

*Full Length Research Paper*

## **Reach and effect of a virtual campaign for promoting physical activity during the covid19-era**

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**Measures put in place to curb the spread of the coronavirus have inadvertently fostered a reduction in physical activity. This study reports a virtual campaign designed to promote the health and physical activity level of individuals and increase awareness on practices to curb the spread of Coronavirus. The campaign enlisted a total of 141 volunteers recruited via a public call for volunteers to share promotional e-posters through their social media platforms for eight days; Each day focused on a different theme such as setting up an ergonomic home office, proper posture and home workout sessions across age groups. The reach was measured in terms of total engagement with 130 posts on 5 social media platforms. Total engagement defined as all interactions with the content was 15,889. WhatsApp recorded the highest engagement (86.3%), while engagement from Facebook (0.04%) was the lowest. The peculiarity of the online platforms ensures content can still be viewed irrespective of when posted, therefore the reach of the campaign can increase over time without promotional efforts.**

**Key words:** Covid-19, health promotion, social media, virtual campaign.

### **INTRODUCTION**

Cases of pneumonia of unknown etiology were first reported in Wuhan, China in December 2019. The disease spread rapidly across China in a matter of weeks (Wang et al., 2020). The World Health Organization identified the causative pathogen to be severe acute

respiratory syndrome coronavirus 2 (SARS-CoV-2) and the ensuing disease was named the Coronavirus Disease 2019- a new strain of Coronavirus that had not been previously documented in humans. Coronaviruses are a family of zoonotic viruses that cause respiratory, enteric,

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hepatic and neurological diseases among a variety of animal species (Cascella et al., 2020). Previous outbreaks of coronaviruses in humans include the severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV; both of which have been marked as serious public health issues (Rothana et al., 2020). SARS-CoV-2 is airborne and is transmitted from one person to another through infected air droplets released when sneezing or coughing. It is also transmitted when hands that have been contaminated by infected surfaces touch the mouth, eyes and nose. The most common symptoms reported are those typical of upper respiratory tract infections including fever, cough, sore throat and fatigue. Other symptoms include headache, diarrhea and loss of taste or smell (World Health Organization, 2020). At present, there are no specific antiviral drugs or vaccine against COVID-19 infection. However, in a bid to control the current outbreak, several measures have been put in place worldwide, to reduce person-to-person transmission of COVID-19. Such measures include nationwide lockdowns, closure of schools, bans on travels, social gatherings and sporting events (Parnell et al., 2020). There has also been an increased emphasis on adopting and raising awareness about globally acceptable prevention practices like social distancing, handwashing, cough etiquette and physical hygiene.

Many countries including Nigeria adopted the aforementioned measures. Following the announcement of the index case of COVID-19 in Nigeria on the 27th of February by the NCDC, the country embarked on a nationwide lockdown. While this action was quintessential in combatting and preventing the spread of the disease, it could also likely to lead to (i) an inadvertent increase in sedentary behaviours such as spending excessive amounts of time sitting, reclining, or lying down for screen activities; (ii) reduced physical activity levels and consequently (iii) an increased risk for and potential worsening of chronic health conditions (Owen et al., 2010).

Literature is replete with a large and growing body of evidence establishing numerous health benefits of regular physical activity (Powell et al., 2011). Studies have revealed specific benefits such as, improved physical and physiological health parameters and positive health outcomes in areas of mental health and wellbeing (Mathieu et al., 2012; Chekroud et al., 2018). In 2008, the Physical Activity Guidelines Advisory Committee Report concluded that physical activity reduces the risk of early death, coronary heart disease, stroke, high blood pressure, type 2 diabetes, breast and colon cancer, excessive weight gain, injurious falls, depression, and loss of cognitive function. Moderately strong scientific evidence demonstrates that physical activity maintains functional ability in older adults, helps maintain weight loss, improves sleep quality, and reduces the risk of hip fracture and osteoporosis. It has been stated that biological and metabolic adaptations resulting from lack

of physical exercise, and prolonged inactivity (Lippi et al., 2020) can lead to a higher risk of developing noncommunicable diseases like osteoporosis (Castrogiovanni et al., 2016), diabetes (Bhaskarabhatla and Birrer, 2005), cardiovascular disease (Lippi and Sanchis-Gomar, 2020), cancer (Sanchis-Gomar et al., 2015) as well as overweight/obesity (Pietilainen et al., 2008). It therefore follows that raising awareness on maintaining an optimum level of physical activity and prescribing specific home-based activities and exercise to do so was pertinent during the global pandemic.

With global internet penetration reaching 60% and over 3.4 billion people now using at least one social networking platform (Digital, 2020), the use of social media for public health campaigns continues to gain popularity. Year after year, notable public health entities such as the World Health Organization and the World Heart Foundation employ social media to combat misinformation, encourage behavioral changes, and share lifesaving information, while actively engaging their audiences and having access to real-time feedback.

In light of this, this study reports the effect of an online campaign to disseminate valuable, simplified information via social media platforms. This virtual campaign was carried out to:

- (i) increase the emphasis on physical fitness and prevent injury during the lockdown period,
- (ii) increase awareness on prevention practices to curb the spread of Coronavirus

## METHODOLOGY

### Campaign

An 8-day virtual campaign which explored themes specifically selected to cover physical fitness, injury prevention and COVID-19 prevention practices was conducted during the nationwide lockdown. The themes were illustrated via digital/ e-posters and blog posts. The information contained in the e-posters was succinctly put to allow for easy understanding and sustain the attention of viewers. Supporting articles in form of blogs were posted on WordPress, an open source content management system for clarification and further information. The themes covered were (1) Know the terms: Social Distancing, Isolation and Quarantine; (2) Good Sitting Posture; (3) Setting up an Ergonomic Home Office; (4) Home Workout: Core Strengthening Exercises; (5) Proper Lifting Techniques; (6) Home Workout: Cardio or Aerobic exercises; (7) Home Workout: Stretching; and (8) Home Workout: Exercises for Older People.

Each day, e-posters were shared with volunteers recruited for the campaign with specific instructions for posting including captions and hashtags to be used. Additionally, content was posted on Instagram and Twitter accounts created specifically for the campaign and managed by organizers. These were termed the "Primary Campaign Platforms". Links to articles on the blog were also included on the e-posters where necessary.

### Volunteers' recruitment and activities

A total of 141 volunteers were recruited for the campaign through a public call which involved digital flyers and broadcast messages

**Table 1.** Engagement from primary campaign platforms.

Platforms	Metrics					Total engagement	
	Posts	Likes	Comments	Retweets	Story views		Clicks
Instagram	9	197	2	N/A	483	N/A	682
Twitter	9	38	0	31	N/A	414	483
Blog	3	N/A	N/A	N/A	116	66	182

across social media platforms. Volunteers' primary role was to disseminate the campaign information shared with them across their platforms and secondarily to give feedback. Interested individuals were added to a dedicated WhatsApp group page by using the broadcasted link and briefed about the aim of the campaign and their expected responsibilities. Campaign resources were shared on the WhatsApp group and volunteers were instructed to post with a specific hashtag (#PlfitstancingCampaign). "Hotlines" belonging to members of the organizing team were dedicated to receiving feedback and questions from volunteers and ensure easy tracking of such questions and feedback. To aid tracking of reach, volunteers were provided with a simple word document tagged the "Impact Tracking Sheet" to record engagement on their posts on WhatsApp each campaign day. At the end of the campaign, this document was collated and an infographic showing the effect of the campaign was distributed to volunteers.

#### Ethical consideration

This study adhered to the principles in the ethical declaration of Helsinki.

#### Data collection

This study measures the effect of the campaign in terms of engagement and reach on social media platforms used i.e. Facebook, Instagram, Twitter and WhatsApp as well as the blogsite; WordPress.

Reach is described as the number of unique people who see content after it has been delivered to their feed. Social media engagement refers to the actual interaction between the content posted and users who come across it. It is an aggregate of clicks, likes, comments, shares, saves and other actions carried out by a user (Diego, 2019). It can therefore be said that engagement is a component or fraction of reach. Both metrics are automatically generated by an algorithm of various social media platforms.

Posts and interaction with posts by social media users were tracked on Instagram, Twitter and Facebook using the hashtag designated for the campaign. The engagement on these posts was recorded. The reach of blog articles on WordPress was also recorded. The adapted WhatsApp Tracking Sheet were filled and submitted by the volunteers and collation of data about engagement on all the social media channels was done. All of these were aggregated to form a single metric: total engagement. Data collected was summarized using descriptive statistics, tables, and charts.

## RESULTS

### Engagement from primary campaign platforms

The summation of engagements from the campaign's

primary social media platforms alone was 1347, with Instagram having the highest reach (Table 1). The statistics from campaign blog posts show that 116 new visitors read the articles published over 10 days. Visitors' geographic location summarized in Figure 1 shows that reach was achieved across 9 countries.

### Engagement reported by volunteers and other social media users

A total of 85 campaign related posts were found on Instagram, Twitter and Facebook. These posts garnered a total of 828 engagements. Table 2 shows the type of engagement recorded per platform. Engagement on WhatsApp measured in terms of number of views of stories was derived from the 24 out of 141volunteers (17.0%) who completed and submitted their Impact Tracking Sheets for collation at the end of campaign activities. A total of 13,714 views were recorded on WhatsApp. Hence, the total number of engagements from 130 posts was 15,889. A review of the trend of daily engagement was also conducted (Figures 2 to 5). This revealed that engagement peaked on the sixth day of the campaign on all social media platforms and dipped on the third day.

## DISCUSSION

The use of social media in health promotion efforts continues to gain popularity as internet proliferation increases. Engagement as a means to measure the impact of social media health activities as used in this study is not uncommon. The most popular social media interventions that have recorded success are contests for raising awareness about specific health causes. These contests typically offer the public a chance to show their solidarity by performing an online activity or an offline activity that is recorded and then posted online. They also have an added incentive of having the capacity to go viral. For instance, in 2014, the "Ice bucket Challenge" by the Amyotrophic Lateral Sclerosis (ALS) Foundation garnered 17 million participants in one month and over 400 million viewers in total. The challenge also raised over 115 million dollars for ALS research (The ALS Foundation, 2020). Although internet metrics and analytics on awareness do not necessarily equate to offline behavior change, social media has proven

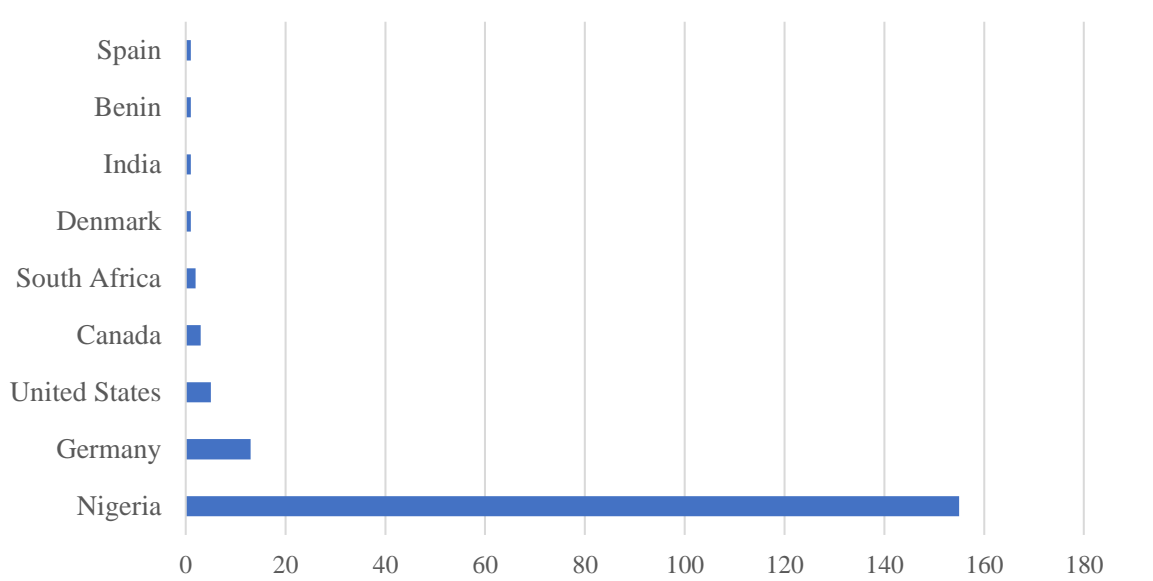


Figure 1. Geographical distribution of blog visitors.

Table 2. Engagement from secondary social media platforms.

Engagement	Social media platforms		
	Twitter	Facebook	Instagram
Likes	61	45	662
Comments	6	0	14
Retweets	21	N/A	N/A
Shares	N/A	19	N/A
Total engagement	88	64	676

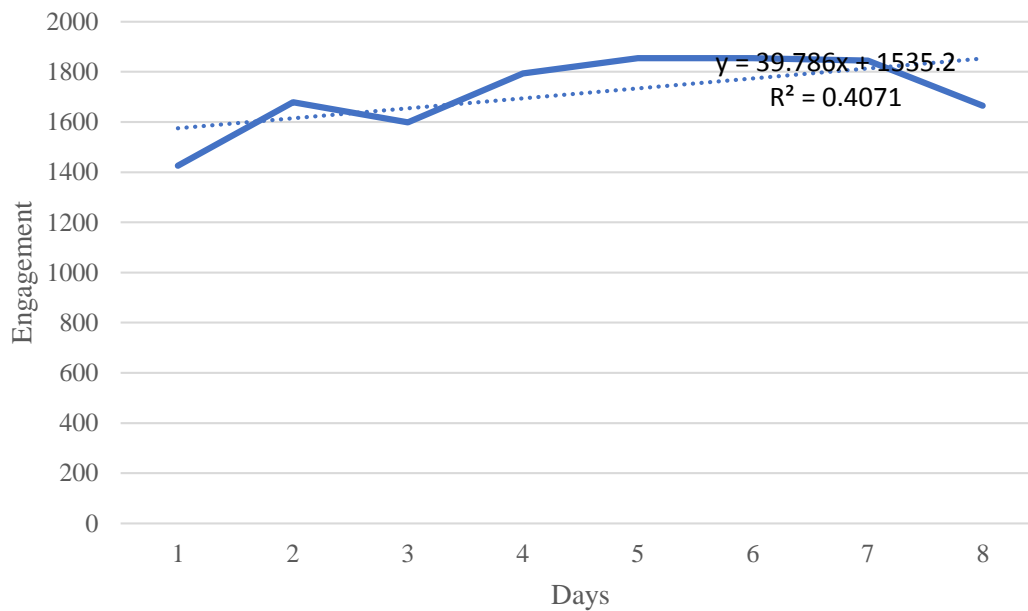


Figure 2. WhatsApp trend.

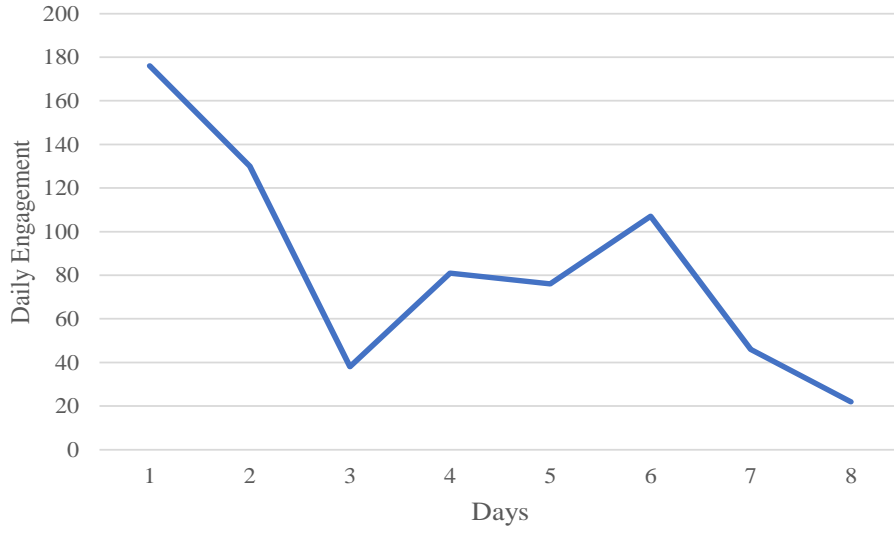


Figure 3. Instagram trend.

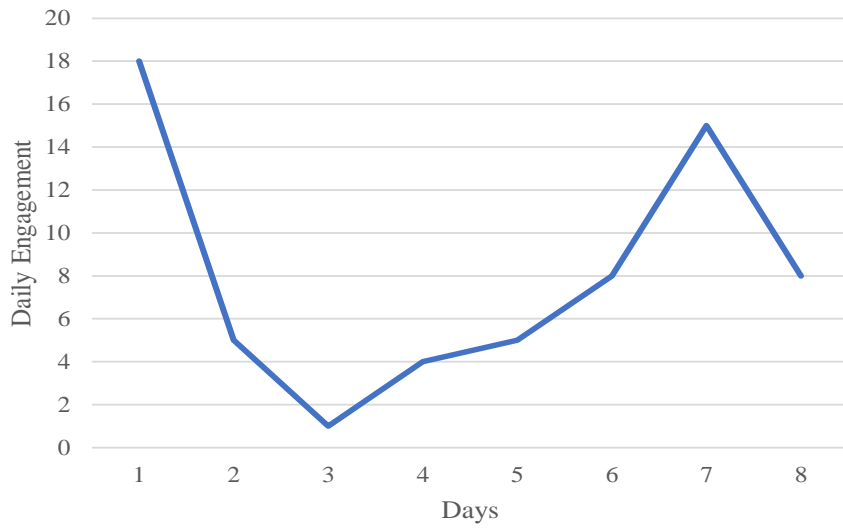


Figure 4. Facebook trend.

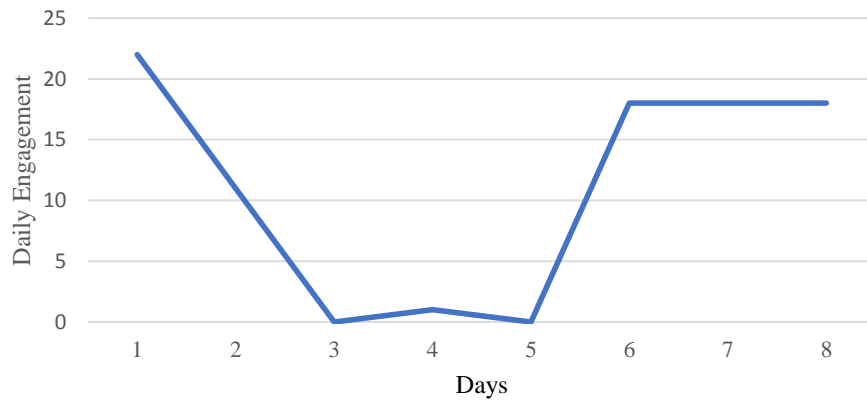


Figure 5. Twitter trend.

potential for health promotion and improved traditional health outcomes (Murray et al., 2005) and continues to be a valuable tool for disseminating health information.

Data derived from the Impact Tracking Sheet revealed that WhatsApp had the highest engagement (86.3%). This is not unexpected as WhatsApp is the most utilized social media platform in Nigeria. The platform hosts about 85% of Nigeria's 24 million active social media users (Digital, 2020). The use of other social media platforms in addition to WhatsApp by volunteers is also not unexpected since WhatsApp is a messaging platform that is primarily for one-to-one interaction unlike the other networking platforms (Instagram, Twitter and Facebook) that are majorly for one-to-many interactions, hence, they are useful for reaching a wider audience. The high level of engagement on WhatsApp may also be because the audience is more targeted as they are more likely to have some sort of relationship with the "poster" and are therefore, more inclined to interact with the content posted. The use of multiple but complementary social media platforms for the campaign in this study expanded total reach in keeping with findings by Anderson and Gomez (2009) and Cascella et al. (2020) who reported increased effectiveness of a virtual health campaign utilizing multiple tools. Additionally, evidence has shown that differences exist in the usage of social media across age groups. Senior citizens (aged 65 and above) are found on Facebook more than any other social networking platforms and are more interested in using the platform for health information and participating in conversations. This is similar to usage by adults aged 50 to 64. Generally, 18 to 24-year olds are on more social networking sites than any other age group, especially Instagram due to their affinity for image-led social media (Pew Research Center, 2019).

The review of the trend of engagement across all social media platforms which revealed that engagement peaked on the 6th day of the campaign could be an indication of increased volunteers' activity. Before this day, a virtual interactive session was organized to recognize committed volunteers. It has been found that providing incentives such as web badges improves participation and increased user-generated content in virtual campaigns (Anderson and Gomez, 2009). It is reasonable to conclude that volunteers approached the campaign with improved interest and morale. In contrast, day 3 recorded a dip in engagement compared to the other days. This may be due to the level of interest of volunteers in the theme for that day. The reduced engagement by social media users may also be due to the level of resonance of the theme with the public, as a large proportion of the audience may not have been working from home during this time.

## Conclusion

This study reports engagement in terms of interaction

metrics with 130 unique posts for an 8-day virtual campaign across five social media platforms. The one-to-one interaction social media platform (WhatsApp) recorded higher engagement than the one-to-many social networks used (Instagram, Facebook etc.). The reach of this campaign may also increase over time as engagement increases since content on social media can be viewed irrespective of the date they were posted. Although metrics generated by social media applications do not necessarily depict offline behavior change, they are useful in measuring the reach of health information.

## LIMITATIONS

- (i) The total engagement may be higher than was reported because only posts utilizing the campaign hashtag were analyzed.
- (ii) Less than a fifth of total volunteers submitted their impact tracking sheets despite incentive strategies put in place to ensure that they do so. Therefore, the reported engagement on *WhatsApp* may not be a true representation of the actual reach by all the volunteers.

## RECOMMENDATION

Future studies that utilize volunteers are advised to explore preferred methods of collecting feedback such as the use of online forms/questionnaires as they may enjoy better reception than an editable document. Daily collection of information from volunteers is also recommended instead of collection at the end of the campaign duration; this is to ensure that volunteers keep track accurately.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

## REFERENCES

- Anderson J, Gomez M (2009). From Flickr to a blogging call to action: User generated content lessons learned from AIDS.gov. Presentation at the CDC National Conference on Health Communication, Marketing and Media, Atlanta, GA. Retrieved from <http://www.slideshare.net/aidsgov/aidsgovs-usergenerated-content-presentation-for-cdcs-national-conference-on-health-communication-marketing-and-media-2009>
- Bhaskarabhatla KV, Birrer R (2005). Physical activity and diabetes mellitus. *Comprehensive Therapy* 31:291-298.
- Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Napoli RD (2020). Features, Evaluation and Treatment of coronavirus (COVID-19). National Center Biotechnology Information, U.S. National Library of Medicine.
- Castrogiovanni P, Trovato FM, Szychlinska MA, Nsir H, Imbesi R, Musumeci G (2016). The importance of physical activity in osteoporosis. From the molecular pathways to the clinical evidence. *Histology and Histopathology* 31:1183-1194.

- Chekroud SR, Gueorguieva R, Zheutlin AB, Paulus M, Krumholz HM, Krystal JH, Chekroud AM (2018): Association between physical exercise and mental health in 12 million individuals in the USA between 2011 and 2015: A cross-sectional study. *The Lancet Psychiatry* 5(9):739-746.
- Diego F (2019). Engagement vs. Reach vs. Impressions: Understanding Social Media Analytics. Available at [taggermedia.com/blog/engagement\\_reach\\_impressions\\_understandinganalytics](http://taggermedia.com/blog/engagement_reach_impressions_understandinganalytics). Accessed on 22<sup>nd</sup> May 2020, 8:37pm.
- Digital (2020). Global Digital Overview. Available at <https://wearesocial.com/blog/2020/01/digital-2020-3-8-billion-people-use-social-media>. Accessed on 19 May 2020 at 1:02pm.
- Lippi G, Henry MB, Sanchis-Gomar F (2020). Physical inactivity and cardiovascular disease at the time of coronavirus disease 2019 (COVID-19). *European Journal of Preventive Cardiology*; In press.
- Lippi G, Sanchis-Gomar F (2020). An estimation of the worldwide epidemiologic burden of physical inactivity-related ischemic heart disease. *Cardiovascular Drugs and Therapy* 34:133-337.
- Mathieu RA, Powell-Wiley TM, Ayers CR, McGuire DK, Khera A, Das SR, Lakoski SG (2012): Physical activity participation, health perceptions, and cardiovascular disease mortality in a multiethnic population: The Dallas heart study. *American Heart Journal* 163(6):1037-1040.
- Murray E, Burns J, See Tai S, Lai R, Nazareth I (2005). Interactive health communication applications for people with chronic disease. *Cochrane Database of Systematic Reviews* (4):CD004274. doi:10.1002/14651858.CD004274.pub4. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004274.pub4> on 21st May 2020, 12:20pm.
- Owen N, Sparling PB, Healy GN, Dunstan DW, Matthews CE (2010). Sedentary behavior: emerging evidence for a new health risk. *Mayo Clinic Proceedings* 85:1138-1141.
- Parnell D, Widdop P, Bond A, Wilson R (2020). COVID-19, networks and sport; Managing Sport and Leisure. *Research Gate Journal*. DOI: 10.1080/23750472.2020.1750100
- Pew Research Center (2019). Internet & Technology Social Media Fact Sheet. Available at: <https://www.pewresearch.org/internet/fact-sheet/social-media/>. Accessed on 23<sup>rd</sup> May 2020, 10:00am.
- Pietilainen KH, Kaprio J, Borg P, Plasqui G, Yki-Jarvinen H, Kujala UM (2008). Physical inactivity and obesity: a vicious circle. *Obesity (Silver Spring)* 16:409-414.
- Powell KE, Paluch AE, Blair SN (2011). Physical activity for health: What kind? How much? How intense? On top of what? *Annual Review of Public Health* 32(1):349-365.
- Rothana, Siddappa N. Byrareddy S (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of autoimmunity* 102433.
- Sanchis-Gomar F, Lucia A, Yvert T, Ruiz-Casado A, Pareja-Galeano H, Santos-Lozano A (2015). Physical inactivity and low fitness deserve more attention to alter cancer risk and prognosis. *Cancer Prevention Research (Phila)* 8:105-110.
- The ALS Foundation (2020). Available at <http://www.alsa.org/fight-als/ice-bucket-challenge.html>. Accessed on 19 May 2020 at 11:02am.
- Wang W, Tang J, Wei F (2020). Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. *Journal of Medical Virology* 92(4):441-447.
- World Health Organization (WHO) (2020). Novel Coronavirus—China. Available at <https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/>. Accessed on 12 May 2020 at 6:53 pm.