



The Relationship Between Smartphone Addiction and Neck Pain Prevalence among Older Population: A Cross Sectional Study

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<i>Article History</i>	<i>Abstract</i>
<p>Received: 22 June 2023 Revised: 04 Sept 2023 Accepted: 17 October 2023</p> <p>CC License CC-BY-NC-SA 4.0</p>	<p>Introduction: After pandemics of covid 19, world interaction has been more through social media and through virtual. With lots of benefit of the technology, there is a pitfall of this also. Because of this, usage of smart phone has increased so addiction of it occurs even in elderly population. Due to their posture of using smart phone, and its addiction, there may be chances of having additional neck pain and disabilities. So, here is the need to see whether their smart phone addiction has any role in their neck pain prevalence.</p> <p>Methodology: The study examined 90 elderly population from Ahmedabad by random table sampling, in the age group of 60-70 years. Participants were asked to fill a Performa with the questionnaires of smart phone addiction scale (SAS) and neck disability index (NDI). Level of significant was kept at 5%. Spearman correlation coefficient was used to correlate between both SAS and NDI.</p> <p>Result: From 90 participants, there was 36 females and 54 males. Mean±SD of SAS and NDI was 107.8±22.5 and 7.4±4.99 respectively. Spearman correlation coefficient showed a significant Moderate positive correlation between SAS and NDI ($r=0.649$, $p<0.001$).</p> <p>Conclusion: The study showed the positive correlation between smartphone addiction and musculoskeletal problems in neck in elderly population.</p> <p>Keyword: Smartphone, Technology, Helath</p>

1. Introduction:

Smartphone use has become ubiquitous over the past decade. This has been accompanied by growing concerns around excessive and potentially harmful use (1). There are emerging reports of problematic behaviour patterns in relation to smartphone use which mirror those of addiction (2). Although smartphone addiction is not formally recognized as a clinical diagnosis, it is a subject of active research.

Smartphone addiction, also referred to as “pathological smartphone use” or “smartphone dependence,” is defined as a people’s uncontrollable use of their smartphones; it can lead to serious harmful activity at work, while studying, and in daily life. Smartphone addiction has the properties of saliency, impulsivity, and withdrawal symptoms [3]. It is widely acknowledged that smartphone addiction not only adversely affects mental health, but can also be detrimental to learning, life, and physical health. Further, smartphone addiction has been associated with many health outcomes including fatigue, head-aches, musculoskeletal pain, blurred vision, and poor sleep quality. In addition, smartphone addiction has become a serious public health concern that urgently requires immediate prevention and intervention. Although extensive research has been conducted on smartphone addiction in the past few years, most studies have focused primarily on college students [4].

According to the study by YOUNGOV, the more senior citizen relies on smartphone than the younger generation, said a report. As many as 67% of the India’s urban online population couldn’t live without their smartphone,

the largest majority of whom are aged between 60 and 65. The survey conducted among over 1,000 citizens in India, shows that 79% of respondents aged 60-65 need their smartphone the most.[5]

Neck pain has become a prominent health problem in recent decades, with significant Socioeconomic consequences for individuals, families, communities, healthcare system [6.7]. It was reported that between 8.2% and 90% of musculoskeletal pain in different body Parts was due to the use of smartphones [8].

There are many studies have been done on smartphone addiction and musculoskeletal problem as well as psychological factors on young population but very few studies are on elderly population. So here is the need to see the whether smartphone addiction affects the cervical spine function on elderly population.

2. Materials and Methods

- Study Type: correlation study
- Study Sample: Elderly population
- Sampling method: simple random sampling
- Sample size: 90

Inclusion criteria:

- elderly individuals from age 60-70 years
- Both male & female who are using smart phone more than one hour per day
- People having neck pain more than 3 times per week

Exclusion criteria:

- any pathology related to neck and upper limb
- any systemic pathology

Nature and purpose of the study was explained and Informed oral consent was taken from the participants. The period for data collection in the study was from January to May 2023. The questionnaire were distributed which consisted of 4 Parts including, 1) Demographics (Name, age, gender, Hand dominance) and hours of mobile usage per day Which was classified according to Gustafsson et al, 2) Smartphone Addiction Scale (SAS) to measure self-Reported addiction to smartphone use, 3) Neck Disability Index (NDI) for any abnormal symptoms of neck Functions. Data analyses were performed using SPSS 22 software For Windows. Spearman correlation coefficient was used to assess the relationship between SAS and NDI. The significance level was set at 5%.

3. Results and Discussion:

The sample composed of 30 participants (Age mean \pm SD =62.73 \pm 2.17), males and females (36 and 54) with Maximum people having usage hours of 1-2 hours per Day (36.7%). Amongst them, 56.7% population is having neck pain at moment.

Participant characteristics and smartphone Use behaviour are displayed in Table 1. Table 2 is showing SAS

Table 1: Demographic characteristics of 100 Participants.

Hours of phone use/day.	No. Of participants
1-2	42
2-4	27
>4	21

Table 2: Mean \pm Standard Deviation of outcome

Outcome measures	Mean \pm Standard Deviation
SAS ^a	107.8 \pm 22.5
NDI ^b	7.4 \pm 4.99

a Smartphone addiction scale; b Neck disability index;

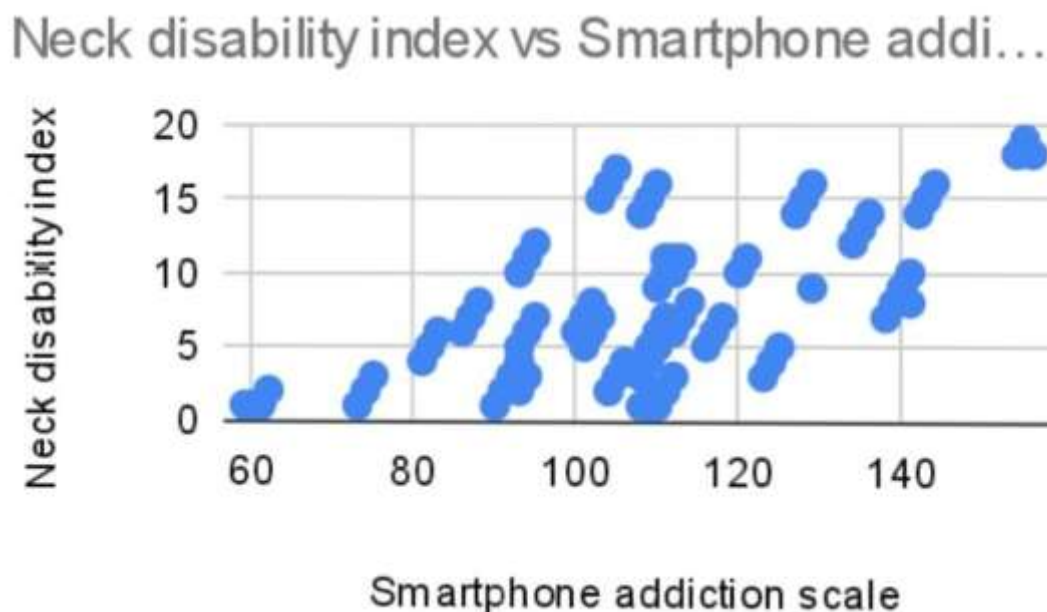


Figure 1: Correlation between smartphone addiction scale and neck disability index ($r=0.649^*$).

Spearman correlation coefficient showed significant positive moderate correlation between SAS and NDI ($r=0.649$, $p<0.001$). The correlation between SAS and NDI is shown in Figure 1.

Our results in the present study showed that that the usage of smartphone influence was significantly Correlated with musculoskeletal discomfort in the Participants. Significant moderate positive correlation has been there Between both SAS and NDI ($p<0.001$).

Moreover, SAS showed a higher score- indicating Addiction to smartphone use, along with it the scores of NDI showing moderate disability (30-48%-moderate Disability).

Smartphone use in a static position and with an unsupported arm could bring about abnormal alignment of the neck and Shoulders. Because smartphones have small monitors that are typically held downward near the laps, users must bend their Heads to see the screens, increasing activity in the neck extensor muscles overloading the neck and shoulders increases Muscle fatigue, decreases work capacity and affects the musculoskeletal system.[9]

The neck disability among smartphone users might be Related to frequent neck flexion posture, which changes the natural curve of the cervical spine and increases the Amount of stress on the cervical spine, leading to Irritation and spasm in the surrounding skeletal structures and ligaments. Excessive use of smartphones can lead to Habitual repetitive and continuous movements of the head and neck toward the screen throughout the day. Such Movements are associated with a high risk of chronic Neck pain and may explain the strong association between SAS and NDI scores in the present study. [10]

The implications of the present study are such that elderly people should effort to reduce the continuous Amount of time of usage spent using a smartphone, and should also implement other preventive factors like Maintenance of correct posture while usage, taking Frequent short breaks, and usage of voice to text software Could also be advised.

4. Conclusion:

The present study showed that musculoskeletal problems in neck can be seen in smartphone addicted elderly individuals which may be short term initially but may later lead to long term disability. This supports the need for public health educational programmes to inform people especially about the physical risks associated with excessive use of smartphones.

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