.

Factor analysis second run, according to the MAP test analysis, the majority of different dimension on smartphone user respondents have five factors in this study. Therefore, second run of factor analysis was selected for five factors extract in Factor Analysis Extraction.

The results of second run total variance explained five factors of initial eigenvalues factors was same in five factors of First run. The percentage of total variance in second run was 22.685%, 6.052%, 5.053%, 4.651% and 4.326% respectively. These factors contribute 42.766% of the total variance. The rest of 35 factors were only about 57.234% of the variance.

A sample of 356 Smartphone users (respondents) were surveyed to identify the important factors among their perceptions, awareness and practices. The factor analysis results described that five factors out of twelve were found the importance factor 1: Social, factor 2: Health, factor 3: Communication and Emotional, factor 4: Addictions, factor 5: Negative Impact. These five factors solutions were in line with the Velicer's Minimum Average partial (MAP) Test.

4. Conclusion

In this Era, although mobile smartphone usage was not strange but health awareness and impact of smartphone knowledge are weak. Thus, this study aimed to find out key-main factors which were the impacts of using smartphone. Moreover,

two-stage random sampling was used to select the required samples, and the factor analysis was used to identify the impact of smartphones among 15 to 49 years who were permanently living in Ahlone township.

This study found that a more important related factor to the impact of smartphone usage, that of great happiness and also depression, unhappiness, addiction and anger issue. The additional researches are highly recommends to identify impacts on smartphone user that could be applied in social, health, communication and emotional, addiction and Negative Impact sectors by using a similar method of study. In addition, some of the respondent's smartphone users suffer some effects on health status. Therefore, frequent usage of smartphones and some symptoms were an association with the respondents, this analysis was based on socio demographic data.

Based on the study's findings, would like to suggest in order to follow key message considerations. Authorities should provide Health knowledge and awareness through the public alert campaigns. Department of Public Health, should initiate the health care strategy for Health knowledge on the impact of smartphone. After strategy and policy, key messages poster should be distributed to the state and regional level. Alternatively, TV channel, Radio FM, Social media should be broadcasted. For further research using identified factors, more deeply indented and to explore using other models should be recommended for the impact of smartphone.

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