



Covid19 and neck/back pain: Are electronic devices becoming necessary evils?

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Abstract

Since the outbreak of COVID-19 in China in late 2019, with wide and rapid spread to other countries, more than 10 million individuals have become infected, resulting in more than hundreds of thousands of dead cases, this pandemic has made all countries to effect a nationwide lockdown to observe social distancing in other to contain the spread of this virus, this motivated the increase in the use of electronic devices, due to the surge in the use of digital technology, we aim at knowing if the increase in the use of electronic devices during the pandemic has an associated increase in neck/back pain among users. The result shows that an increase in the use of this devices also resulted an increase in neck/back pain and it establish the facts that use of electronic devices in the Covid-19 era has become a necessary evil despite the consequences of neck/back pain.

Keywords: covid-19, electronic devices, pandemic, neck and back pains

Introduction

The use of the Internet, computers, mobile phones, smartphones and other electronic devices have dramatically increased over the last decades in all parts of the world ^[1] This has been as a result of improved technology which has increasingly made the world a global village.

The COVID 19 pandemic which ravaged the whole world made everyone to be more careful, thus practicing safety measures like social distancing, wearing of face masks and working/schooling from home ^[2]. Globally, the number of prevalent cases of neck pain was 288.7million (95% uncertainty interval 254.7 to 323.5 million) in 2017 which did not change from 1990 ^[3], while the global point prevalence of low back pain was 9.4% (95% CI 9.0 to 9.8). DALYs increased from 58.2 million (M) (95% CI 39.9M to 78.1M) in 1990 to 83.0M (95% CI 56.6M to 111.9M) in 2010 ^[4]. The male to female ratio of lumbar spondylosis is 1.4:1 ^[5] while the male to female ratio of cervical spondylosis is 1.05:1.65 ^[6].

Non traumatic causes of neck/ back pain include ageing, stress, posture, frequent use of computer devices ^[7].

Social distancing is crucial for preventing the spread of viral disease illnesses such as COVID-19.

By minimizing close physical contact between people, we can reduce chances of contracting the virus and subsequently spreading it.

With the increased use of internet and electronic devices to encourage social distancing. The Covid-19 pandemic has led to an inevitable surge in the use of digital technology due to the social distancing norms and nationwide lockdowns.

People and organizations all over the world have had to adjust to new ways of work and life which therefore translates to more time with these devices ^[8].

We set out to know if this necessary use of internet devices has increased the presentation of individuals with neck /back pain. We set out in this study to find out if the increasing use of internet devices during the COVID 19 pandemic has an associated increase in neck/ back pain amongst users.

Methods

A cross sectional study carried out by the orthopaedic unit of our hospital located in south-west Nigeria, consent was obtained from respondents and an online proforma was filled which captured demographic data and relevant information relating to COVID 19 and back/neck pain.

The results were analyzed using the Statistical package for social sciences (SPSS) version 21 and statistical conclusions drawn.

Results

A total of 200 responses was gotten through the google form questionnaire distributed. Among them were people from diverse career paths that made use of electronic devices in the course of their jobs/schools.

Age Distribution

The age range of the study population was 15 – 68 years with a mean age presentation of = 31.45± 9.53. 72.1% of the respondents were in the age range of 15-35 years, while 25.4% were in the age range of 36-65 years. As seen in the figure below.

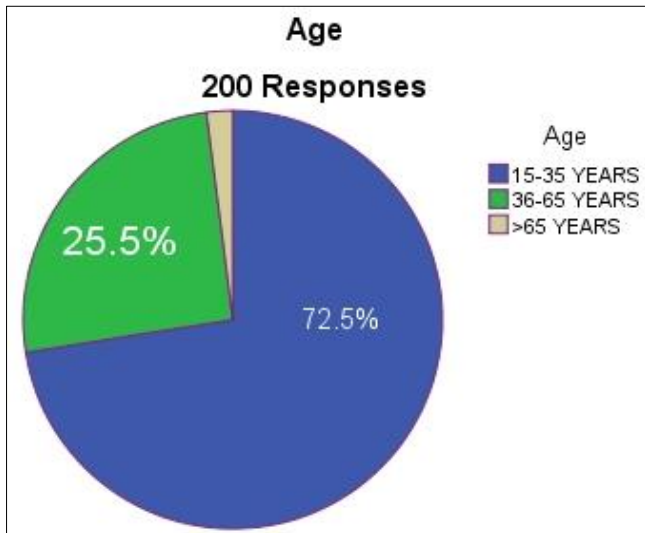


Fig 1: Age Distribution.

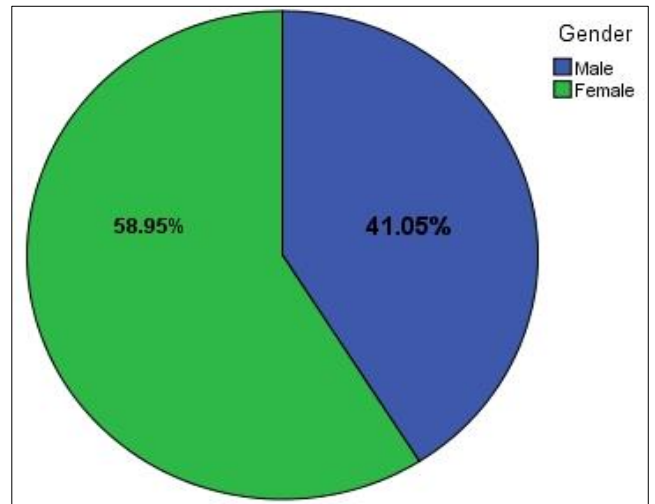


Fig 2: Gender Distribution.

Gender Distribution

82 of the respondents were males (40.8%) while 118 of the respondents were females (58.7%), as seen in figure 2 below.

Awareness of Cervical Spondylosis or Lumbar Spondylosis

147 of the respondents have heard about Cervical and Lumbar Spondylosis (73.5%), while 53 of the respondents have not heard about it (26.5%) as seen in Figure 2 below.

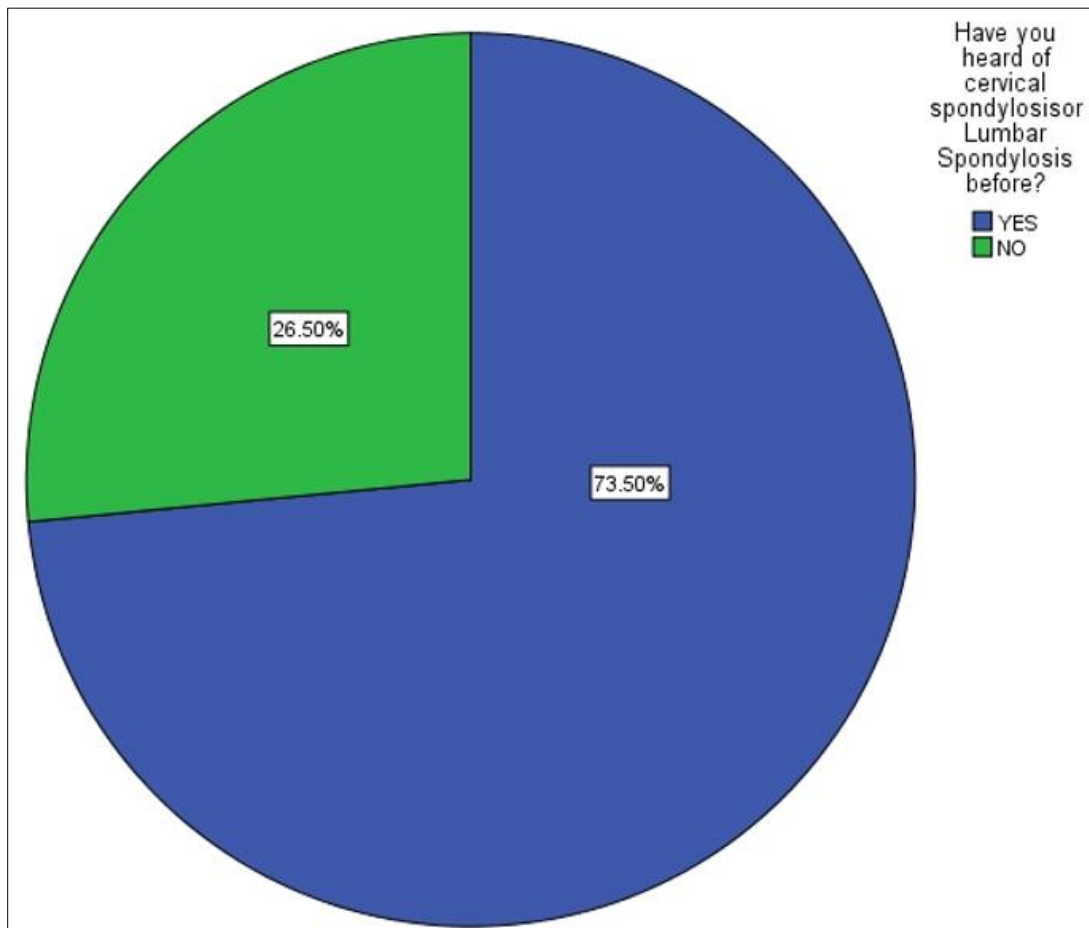


Fig 3: Awareness of Cervical and Lumbar Spondylosis

Feeling of both neck and back pain in the last 12 weeks

52 of the respondents have felt both neck and Back pain (26.0%)

in the last 12 weeks, while 148 of the respondents have not felt it (74.0%) as seen in Table 1.

Table 1: Feeling of both neck and back pain in the last 12 weeks

Responses	Frequency	Percentage
Yes	52	26.0%
No	148	74.0%
Total	200	100%

Electronic Devices mostly used during the COVID-19 Pandemic

From the table below the electronic device mostly used during the COVID-19 pandemic is the laptop with 69 responses and a percentage of 34.5% followed by mobile phone (36) which made 18.0%.

Table 2: Electronic Devices mostly used during the COVID-19 Pandemic

Responses	Frequency	Percentage
Mobile Phone	36	18.0%
Tablet Device	33	16.5%
Desktop Computer	35	17.5%
Laptop	69	34.5%
Television	27	13.5%
Total	200	100%

Activities mostly engaged in using Electronic device during COVID-19 pandemic

From the table below the activities mostly engaged in using electronic device during the COVID-19 pandemic is working from home with a frequency of 52 and a percentage of 26.0% followed by Online meetings with a frequency of 46 and a percentage of 23.0%.

Table 3: Activities mostly engaged in using Electronic device during COVID-19 pandemic

Responses	Frequency	Percentage
Online Meetings	46	23.0%
Chats	31	15.5%
Movies	22	11.5%
Online Classes	31	15.5%
Business	13	6.5%
Working from home	52	26.0%
Others	4	2.0%
Total	200	100%

Table 7: Comparing the use of electronic device prior to the COVID-19 pandemic with the use of electronic devices during the COVID-19 pandemic.

	Variable	Mean	S. D	t-statistics	p-value	df
				-14.56	0.000	199
	Prior to Covid-19	2.20	0.96			
Use of Electronic Device						
	During COVID-19	2.98	1.08			
Paired Sample Test		-0.79	0.76			

Table 7 above shows P value = -14.56, $p < 0.0005$. Due to the means of the two-time duration and the direction of the t-value, we can conclude that there was a statistically significant increase in the time duration in the use of electronic device

Table 4: Shows 103 of the respondents agreed that prolonged use of the electronic device contributed to back/neck pain (48.0%) while 97 of the respondents said otherwise (48.0%) as seen below.

Table 4: Responses

Responses	Frequency	Percentage
Yes	103	52.0%
No	97	48.0%
Total	200	100%

Table 5: Do you feel better when you stopped using the device? 104 of the respondents felt better when they stopped using the electronic device (52.0%) while 96 of the respondents did not feel any better (48.0%) as seen below.

Table 5: Response

Responses	Frequency	Percentage
Yes	104	52.0%
No	96	48.0%
Total	200	100%

Comparing the severity (On a scale of 0 to 10) of Neck/back Pain felt during the COVID19 between male and female respondents.

Table 6: shows the severity of neck/back pain felt by male respondents (2.81 ± 2.50) is not statistically significant from that of female respondents (3.53 ± 2.70). The p value equals 0.057 p value > 0.05 .

Table 6: Comparing the severity (On a scale of 0 to 10) of Neck/back Pain felt during the COVID19 between male and female respondents.

	Variable	Mean	S.D	t-statistics	p-value
				-1.912	0.057
	Male	2.81	2.50		
Severity of Neck/back pain felt					
	Female	3.53	2.70		

Comparing the use of electronic device prior to the COVID-19 pandemic with the use of electronic devices during the COVID-19 pandemic.

during the pandemic compared prior from 2.20 ± 0.96 hours to 2.98 ± 1.08 hours ($p < 0.0005$); an improvement of 0.78 ± 0.12 hours. This simply implies that the respondents made use of electronic devices more during the COVID-19 Pandemic.

Comparing the Severity of back/neck pain experience during COVID-19, with time spent on electronic devices during the COVID-19 pandemic.

There was a statistically significant difference between groups as determined by one-way Anova $F(4,195) = 0.477$ $p = 0.752$. The

severity of pain experienced during the COVID-19 pandemic was significantly higher on respondents (72) that spent 9-12 hours on electronic devices with 3.52 ± 2.71 , 13-17 hours (3.26 ± 2.69) and 18-above hours (3.36 ± 2.54) compared to 0-4 hours (2.84 ± 2.03) and 5-8 hours (3.00 ± 2.79).

Table 8: One-way ANOVA which was performed to compare the severity of pain experience during the pandemic with the time spent on electronic device.

Time spent on Device	Frequency	Mean ± SD	df	F	Sig
0-4hours	11	2.84±2.03	4		
5-8 hours	25	3.00±2.79		0.477	0.752
9-12 hours	73	3.52±2.71	195		
13-17 hours	30	3.26±2.69			
18- above	61	3.36±2.54			
Total	200		199		

Comparing the severity (On a scale of 0 to 10) of Neck/back Pain felt during the COVID19 and the response on the increase in the use of electronic devices during the COVID19 pandemic.

The severity of neck/back pain felt by people that agreed that the use of electronic device increased during the COVID19

pandemic (165 ± 2.67) is not statistically significant from that of respondents that agreed otherwise (35 ± 2.44). The p value equals 0.138 p value > 0.05. Though majority of the respondents with a mean of 165 agreed that the use of electronic devices increased during the COVID19 pandemic as against those that responded otherwise.

Table 9: Comparing the severity (On a scale of 0 to 10) of Neck/back Pain felt during the COVID19 and the response on the increase in the use of electronic devices during the COVID19 pandemic.

	Variable	Mean	S. D	t-statistics	p-value
	Has your use of any of the electronic device (s) mentioned above increased during the COVID19 pandemic?				
	Yes	165	2.67		
Where would you grade the severity of the neck/back pain you experienced				1.489	0.138
	No	35	2.44		

Comparing the severity of back/neck pain experience when using electronic devices during the COVID 19 pandemic with the rate of back/neck pain reduction when the use of electronic device was minimized.

From the analysis $t(199) = 12.90$, $p < 0.0005$. Due to the means of the two different rates of pain experienced and the direction of the t-value, we can conclude that there was a statistically

significant improvement in the severity of pain experienced following reduction in the use of electronic device from 3.23 ± 2.64 to 1.28 ± 1.72 ($p < 0.0005$); an improvement of 1.95 ± 2.13 . This simply implies that the electronic devices caused high levels of neck/back pain during COVID19 pandemic and the pain reduced drastically when the use of electronic device was minimized.

Table 10: Comparing the severity of back/neck pain experience when using electronic devices during the COVID 19 pandemic with the rate of back/neck pain reduction when the use of electronic device was minimized.

	Variable	Mean	S. D	t-statistics	p-value	df
				12.90	0.000	199
	When using electronic device during the Covid19 pandemic	3.23	2.64			
Severity of Neck/back pain experienced						
	When the use of electronic device was minimized	1.28	1.72			
Paired Sample Test		1.95	2.13			

Discussion

Neck/back pain has been discovered to be more severe during the COVID-19 pandemic owing to the fact that most people worked from home and not in their regular comfortable office chairs and settings. 34.5% made use of laptops more during the pandemic for work and other purposes. Working from home was the activity mostly engaged in which made 26.0% of the respondents, followed by 23.0% of people who engaged more in online meetings/classes, 52.0% of the respondents agreed that prolonged

use of electronic devices contributed to increase in back/neck pain, this was seconded because 52.0% felt better when they stopped using the device. It was also confirmed that the use of electronic devices prior to the pandemic and during the pandemic was statistically significantly different ($p < 0.0005$).

The severity of pain experienced during the COVID-19 pandemic was significantly higher on respondents (72) that spent 9-12 hours on electronic devices with 3.52 ± 2.71 , 13-17 hours (3.26 ± 2.69) and 18-above hours (3.36 ± 2.54) compared to 0-4

hours (2.84±2.03) and 5-8 hours (3.00±2.79).

The findings from this study is in accordance with other studies on COVID-19 pandemic effect like covid-19 lockdown significant impact on pain, joint function, physical function, and physical activity in patients with end-stage hip and knee OA [9], covid-19 pandemic has inflated more pains and pain treatment has been described as a fundamental human right [10] but due to covid-19 pandemic has stressed healthcare systems worldwide so that many pain services are no longer open for business or channeled to covid-19 intervention, base on the shutdown of pain services jointly to the home lockdown imposed by governments has affected chronic or acute pain management worldwide with additional impact on people with neck and back pain from prolonged bad sitting furniture and posture during the use of electronic devices for work or online meeting or classes. Covid-19 has also caused delaying or stopping treatment for patients who are suffering from severe chronic pain which will have negative consequences for patients including increases in pain, disability and depression [11] that pose a threat to people with chronic or acute neck and back pain. However, shelter in place and social distancing are two of the best ways to limit the spread of infectious respiratory diseases [12] and protecting oneself means protecting others, because one's own safety depends on the safety of the whole community [13] that is why I propose that due to the necessity of staying and working from home, neck and back pains are necessary occurrence from prolonged bad or furniture sitting posture.

Conclusion

The Covid 19 pandemic caused an increase in the use of electronic devices which was necessitated by having to work from home sometimes with bad postures/furniture. This resulted in an increase in back/neck pain with the use of this devices and reduction when the devices were not in use, we can thus conclude that the use of electronic devices in the Covid 19 era has become a necessary evil despite the consequent neck/back pain.

Acknowledgments

We acknowledge the patients who made this study possible by giving consent, also the Members records department and nurses who helped to make sure the patients were seen on their clinic days.

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