PSYCHOLOGICAL RESOURCES IN THE FACE OF THE COVID-19 LOCKDOWN: THE PREDICTIVE ROLES OF ACTIVITY ENGAGEMENTS

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ABSTRACT

During difficult times, abundance of intrapersonal resources is shown to be useful in ameliorating poor psychological health conditions. Accordingly, this study examined the extent to which activity engagements during the COVID-19 lockdown promote the psychological resources of hope, optimism, self-efficacy and resilience among 531 Nigerian adults ($Mean_{age}$ = 36.33 ± 11.99). By associating data obtained from an activity engagement list and the Compound PsyCap Scale, we generally found out that activity engagements were predictive of all psychological resources except resilience. Specifically, increase in activity engagements predicted increase in psychological resources. The influence of social media use was unique and stronger on psychological resources compared to other activity engagements. Also, the female gender and being self-employed were associated with increased optimism and self-efficacy respectively. Being engaged in activities during periods of lockdown may enhance individuals' psychological capacity to maintain positive mental wellbeing.

***Key words**: COVID-19 lockdown; Activity engagements; Hope; Optimism; Self-efficacy; Resilience*

INTRODUCTION

The world has never been the same since the outbreak of the Corona Virus Disease 2019 (COVID-19) in Wuhan, China in December 2019. Nearly 800,000 deaths have occurred with the American and the European continents recording more than 80% of the fatalities (European Center for Disease Control, August 18 2020). Although, two related medications - chloroquine and hydroxychloroquine have been advanced as possible treatment of the novel disease, scientists are yet to agree on the efficacy of these claims given that available evidence do not satisfy the gold standard frame-work for scientific research (Harvard Medical School, 2020). Currently, no vaccination has been formally approved by the World Health Organisation (WHO, August 13, 2020).

Given that there is no proof of curative measure to halt the pandemic, almost all governments in the world including Nigeria have resorted into advancing preventive strategies which include primarily, social distancing, increasing personal hygiene, quarantine measures and total or partial lockdown of social, economic and religious activities (Kavoor, 2020; Jiloha, 2020). In the face of the total lockdown, citizens are mostly restricted to the perimeter of their houses and expected to procure groceries on days designated by government. Although the lockdown is now gradually being eased, it cannot be over-emphasized that this new and sudden pattern of daily living will have significant impact on the social, physical and mental health of the people (WHO, 2020b).
Adaption to the lockdown measures in Africa, and particularly in Nigeria may have several social and psychological implications. In contrast to citizens in developed West for example, many

Nigerians are socialized within a collectivistic culture where survival is dependent on the daily interaction and support received from and given to others (Hofstede, Hofstede & Minkov, 2010). Due to the lockdown, individuals are limited in their ability to meet their psychosocial and economic needs, and this may partly explain the frequent suicide cases reported by the media (Chukwuorji & Lorfa, 2020). The lockdown predispose increased risk of mental health problems such as depression, post-traumatic stress disorder, anxiety and stress loneliness, social isolation, boredom and apathy in the general population (Xiong, Lipsitz, Nasri, Lui, Gill, Phan, Chen-Li,… McIntyre, 2020; Shechter, Diaz, Moise, Anstey, Ye, Agarwal,… Abdalla (2020); Chao, Chen, Liu, Yang & Hall 2020).

Abundance of intrapersonal resources is proven to be useful in ameliorating poor psychological health conditions during hard and difficult times such as this. These resources which include the psychological capital of optimism, hope, resilience and self-efficacy (Luthan & Youssef, 2003) usually serve as protective factors to people during challenging circumstances. For instance, Ran et al., (2020) showed that increase in resilience and optimism predicted low depressive and anxiety symptoms within the general population during the coronavirus pandemic. Hope is also demonstrated as a catalyst for recovery from both physical and mental illness, and pains (Archaya & Agius, 2017; Berendes et al., 2010) while self-efficacy provides the mediating link of the impact of the experience of daily stressors on negative and positive mental health (Schonfeld, Brailovskaia, Zhang & Margraf, 2019). Given the importance of these psychological resources, it is essential to investigate factors that may predict them within individuals for an experience of positive mental health during the present and possible future lockdowns.

Activity engagements both in terms of physical and cognitive activities within the home environments may have potential health benefits during the lockdown. Physical activities comprise physical exercise, walking, cycling, dancing, house cleaning, gardening, play, participation in sport, doing shopping and active recreation (WHO, 2020 27^{T} March). Cognitive activities include playing games, writing, and reading of books and newspapers (Wilson, Barnes, & Bennett, 2003). Past studies have shown that engaging in these activities can be beneficial to mental health. Very recently, Kim, Tsutsumimoto, Doi, Nakakubo, Kurita, Makizako, & Shimada (2020) showed that engagement in cognitive leisure activities were advantageous to depressed older adults by lowering their level of cognitive impairments. Chekroud, Gueorguieva, Zheutlin, Paulus, Krumholz, Krystal & Chekroud (2018) also reported that individuals who engage in physical exercise showed lower mental health burdens compared to those who did not. In another study, physical activity was found to predict increased psychological resources of resilience, which in turn influenced positive mental wellbeing (Ho, Louie, Chow, Wong, & Ip, 2015).
Given these beneficial effects, the present study aims to examine whether involvements in these activities during the lockdown promote the psychological resources of hope, optimism, self-efficacy and resilience. It is hypothesized that increase in activity engagements will predict increase in optimism, self-efficacy, hope and resilience within the general population of Nigerian adults. Outcomes will suggest the potential physical and cognitive activities that may promote psychological capacities to overcome mental health difficulties and challenges that may be associated with the current and future lockdowns.

METHOD

Sample and procedure
This is a cross-sectional study involving 531 Nigerian adult participants, 306 males and 224 females with a mean age of 36.33 (± 11.99). About 64% of participants were aged between 18 and 39 while marital status was closely distributed between the single (45%) and the married

(55%). Majority of participants (80%) reside in Southwest, Nigeria with about 82% having graduate level education. More than two third of participants (73%) reported that they were employed out of which 60% worked under the civil service. About half of the study sample perceived themselves as occupying the middle class position while close to 60% have household size of 5-8. Only three individuals reported that they were diagnosed of COVID-19.

Participants were drawn using the snowball sampling method from the general population via anonymous online platform including Facebook, WhatsApp and emails. The initial contacts for the online survey were staff and students of Federal University Oye-Ekiti (FUOYE), Nigeria and were encouraged to disseminate it to others on their contact list. The on-line form was set to "only one responding" per participant to avoid double responding. Data were collected at the peak of the lockdown in Nigeria between 30th and 14th April, 2020. Ethical clearance for the study was provided electronically by the Ethics and Research Committee of Department of Psychology, FUOYE. Written informed consent was provided all participants.

Instruments

Bio-demographic information*:* This was used to gather information concerning participant's gender, age, education, residential location, employment status, household size, monthly income, and perceived socio-economic status.

Activity engagements**:** We measured this by asking information relating to daily activities individuals engage in during the lockdown. These include game play (e.g. ludo, chess, draft, and "Ayo Olopon" [Mancala game]),physical exercise, religious devotions, going out for groceries, watching TV, listening to radio, social media use (facebook, WhatSapp, intagram etc) and reading news online. Engagement levels were rated using a Likert scale format ranging from *never* (0) to *very frequently* (6). After co-variation of error terms, the activity engagements measurement model fits the study data well, $\chi 2$ (22, N = 531) = 30.61, p = .10; CFI = .96; SRMR = .035; RMSEA = .03 [90% CI = (.00, .05)]. A moderate internal consistency coefficient of .49 was obtained for the activity engagement measurement. High scores represent greater engagement level.

Psychological resources**:** This was measured using the Compound PsyCap Scale (CPC -12) developed by Lorenz, Beer, Putz & Heinitz (2016). The 12 items of the CPC assess psychological capital (PsyCap) or resources on a 4-point scale ranging from *strongly disagree* (1) to *strongly agree* (4). CPC-12 contains four dimensions of PsyCap which include optimism, hope, self-efficacy and resilience. Sample items include "*If I should find myself in a jam, I could think of many ways to get out of it*" and "*I can remain calm when facing difficulties because I can rely on my coping abilities*." The scale is demonstrated to be a reliable and valid measure of psychological resources (Lorenz, Beer, Putz & Heinitz, 2016). This study obtained an overall Cronbach alpha coefficient of .78 for the CPC-12. A four-factor model of psychological capital adequately fits the present study data, $\chi 2$ (22, N = 531) = 113.46, p < .001; CFI = .96; SRMR = .038; RMSEA = .05 [90% CI = (.04, .06)]. High scores reflect high level of psychological resources. High scores reflect high level of psychological resources.

Social desirability**:** Noting the social desirability bias associated with self-report measures especially those concerning positive emotions (Caputo, 2015), we included the Brief Social Desirability Scale (BSDS: Haghighat, 2007) as a control in this study. The BSDS contains five items with a *yes* (1) or *no* (0) response format. Item samples are *"Would you ever lie to people"* and *"If you say to people that you will do something, do you always keep to your promise no matter how inconvenient it might be?"* The scale's brevity and psychometric soundness make

helps in detecting the influence of social desirability on questionnaires related to the report of attitude (Haghighat, 2007). Higher scores reflect higher social desirability levels.

Statistical analysis

Analyses was conducted using SPSS, version 24. WE utilized the multivariate analysis of variance (MANOVA) to assess the impact of socio-demographics on the combined psychological resources. Simple and multiple linear regression were used to calculate the bivariate and multivariate associations of activity engagements with psychological resources. Basic assumptions for utilizing linear regression were met as our data were moderately normal (Skewness scores were between -1 and 1), without outlier (z scores were in the range of -2.5 and 2.5) and multicollinearity among activity engagement types (Tolerance values were above .1) (see Mertler & Vannatta, 2005).

RESULTS

Socio-demographics and psychological resources

The differences of socio-demographic variables on psychological resources are displayed in table 1. Only sex [Pillai's v = .02, *F* (5, 505) = 2.82, p = .025 and employment status [Pillai's v = .07, *F* (16, 2032) = 2.21, p = .004 were significant on the combined psychological resources among all the socio-demographic variables. A follow-up ANOVA analysis indicated optimism [F (1, 508) = 8.64, p = .003, partial η2 = .02] was significantly influenced by sex while hope [F (1, 508) = 1.92, p = .17, partial η2 = .004], resilience [F (1, 508) = .35, p = .55, partial η2 = .001] and self-efficacy [F (1, 508) = .01, p = .93, partial η2 = .00] were not. A comparison of estimated marginal means showed that females (M = 14.58) had higher scores on optimism compared to males (M = 14.14). Employment status was significant on hope [F (4, 508) = 3.10, p = .016, partial η2 = .02] and self-efficacy [F (1, 508) = 4.15, p = .003, partial η2 = .03] but not optimism [F (1, 508) = 1.18, p = .37, partial η2 = .001] and resilience [F (1, 508) = .92, p = .45, partial η2 = .007]. A post hoc analysis using Bonferroni corrections showed that the unemployed (M = 11.23) had lower hope scores compared to the students (M = 12.26), whereas, the self-employed (M = 14.40) had higher self-efficacy scores than the unemployed (M = 13.37), the public (M = 13.56) and the private employees (13.40).

Table 1: Combined psychological resources by socio-demographic distribution

Variables	n (%)	Pillai's Trace V	F	df	Error df	P	η2
Sex		.02	2.82	4	505	.025	.02
Female	225 (42.4)						
Male	306 (57.6)						
Age (years)		.04	1.57	12	1521	.09	.01
18-28	175 (33)						
29-39	163 (30.7)						
40-50	110 (20.7)						
> 50	83 (15.6)						
Marital status		.02	2.24	4	505	.06	.02
Single	239 (45)						
Married	292 (55)						
Geo-political zones		.003	.33	4	505	.89	.003
South West	427 (80.4)						
Others	104 (19.6)						
Education		.005	.34	8	1012	.95	.003
Postgraduate	232 (43.7)						
Graduate	205 (38.6)						
Others	94 (17.7)						
Employment		.07	2.21	16	2032	.004	.02
Public employment	216 (40.7)						
Private employment	100 (18.8)						
Self-employed	70 (13.2)						
Student	90 (16.9)						
Unemployed	55 (10.4)						
Perceived SES		.05	1.02	24	2032	.44	.01
Very low	18 (3.4)						
Low	69 (13)						
Low middle	100 (18.8)						
Middle	256 (48.2)						
High middle	69 (13)						
High	18 (3.4)						
Very high	1 (.2)						
House-hold size		.01	.70	8	1012	.70	.005
1-4	181 (34.1)						
5-8	309 (58.2)						
> 8	41 (7.7)						
COVID-19 diagnoses (self)		.01	1.26	4	505	.28	.01
Yes	3 (.6)						
No	528 (99.4)						
COVID-19 diagnoses (F & F)		.01	1.26	4	505	.27	.01
Yes	17 (3.2)						
No	514 (96.8)						

F & F = Family and friends

Level of activity engagements

Figure 1 indicates the level of involvement in each activity. Participants were more active on the social media compared to all other activities. This was followed by reading of the national dailies, religious devotions and watching of TV. Participants were least involved in game play.

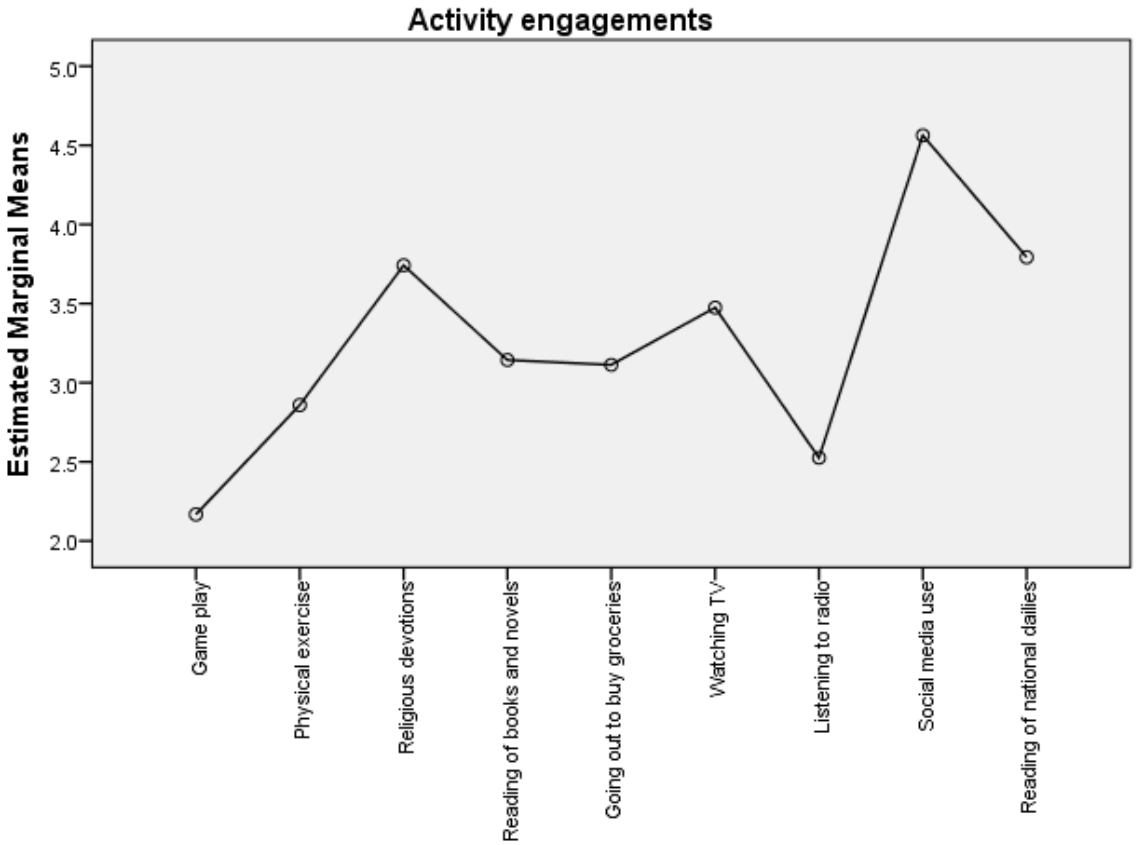

Fig. 1: Level of Activity engagements

Bivariate outcomes

The results of the bivariate relationship between activity engagements and dimensions of psychological resources are displayed in table 2. Except game play and reading of newspapers, all activity engagements significantly predicted hope. Specifically, an increase in activity engagements predicted an increase in hope. Significant beta coefficients range from .10 to .17. Physical exercise (β = .11, p = .013) and listening to radio (β = .10, p = .02) had the lowest coefficients while religious devotions (β = .17, p = .013) assumed the highest coefficient. Increase in optimism was significantly predicted by an increase in social media use (β = .22, p < .001) followed by religious devotions (β = .17, p < .001), going out for groceries (β = .13, p = .004) and watching TV (β = .11, p = .009). With the exception of religious devotions (β = .08, p < .001), all activity engagements were significant on self-efficacy with coefficients ranging from .09 to .20. Social media use (β = .20, p < .001) and listening to radio (β = .09, p = .03) had the highest and lowest beta coefficients respectively. Surprisingly, resilience was not predicted by any of the activity engagements.

Overall, asides game play and listening to radio, all activity engagements together with it full scores predicted psychological resources. Social media use (β = .23, p < .001) demonstrated the highest beta value. Also, increased activity engagements (full scores) predicted greater levels of hope (β = .23, p < .001), optimism (β = .19, p < .001), self-efficacy (β = .27, p < .001) and psychological resources (β = .27, p < .001).

Multivariate outcomes

After controlling for sex, employment status and social desirability in multivariate analyses (see table 3), the significant predictive abilities of some activity engagements found in the bivariate analyses were lost. Physical exercise, going out to buy groceries, listening to radio and reading of news were not predictive of psychological resources and its components. However, the use of the social media was found to predict hope ($\beta = .09$, $p = .04$), optimism ($\beta = .20$, $p < .001$), self-efficacy ($\beta = .17$, $p < .001$) and psychological resources ($\beta = .19$, $p < .001$). Religious devotions only predicted hope ($\beta = .12$, $p = .007$) and optimism ($\beta = .11$, $p = .017$) while game play ($\beta = .11$, $p = .01$) and reading of books/novels ($\beta = .12$, $p = .01$) predicted only self-efficacy. Watching TV was also found to predict hope ($\beta = .09$, $p = .05$), although at a very weak level.

Table 2: Bivariate associations of activity engagements and components of psychological resources

	Hope			**Optimism**			**Resilience**			**Self-efficacy**			**Psychological resources**		
	B	SE *B*	B	B	SE *B*	β	B	SE *B*	β	B	SE *B*	B	B	SE *B*	β
Game play	.01	.05	.01	-.01	.05	-.01	.03	.04	.03	.15	.05	.14**	.18	.13	.06
Physical exercise	.15	.19	.11*	.07	.05	.06	.03	.05	.03	.16	.06	.12**	.41	.15	.12**
Religious devotions	.26	.06	.17**	.22	.06	.17**	-.04	.05	-.03	.10	.06	.08	.54	.16	.15**
Reading books & novels	.18	.06	.13**	.10	.06	.08	.01	.05	.01	.20	.06	.15**	.49	.16	.14**
Going out for groceries	.23	.07	.13**	.20	.07	.13**	.09	.06	.06	.19	.07	.12**	.70	.19	.16**
Watching TV	.20	.06	.14**	.15	.06	.11**	-.02	.05	-.02	.13	.06	.10*	.45	.16	.12**
Listening to radio	.12	.05	.10*	.03	.05	.02	-.04	.04	-.04	.11	.05	.09*	.21	.14	.07
Social media use	.34	.12	.12**	.55	.11	.22**	.23	.10	.10*	.49	.11	.20**	1.62	.30	.23**
Reading of newspapers	.09	.06	.06	.10	.06	.08	.09	.05	.08	.19	.06	.14**	.48	.16	.13**
Activity engagements	.08	.02	.23**	.06	.01	.19**	.01	.01	.04	.09	.01	.27**	.25	.04	.27**

**p < .05; **p < .01*

Table 3: Models for the multivariate associations between activity engagements and components of psychological resources, controlling sex, employment and social desirability

	Hope			**Optimism**			**Resilience**			**Self-efficacy**			**Psychological resources**		
	B	SE *B*	B	*B*	SE *B*	β	*B*	SE *B*	β	B	SE *B*	β	B	SE *B*	β
Employment	-.32	.22	-.06	-	-	-	-	-	-	-.84	.21	-.16**	1.36	.67	.09
Sex	-	-	-	-.36	.15	-.11*	-	-	-	-	-	-	-.43	.42	-.04
Social desirability	.06	.10	.03	-.09	.09	-.04	.10	.09	.05	.20	.09	.09*	.27	.26	.04
Game play	-.03	.05	-.03	-.04	.05	-.04	.01	.04	.01	.12	.05	.11*	.08	.13	.03
Physical exercise	.09	.06	.07	.05	.06	.04	.02	.05	.02	.06	.06	.05	.20	.16	.03
Religious devotions	.18	.07	.12**	.14	.06	.11*	-.05	.06	-.04	.03	.06	.02	.26	.17	.07
Reading books & novels	.07	.07	.05	.03	.06	.02	.02	.06	.02	.15	.06	.12*	.26	.16	.07
Going out for groceries	.14	.08	.08	.11	.07	.07	.08	.06	.06	.08	.07	.05	.37	.19	.08
Watching TV	.13	.06	.09*	.06	.06	.05	-.05	.06	-.04	.04	.06	.03	.15	.16	.04
Listening to radio	.06	.05	.05	.00	.05	.00	-.05	.10	.10	.06	.05	.05	.09	.14	.03
Social media use	.25	.12	.09*	.48	.11	.20**	.22	.10	.10	.42	.11	.17**	1.33	.31	.19**
Reading of newspapers	.01	.07	.01	.04	.06	.03	.06	.06	.05	.10	.06	.08	.21	.17	.06
ΔR^2		.06			.08			.02			.10			.09	
R^2		.08			.10			.02			.13			.11	
ΔF^2		4.65**			5.02**			1.294			6.56**			5.94**	
F		3.93**			5.08**			1.292			6.93**			5.56**	

**p < .05; **p < .01*
Employment (students = 0, others =1) → hope
Employment (self-employed = 0, others =1) → self-efficacy
Employment (unemployed = 0, others =1) → psychological resources
Sex (female = 0, male =1)

DISCUSSION

The psychological resources of hope, self-efficacy, optimism and resilience are shown to buffer the impact of negative events on mental health conditions during difficult times (e.g. Archaya & Agius, 2017; Ran et al., 2020). Given these protective functions, this study examined how activity engagements during the COVID-19 lockdown predict individuals' abilities to manifest the intrapersonal strengths of optimism, resilience, self-efficacy and hope. We also investigated how some socio-demographic factors could determine these psychological resources.

The outcomes of bivariate analyses showed that activity engagements generally predicted hope, optimism, self-efficacy and overall psychological resources. With the exception of resilience, increased involvements in activity engagements predicted greater levels of psychological resources and its components. Generally, social media use, religious devotions and going out to buy groceries were found to have stronger influence on psychological resources compared to other types of activity engagements. This may be partly because individuals were more involved in these activities compared to the others during the lockdown. These findings support previous outcomes that showed that routine use of the social media can be advantageous for positive self-rated health, social and psychological wellbeing (Bekalu, McCloud, & Viswanath, 2019). The strength of religious faith can promote positive psychological functioning by increasing hope, optimism and resilience (Salifu Yendork & Somhlabam, 2017). Also, going out to buy groceries provides individuals with the opportunity of relieving themselves of the boredom associated with staying indoor for the majority part of the day, and as such may predict the sense of hope and optimism that the world is not 'collapsing'.

Further, after social media use; game play, reading of books, novels and newspapers were more impactful on self-efficacy than all other engagement types. This may be so because engagements in these types of activities build the confidence of people in their abilities to surmount life problems. For example, winning games, and reading motivational books and other resources during the lockdown may train individuals' psyche to believe that they can always overcome trying times, and not become susceptible to mental breakdown. It is specifically demonstrated in the literature that game play increase the perception of self-efficacy, positive mental health and general health functioning (Costa, Veloso, Loizou, & Arnab (2018); Gauthier, Kato, Bul, Dunwell, Walker-Clarke & Lameras, 2019).

However, outcomes of multivariate analyses (after controlling for social desirability, sex and employment) demonstrated the use of the social media was uniquely significant on overall psychological resources while other engagement types were not. This implies that the use of the social media was a major influencer of the personal resources to cope with the restrictive difficulties associated with the lockdown. Daily activities on the Facebook, Twitter, WhatsApp, Instagram and other social media platforms engaged the minds of the people and possibly enabled them to cope with the monotonous living, fatigue and lethargy accompanying the lockdown. It was surprising that physical exercise was not predictive of psychological resources and its components. We guess that this may be due to the lower frequency of engaging in this activity.

Of all the socio-demographic factors, only sex and employment were found to predict psychological resources. Specifically, females were found to be more optimistic than males while those who were self-employed reported higher self-efficacy level than the unemployed, and those employed by both government and private organisations. Finding are consistent with past outcomes showing females to have higher optimistic beliefs than males although at adolescence (Webber & Smokowski, 2018) and young adulthood (Bharti & Rangnekar, 2019). The finding showing that the self-employed participants possess greater psychological resources in terms of self-efficacy than other employment statuses supports the social cognitive career theory (Lent et al., 1994) stating that becoming self-employed is governed by individuals' self-efficacy beliefs.

Since the decision to become self-employed is predicted by entrepreneurial self-efficacy and increased expectation to succeed (Segal, Borgia & Schoenfeld, 2002), it is expected that the self-employed would report greater self-efficacy than other employment types.

Similar to findings of studies employing the cross-sectional design, our results do not assume cause-effect relationship between activity engagements and psychological resources. We may not also be sure whether the relationship established between the two variables is purely peculiar to the period of the COVID-19 lockdown or can be generally associated with normal times. Prospective studies can make clarifications on this. Our study may additionally be limited since data were collected using self-report measures. One may not be certain whether utilizing only self-report data may confound study's finding. However, we assessed for this by controlling for social desirability and found no significant impact. The generalizability of our findings to all regions and tribes in Nigeria is also limited given that up to 80% of the study participants are from the South-west geopolitical zone which substantially consists of the Yoruba ethnic group. In addition, our sample consists of mostly educated participants. Replication studies are needed to test the generalizability of finding among other cultures/races, and less or non-educated individuals.

Conclusion

We establish that both specific and general activity engagements of individuals during the COVID-19 lockdown predict the level of psychological resources needed to overcome the mental health difficulties associated with challenging times. Generally, all activity engagements are positively associated with all types of psychological resources except resilience. However, social media use has a unique and stronger influence on psychological resources compared to other activity engagements. Being actively engaged during periods of lockdown may enhance the psychological capacity to maintain positive mental wellbeing.

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