Health and Academic Achievement
New Findings

Edited by Blandina Bernal-Morales

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Meet the editor

Dr. Blandina Bernal-Morales was born in Xalapa, México, 1971. She received a degree in Biological and Pharmaceutical Chemistry from Universidad Veracruzana, México. She obtained an MSci in Neuroethology from the same university, and a Ph.D. in Psychology from the Universidad Nacional Autónoma de México (UNAM). She is a researcher in the neuropharmacology lab of the Institute of Neuroethology at the Universidad Veracruzana and teaches pre-and postgraduate students. Dr. Bernal-Morales' preclinical and human research concerns stress, academic performance, and experimental pharmacology related to anxiety and depression in infancy and adulthood. She has directed theses and is the author and co-author of original papers about stress, behavioral neuroscience, scientific divulgation, and education.

Contents

Preface

Education is one of the strongest predictors of health and wealth. The COVID-19 pandemic has presented a challenge to authorities, teachers, students, and families worldwide. Over the last year, there has been a transition to digital teaching and learning. In the educational field, school closures led to the deployment of distance learning modalities and actions directed at preserving the health and wellbeing of students [1].

This book is a follow-up to the previous edition, which published in 2018. *Health and Academic Achievement - New Findings* includes six chapters authored by academics from Europe, Asia, Africa, and America who provide a fresh look at education and health in present times. The book begins with an introductory chapter that points out the importance of well-being to take advantage of education and presents some recent articles that address the need to provide fair educational opportunities to children and adolescents at risk of mental health problems [2]. Considering the advantages and limitations of statistical approaches [3], the book includes a meta-analysis of thirteen studies that look at the influence of some moderators on the association between mental health and academic achievement. The reader will also find an interesting chapter about education in children younger than 3 years that discusses a program that focuses on the provision of quality services for these children. The chapter addresses the delivery of quality, informal early learning environments, which is one of the goals of the Nurturing Care Framework from the World Health Organization [4]. Given that rural areas remain marginalized [5], the fourth chapter explains whether the presence of a career calling predicts mental and physical health in high school teachers. Another chapter analyzes K-12 principals' perceptions on hiring licensed graduates with bachelor degrees from online teaching programs, which are becoming a new paradigm of teaching [6]. Finally, the last chapter, taking into account increased social isolation and loneliness due to physical distancing measures during the COVID-19 pandemic, reviews the challenges induced by social isolation on mental health and academic achievement [7].

The purpose of the book *Health and Academic Achievement - New Findings* is to return to the issues that concern education and health today. We have experienced an unprecedented phenomenon with the COVID-19 pandemic. We are closer to witnessing the end of this critical situation with the support of global strategies that have prepared us to overcome the challenges imposed by the virus. The acceptability of lifestyle changes, the quality of informal early learning environments for young children, the relation between career calling and health of teachers, digital transformation in educational systems, the acceptability of online teaching degree earners, and the impact of school closure and home confinement are addressed in this book. Readers interested in education and health around the world, no matter age, country, or profession, are sure to find the information contained herein useful and relevant. I would like to thank

all the contributors to this volume for their excellent work and patience during the publication process. I am also grateful to the readers for appreciating and using this work.

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Introductory Chapter: Wellness for Education

Blandina Bernal-Morales

1. Introduction

Access to education is a human right, and it belongs to the 2030 Agenda for Sustainable Development "to promote social and labor inclusion, helping to reconcile economic growth, equality and participation in society". So, one of the priorities on education for health and well-being according to United Nations Educational Scientific and Cultural Organization (UNESCO) is to ensure adequate learning environments to children and young people with a new vision in the next years [1]. The organizations do their work, meanwhile professors and researchers at schools and education institutions are doing their best to reach educational goals.

It is unquestionable that education has changed fast in the last year, however, its purposes are the same: the integral development of individuals, the betterment of society as a whole in which people are aware of their rights and duties. This commitment in education is unattainable without proper health because cognitive function is closely related to the function of many organs and tissues in our body, but mainly to brain processes.

2. Health impact on performance

Now more than ever physical and mental health has gained a priority place worldwide. This is why the generation of knowledge is very important to make it reach everyone in a fast and accessible way. Particularly, research about the acquisition of knowledge and goals by students is one of the most studied topics about academic achievement. This is why this second book was elaborated. First, I must say that the first book of *Health and Academic Achievement* published a couple of years ago, collect evidences about physical and psychological health related with performance in student population [2]. Authors presented studies were school was the place full of children and young people where face-to-face social interaction prevailed. Now, conditions have changed and the systematic studies about how challenging times impact the academic performance are just being generated. It is well-known that particularly mental health and academic achievement are inversely related. The time when this relationship develops is not fully understood and studies are scarce. A recent longitudinal study investigated whether mental health predicts academic performance in childhood and adolescence and, vice versa. With the control for a variety of variables, mental health problems at age 3 and age 12 increase the risk for performing below or completing school. Academic performance during adolescence did not increase the risk for mental health at age 20 probably because of a considerable drop-out rate and long-time span between variables. Despite this, relationship between mental health and academic achievement motivates awareness to provide attention to education [3]. In addition, there is

an increased need of residential mobility for better education or job opportunities. Moving experiences impact health and academic achievement. High resilience and higher family income mitigate the poorer mental health and the lower academic performance in university students who live moving experiences after age 6 and age 12 [4]. But even if residential mobility occurs at the beginning of university times, it could undermine self-identity, and social behaviors in students. Therefore, also socialization skills must be correctly developed in order to cover one of diverse aspects related to health and academic performance.

Adolescents who graduate from high school and decide to continue to the university live a transition period which make young people to face separation from family and be responsible for their new lifestyle. Meanwhile, during this late adolescence the brain is undergoing accelerated growth and shows increased sensitivity to stressors related to financing studies, making new friends, living in a new environment. With reference to the above, there is an important finding in freshmen that increase in about 8% their depressive and anxiety symptomatology scores after completion of the first year of university. In that longitudinal study depression and anxiety symptoms were associated with lower grades so it is suggested to include strategies to facilitate transitions through university and community based clinical programs [5]. There are of course additional elements contributing to a lower academic achievement like problematic smartphone use, alcohol consumption and impulsivity [6]. The sources of stressors in high school adolescents can slightly be different from university students. For example, being a bully victim at age 16–19 is strongly associated with mental health, sleep problems and lower academic performance [7]. In addition, having chronic health conditions like asthma, mental health diagnosis, and attention disorders during kindergarten to secondary is negatively associated with attendance and grade point average [8]. Appropriated sleep is essential for ensuring a good health since differences in sleep timing like bed time, rise time, mid-point of sleep and sleep duration in school-age children and youths show associations with low academic performance, depressive symptoms, high risk of substance use, overweight/obesity, behavioral problems and suicidality [9, 10]. From preschool age the first predictor of school failure and health outcomes maybe absenteeism. Many reasons including individual, family and school factors can contribute to poor attendance that is why pediatricians could promote school attendance, and reduce chronic health disparities [11]. Like the aforementioned and other interesting proposals of preventing and attending health issues could take many books and papers to write.

The negative impact of mental health on academic stress or vice versa is common to find in literature despite that it should not occur, in an ideal scenario, however, there are many strategies to reduce the negative relationship among them. First, prevention of mental disorder and promotion of good mental health is the key to reduce the increasing rates of students affected. It is interesting that empirical research to strengthen good mental health receive less research than the prevention of poor mental health. One problem is the consensus of the concept of good mental health in young population. There is an interesting proposal about it as a state of well-being to cope with normal and destructive stressors, to be resilient and productive. Authors propose at least 14 core domains to operationalize the purposes of interventions in promoting it such as mental health literacy, attitudes towards mental disorder, self-perception an values, cognitive skills, academic/occupational performance, emotions, behaviours, self-management strategies, social skills, family and significant relationships, physical health, sexual health, meaning of life, and quality of life [12]. In particular, academic performance obtained from school records of knowledge, attendance, adjustment and adaptation could affect mental health that in turn has an influence on scholar performance but this domain of

academic performance and the others are recommended to be investigated in order to find the most effective intervention. Nowadays education online predominates at home and is the only way for a while, the question is how to maximize academic achievement or learning outcomes. In a simple concept, online education pretends learning and teaching in digital environment. But limited findings do not permit conclusions of the relationship between academic performance and online learning. The challenge to learn disciplines that implies technical skills has been overcome [13, 14] but the research of critical success factors for the effective implementation of e-learning and teaching must be mandatory since lack of training can prevent the optimal use of digital resources, and the investment of school, university or other educational settings has an important role to motivate students and instructors [15] even in emergency remote teaching [16].

3. Invitation

The study of health and academic achievement needs to go on. There is a vast field of research but also of practical solutions to apply on education issues. Health is increasingly seen as a more integral aspect with emotional well-being. Simultaneously, better academic performance from early age would ensure better stress-coping strategies for the future. Reading about academic achievement allows to comprehend implications for health professionals, administrators, and educators.

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Chapter 2

Relation between Student Mental Health and Academic Achievement Revisited: A Meta-Analysis

Gokhan Bas

Abstract

In the present research, the relationship between mental health and academic achievement in adolescents was investigated. The research adopted meta-analysis model to investigate the relationship between these two phenomena. In the meta-analysis, 13 independent studies were included, and their data were combined to display effect sizes. According to the result of the research, it was indicated that there was a positive relationship between mental health and academic achievement. Also, it was revealed that there was no significant relationship within sub-group variation in the relationship between mental health and academic achievement in terms of year of publication, publication type, community, and sample size, but not the setting.

Keywords: mental health, academic achievement, mental health in adolescents, meta-analysis

1. Introduction

In recent years, mental health of adolescents has taken considerable attention worldwide, because of a dramatic upward trend in suicide [1]. More than twenty percent of adolescents in the U.S. have a mental health disorder [2], and one in five of them are affected by a mental health problem [3], which is estimated to account for a larger burden of disease than any other class of health conditions [4].

The mental health field has traditionally focused on psychological ill-health, such as symptoms of anxiety or depression [5]. The most common mental health disorders among adolescents include obsessive–compulsive disorder, attention deficit hyperactive disorder, bi-polar disorder, impulse disorders, and oppositional defiance disorder [6]. Often, adolescents experience mental health problems, with fewer than half of them [7], in other words nearly one third of them need receiving treatment [8]. The situation is much more severe in adolescents living in racial and ethnic communities, who are more likely to have mental health problems [9]. Moreover, evidence suggests that adolescents coming from such communities are less likely to use mental health services, compared adolescents living in non-racial and ethnic communities [10]. Thus, when adolescents struggle with mental health problems, they often have attendance problems, difficulty completing assignments,

increased conflicts with adults and peers [11]. Also, mental health problems adolescents have negatively impact their academic productivity and interpersonal relationships [12], and as a result of such problems, one million of adolescents – which is deemed to be very high – drop out of school annually in the U.S., for example [13].

Mental health issues among adolescents not only cause such problems, but they also negatively influence schooling [14]. Adolescents with mental health problems are at risk for schooling [15], and they may have increased difficulties primarily with academic achievement in school [16]. Frequent feelings of mental health problems exhibit school difficulties, including poor academic achievement [17]. Adolescents displaying strong mental health are likely to have better academic achievement, compared to adolescents displaying weak mental health [18]. Adolescents showing strong mental health have good social skills with both adults and peers [19], and their enhanced social and emotional behaviors have a strong impact on academic achievement [20]. Therefore, mental health problems in adolescents may have an important influence on academic achievement, which in turn have lifelong consequences for employment, income, and other outcomes [21]. Mental health issues may become problematic for adolescents in that they negatively influence academic achievement [22], which also might affect their future employment, health, and socioeconomic status [23].

Mental health problems of adolescents have an important influence on their schooling, particularly their academic achievement, which in turn may create important lifelong consequences. Due to a growing interest in mental health of adolescents in recent years, a meta-analysis seems timely, not only to demonstrate the association between mental health and academic achievement, but also to identify moderators that should be articulated in more depth in future research. Although there is a body of research on the relationship between mental health and academic achievement across the world, the literature is missing a meta-analysis of this relationship. To date, no meta-analytic research has examined the potential relationship between mental health and academic achievement, and the present research aims to fill this gap in the scope. Thus, the present research attempts to synthesize this association between mental health and academic achievement of adolescents. This meta-analysis aimed to answer the following research questions: (a) What is the relationship between mental health and academic achievement? (b) Does this relationship depend on year of publication? (c) Does this relationship depend on setting? (d) Does this relationship depend on community? (e) Does this relationship depend on sample size?

2. Methodology

2.1 Model

The present research adopted meta-analysis model [24] to combine data from independent studies to draw a single conclusion with greater statistical power [25]. Meta-analysis is a model that reviews the research results and combines the data obtained from independent studies in statistical ways [26].

2.2 Data sources

Research examining the relationship between mental health and academic achievement was identified through a search of reference databases. To identify relevant empirical research on the relationship between mental health and academic achievement, a systematic literature review was conducted over a

two-month time for the period 2000 to 2020, using such databases as Education Resources Information Center (ERIC), PsycINFO, Web of Science, EBSCOhost, Science Direct, Scopus, ProQuest®, and Google Scholar, with the following queries: [("mental health" OR "mental health disorders") AND ("mental health and academic achievement" OR "mental health disorders and academic achievement"], ["academic achievement" AND "academic success"], [("adolescents mental disorders" OR "adolescents mental health") AND ("adolescents mental health academic achievement" OR "adolescents mental health disorders academic success")]. As a result of such review, a total of 52 studies including 34 journal articles and 18 postgraduate dissertations were reached. Thus, over 50 potential independent studies were generated for preliminary review as a result of the literature search.

2.3 Inclusion criteria

To be eligible for inclusion in the present meta-analysis, a study had to (a) investigate the relationship between mental health and academic achievement; (b) include studies conducted on adolescents; (c) have taken place from 2000 to the present; (d) be reported to be available in English; and (e) include sample size and correlation coefficients.

The first four criteria were used in an initial screening of the abstracts of the studies. If the study had no abstract available, the full publication was collected and examined thoroughly. For the last criterion, the full publication was examined, and it was checked whether it included sample size as well as correlation coefficients. For the studies with insufficient statistical information, the corresponding author was contacted and the relevant information for the missing data was requested. If the author did not respond or could not provide the missing data, the study was excluded from the meta-analysis. After checking each study in the light of the inclusion criteria, the author agreed that 13 studies met all the five criteria of the research (see **Table 1**).

In order to investigate possible relationship between mental health and academic achievement, five moderators were extracted from the studies [40]. The first moderator concerned with the year of publication. The year of the publications were classified as 2009–2014 and 2015–2020, with a range of five years. The second moderator, publication type, referred to whether a study appeared as a journal article or a postgraduate dissertation. The third moderator, setting, referred to the country in which the research was conducted. Because the studies included in the meta-analysis were not from diverse settings – they were mainly coming from the U.S. and some Asian countries including India and Iran – the setting was classified as U.S. and non-U.S. The fourth moderator of the research, community, referred to the society people are living in. Because there was no study only conducted in rural settings, the community included urban and combination (urban, suburban, and rural). The last moderator, sample size, was classified as 1–500 and 501 above.

2.4 Computation of effect sizes

Standard procedures for conducting meta-analyses were followed [41], and the correlation between mental health and academic achievement were examined though effect sizes of independent studies. The effect size obtained in meta-analysis is a standard measure value used to determine the strength and direction of the relationship in the research [42]. In meta-analytic research, the variance depends strongly on correlation coefficient [43]. Pearson's correlation coefficient

Author(s)	Publication type	Setting	Community	Sample size
White [27]	Dissertation	U.S.	Urban	780
Sathiyaraj and Babu [28]	Journal article	Non-U.S. (India)	Combination	750
Chung [29]	Dissertation	Non-U.S. (Australia)	Urban	261
Eisenberg et al. [30]	Journal article	U.S.	Urban	2.798
Gilavand and Shooriabi [31]	Journal article	Non-U.S. (Iran)	Combination	200
Mundia [32]	Journal article	Non-U.S. (Brunei)	Urban	6
Geetha [33]	Dissertation	Non-U.S. (India)	Combination	1.088
Jenkins [34]	Dissertation	U.S.	Urban	331
Singh [35]	Journal article	Non-U.S. (India)	Urban	200
Sheykhjan et al. [36]	Journal article	Non-U.S. (Iran)	Urban	314
Murphy et al. [37]	Journal article	Non-U.S. (Chile)	Urban	37.397
Talawar and Das [38]	Journal article	Non-U.S. (India)	Combination	200
Manchri et al. [39]	Journal article	Non-U.S. (India)	Urban	270

Table 1.
Studies included in the meta-analysis.

(r) was calculated as effect size in the present research. For this reason, correlation coefficients were transformed into Fisher's z coefficient for computing the effect sizes, and analyses were conducted through the transformed coefficients [44]. In meta-analysis research, when the variable consists of more than one factor and when more than one correlation value is given, there are two different approaches about which one of them can be used [45]. In this research, if the correlations were independent, all relevant correlations were included in the analysis and accepted as independent studies. When dependent correlations were given, the correlations were averaged.

There are two basic models in meta-analysis research; they are fixed effects and random effects models. When deciding which model to use, it is necessary to look at which model's prerequisites are met by the features of the studies included in meta-analysis [46]. The fixed effect model is based on the assumption that when the data obtained are homogeneous, all the collected studies estimate exactly the same effect [47]. In this model, it is thought that the variance among the study results is caused by the data related to each other [48]. According to the fixed effect model, there is one effect size shared by the studies showing the same effect size for all studies [49]. In cases where the studies included in the meta-analysis show heterogeneous characteristics, it is more appropriate to use the random effect model [50]. This model is used in cases where the data obtained are not homogeneous [51]. As a result, while deciding which statistical model to use during meta-analysis, it should be tested whether the effect sizes show a homogeneous distribution.

In addition, the coefficient classification is taken into account in the interpretation of the effect sizes obtained as a result of meta-analysis [52]. In this research, Cohen's [53] effect size classification was taken into account in the interpretation of effect sizes. According to this classification, values between .20 and .50 correspond to small effect size; values between .50 and .80 correspond to medium effect size; and values above .80 correspond to large effect size.

2.5 Publication bias

Publication bias refers to the possibility that all studies performed on a particular subject will not be representative of the reported studies [54]. Since the studies where statistically significant relationships are not determined or studies with low level relationships are not deemed worthy to be published, this affects the total effect size negatively and increases the average effect size bias [55]. So, effect sizes seem to be higher than what they normally are [56].

A number of calculations are used to reveal publication bias in meta-analysis research, including methods such as funnel plot, classical fail-safe N, Orwin's fail-safe N, and Duval and Tweedie's trim and fill. The first method used to determine whether studies have publication bias is funnel plot [57]. The funnel plot, which displays the possibility of a publication bias in meta-analysis research [58], created for the relationships between mental health and academic achievement was shown in **Figure 1**.

The funnel plot is expected to be significantly asymmetrical in publication bias. In cases where publication bias is not observed on the funnel plot, the effect sizes are symmetrically scattered around the vertical line. The line in the middle of the funnel plot shows the overall effect, and individual studies are expected to cluster around this line [59]. Studies which are asymmetrically scattered around the funnel plot refer to a possible publication bias in meta-analysis [60].

Also, classical fail-safe N was performed to reduce the average effect size to insignificant levels which is needed to increase the p-value for the meta-analysis to above .05 [61]. Classical fail-safe N showed that a total of 1699 studies with null results would be required to bring the overall effect size to trivial level at .01. Besides, Orwin's fail-safe N was performed to decide the values of criterion for a trivial log odd's ratio and mean log odds ratio in missing studies [62]. As a result of it, the number of missing null studies to bring the existing overall average effect sizes to trivial level at .01 was found to be .243.

Lastly, to assess the possibility of publication bias in the studies the trim and fill method, which is a nonparametric method of data augmentation used to estimate
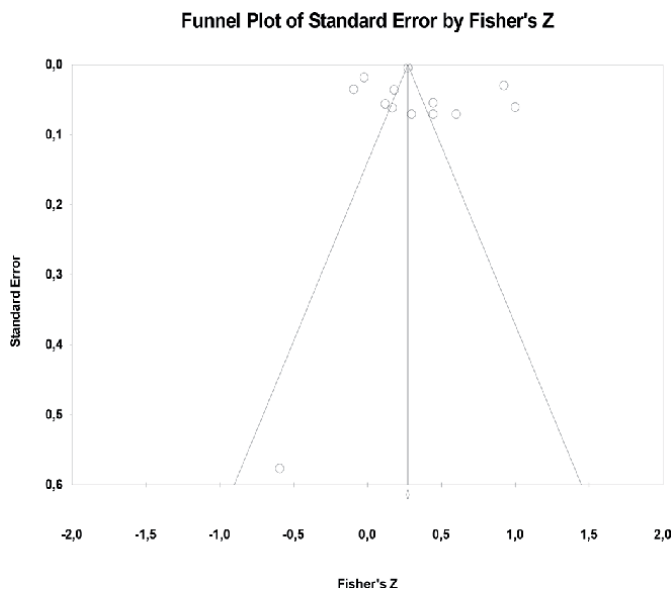

Figure 1.
Funnel plot for the effect size of the relationship between mental health and academic achievement.

the number of studies absent from a meta-analysis due to the exclusion on one side of the funnel plot of the most extreme findings [63], was performed. With the help of this statistic, small studies at the far end on the positive side of the funnel plot are removed. The effect size is recalculated until the funnel plot is symmetrical [64]. When there is publication bias in the studies, the effect sizes are distributed asymmetrical on the funnel plot. In the research, the funnel plot provided evidence that there is no publication bias in the meta-analysis.

3. Results

3.1 Overall results

A total of 13 studies were included in the meta-analysis with a sample size of 44.595 adolescents. As a result of the comparisons, the Q value indicated that the distribution of effect size of the studies was heterogeneous, $Q(12) = 1002.815$, $p < .001$, so that a random effects model was adopted in the meta-analysis (see **Table 2**).

Table 2 demonstrated the relationship between mental health and academic achievement of adolescents. The effect size of the relationship between mental health and academic achievement computed by random effects model was $r = .334$ (95% CI = .187–.467). The confidence interval showed that the true effect size was likely to fall in the .187 to .467, which indicated a low to medium effect [65]. The computed effect size revealed that there is a moderate level of positive correlation between mental health and academic achievement. The forest plot of the relationship between mental health and academic achievement was displayed in **Figure 2**.

Moderator analyses were performed to examine whether the effect sizes were attributable to the basic research sub-groups. Results indicated that this was not the

Model	k	d	SE	95% CI		Q_b	df_q	p_q	I^2
				Lower	Upper				
Overall	13	.334	.155	[.187	.467]				98.803
Year of publication	4	.256	.034	[.227	.285]	.004	1	.949	.00
2009–2014	9	.267	.010	[.258	.276}	.005	1	.942	.00
2015–2020	9	.256	.010	[.247	.265]				
Publication type	4	.430	.047	[.397	.462]				
Journal article									
Dissertation									
Setting^a	3	.107	.232	[−.126	.329]	3.899	1	.048	.00
U.S.	10	.399	.206	[.212	.557]				
Non-U.S.									
Community^b	9	.250	.010	[.241	.259]	.990	1	.320	.00
Urban	4	.532	.051	[.502	.562]	.796	1	.360	.00
Combination	8	.408	.053	[.369	.447]				
Sample size	5	.260	.010	[.251	.268]				
1 ≤ N ≤ 500									
501 ≤ N									

[a]Due to that they did not report in English, other studies coming from diverse settings across the world were not included.
[b]Because there was no study only conducted in rural settings, the community included urban and combination (urban, suburban and rural).

Table 2.
Results related to overall effect sizes of the studies.

Study name	Statistics for each study					Correlation and 95% CI
	Correlation	Lower limit	Upper limit	Z-Value	p-Value	
White, 2016	-0,090	-0,159	-0,020	-2,516	0,012	
Sathijarah and Babu, 2016	0,182	0,112	0,250	5,030	0,000	
Chung, 2016	0,170	0,050	0,286	2,757	0,006	
Eisenberg et al. 2009	-0,019	-0,056	0,018	-1,005	0,315	
Gilavand and Shooriabi, 2016	0,293	0,161	0,415	4,237	0,000	
Mundia, 2011	-0,530	-0,938	0,494	-1,022	0,307	
Geetha, 2014	0,729	0,700	0,756	30,521	0,000	
Jenkins, 2019	0,420	0,327	0,505	8,108	0,000	
Singh, 2015	0,420	0,299	0,528	6,284	0,000	
Sheykhjan et al. 2017	0,123	0,012	0,231	2,180	0,029	
Murphy et al. 2015	0,270	0,261	0,279	53,539	0,000	
Talawar and Das, 2014	0,540	0,434	0,631	8,480	0,000	
Manchri et al. 2017	0,763	0,708	0,809	16,395	0,000	
	0,334	0,187	0,467	4,310	0,000	

-1,00   -0,50   0,00   0,50   1,00
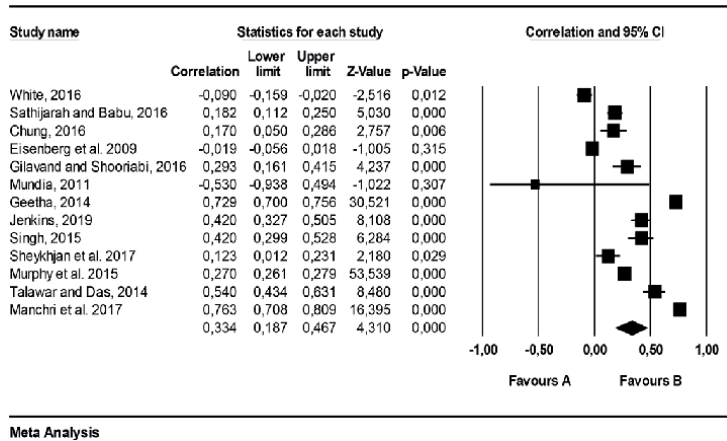
Favours A   Favours B

Meta Analysis

Figure 2.
Forest plot of the relationship between mental health and academic achievement.

case, as neither sub-group, excluding the setting, moderated the research findings. There was no significant relationship within sub-group variation in the relationship between mental health and academic achievement in terms of year of publication $Q_b(1) = .004$, $p = ns$, publication type $Q_b(1) = .005$, $p = ns$, community $Q_b(1) = .990$, $p = ns$, and sample size $Q_b(1) = .796$, $p = ns$, but not the setting $Q_b(1) = 3.899$, $p = .048$. In other words, no significant moderation effect was found, which means that the relationship between mental health and academic achievement does not depend on the basic sub-groups, excluding the setting.

4. Discussion

The present research quantitatively synthesized the results of 13 independent studies, conducted over the past two decades, which examined the relationship between mental health and academic achievement in adolescents. The results of the research confirmed that there is a significant positive relationship between mental health and academic achievement. These results are consistent with the recent research investigating the relationship between mental health and academic achievement [27, 34]. Mental health problems may create many obstacles to adolescents, not just in their daily life routines, but also in their schooling academically. Mental health risks have long term and complex interactions with academic outcomes [27]. Mental health issues among adolescents not only cause pain and distress, but they also influence negatively their potential for success in school [14]. More and more adolescents – for example in the U.S. – face with mental health problems annually [1], and their behaviors lead to feelings of anxiety or depression [66]. The effects of mental health problems negatively influence the academic performance primarily [22], and as a result of it, more than one million adolescents drop out of school every year in the U. S. [23]. Mental health problems make adolescents face with a decline in academic achievement [67], which in turn results in school absence, poor grades, and even repeating a grade in school [68]. Those adolescents reporting high level of mental health problems are more likely to perceive themselves as less academically competent [69], and they display low academic achievement in school [70]. When schools identify problem behaviors with programs of intervention, it is likely to improve academic achievement of adolescents [71]. Well planned and well-implemented programs to foster mental health [72] can make

adolescents achieve better academically in school [20]. However, in the U.S. – for example – 70 percent of adolescents who need mental health intervention cannot receive services [22], and nearly one third of them who need help receive treatment [8], which in turn negatively influences their academic achievement. Therefore, early detection of mental health problems of adolescents can have access to appropriate services which lead to improvement in both mental disorder symptoms and academic performance [73].

In addition to these overall findings, this meta-analysis also looked at the influence of some moderators in the association between mental health and academic achievement. It was revealed that no variables moderated the relationship between mental health and academic achievement, but not the setting. There was no significant relationship within sub-group variation in the relationship between mental health and academic achievement in terms of year of publication, publication type, community, and sample size.

First, year of publication did not appear to be a moderator in the association between mental health and academic achievement, indicating that the effect sizes of all studies included in the meta-analysis were similar. Second, the publications included in this meta-analysis were dissertations and journal articles. Although dissertations had a higher effect size compared to journal articles, publication type did not appear to be a moderator in the relationship between mental health and academic achievement. This showed that in spite of the fact that journal articles are selective to display significant results [74], they produced similar effect sizes as with dissertations which keep relatively minor results unpublished. Third, community did not appear to be a moderator in the association between mental health and academic achievement, which indicated that studies conducted both in urban and combination societies had similar effect sizes. This result revealed that mental health of adolescents living in both urban and combination communities is associated positively with academic achievement. Also, sample size did not appear to be a moderator in the relationship between mental health and academic achievement. Studies including more than 500 adolescents did not contribute significantly to the effect sizes, which indicated that the association between mental health and academic achievement was not affected by sample size.

However, it was indicated that setting appeared to be a significant moderator in the association between mental health and academic achievement. This result showed that studies conducted in the U.S. and countries out of the U.S. impacted differently to overall effect size. According to this result, countries out of the U.S., which are mainly Asian contexts, had a high effect size in the relationship between mental health and academic achievement. It may be due that the U.S. has relatively more racial and ethnic communities, or immigrants, compared to other countries, and such diversity of the U.S. may have an influence on the result obtained in the research. In the U.S. 70 percent of the adolescents need mental health interventions [22]; however, the situation is much more severe in minority communities [9]. Adolescents living in racial and ethnic communities in the U.S. are less likely to use mental health services due to poverty in particular [10]. Poverty has a disproportionate effect on racial and ethnic minorities, and adolescents who live in such condition are more likely to have a mental disorder [9]. As a result, almost half of the adolescents living in ethnic and racial communities in the U.S. fail to graduate due to the low level of academic achievement in school [75].

Lastly, although the meta-analysis included the studies which took place from 2000 to the present, no study could be reached in 2020 probably due to the Covid-19 pandemic. Since the outbreak in Wuhan, China, nearly all countries across the world has faced with the Covid-19 pandemic in 2020. The pandemic has created severe consequences for millions of people in either losing their lives or their jobs.

Many countries, including the U.S., the U.K., France, Germany, China, Italy, and Spain at the top, imposed lockdowns for several months and tried to prevent the fast spread of the virus. The pandemic not only affected general health of individuals and social lives of people, but it also impacted the schooling of many students. Most educational institutions around the world canceled in-person instruction and moved to distant teaching in an attempt to contain the spread of Covid-19 [76], and they are still pursuing this kind of teaching through digital platforms, such as Zoom, Skype, Google Meet, Microsoft Teams, and so on. Owing to the closure of schools, researchers have faced with considerable difficulty in reaching participants to conduct empirical studies; so this may have influenced the future research on the relationship between mental health and academic achievement in 2020.

On the other hand, the Covid-19 pandemic might have affected the mental health of adolescents worldwide because they were imposed curfew for several months at home. During the lockdown, millions of adolescents had to stay home, and they were in social isolation both from their peers and the society. Many countries implemented isolation policies for adolescents in particular, due to the fact that these individuals have the potential to spread the virus easily to relatively older people which may result in higher fatalities. Affected by the long months in lockdown, many adolescents had to spend their time at home and pursue their education through digital platforms. Many adolescents faced with severe difficulties in pursuing their education at home, as well as they had problems in access to treatment as a result of losing their mental health. Many students confined at home due to Covid-19 may have felt stressed and anxious, and this may negatively have affected their mental health [76]. Many adolescents, having mental health problems, have faced with severe academic difficulties and dropped out of school [77]. During the pandemic, the dropout rates in adolescents have substantially increased across the world, and this in turn may have affected their schooling negatively, particularly their academic achievement. However, there is no empirical evidence to support the relationship between mental health and academic achievement during the Covid-19 pandemic; therefore it is timely to conduct research to investigate this potential association to prevent mental health disorders in adolescents and improve their academic achievement. Although the present meta-analysis showed that there is a positive relationship between mental health and academic achievement in adolescents, this cannot be the case during the pandemic. Months of curfew and lockdown may have influenced the mental health and academic achievement of adolescents; so future research is needed to better clarify the relationship between these two phenomena.

5. Conclusion

The present meta-analysis aimed to determine the relationship between mental health and academic achievement in adolescents. This research, as expected, confirmed that there is a positive relationship between mental health and academic achievement. The research also indicated that mental health of adolescents is very important for schooling, in that it has a potential to influence academic achievement positively or negatively. Therefore, it is deemed crucial for adolescents to have a strong mental health to perform better academically in school, which in turn have lifelong consequences for employment, income, and other outcomes [21].

Results also indicated that there was no significant relationship within subgroup variation in the relationship between mental health and academic achievement in terms of year of publication, publication type, community, and sample size, but not the setting. It was indicated that setting appeared to be a significant

moderator in the association between mental health and academic achievement. This result showed that studies conducted in the U.S. and countries out of the U.S. impacted differently to overall effect size. According to this result, countries out of the U.S. had a high effect size in the relationship between mental health and academic achievement. The effect size of the studies conducted in the U.S. was found to be relatively low, which implied that ethnic and racial diversity might have an impact on the result obtained in the research. This underlines the role of the school; thus, if schools identify mental health problems of adolescents with programs of intervention, it is likely to improve academic achievement [71]. Schools play an important role in determining the mental health of adolescents because they serve more than 95 percent of a country's young people population [78].

A relatively small number of studies have been identified in the present meta-analysis, so more studies are needed to better clarify the relationship between mental health and academic achievement in adolescents. This research included only studies reported in English; therefore further meta-analyses might be conducted to include other reports out of English. Also, the role of school-based intervention programs in the relationship between mental health and academic achievement has not been taken into account in the present meta-analysis, so further research might be carried out to clarify the issue. The research has reported that school-based intervention programs may be effective to prevent mental health problems, and thus foster academic achievement [14]. In particular, adolescents living in ethnic and racial communities suffer from mental health problems, and academic achievement in school is influenced by such background. Because of this, mental health issues of adolescents living in ethnic and racial communities should be taken into consideration seriously.

Conflict of interest

The author has no conflicts of interest to declare.

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Child Care for the under 3 Year Old Children: Experiences from Lesotho

Edith M. Sebatane, Maretšepile Mahamo and Phaello Ntšonyane

Abstract

Lesotho, like many developing countries, experiences challenges in providing quality early childhood services for children below 3 years of age. No formal education programme for children aged below 3 years exists yet, except the informal daycare centres run by inexperienced child-minders. At this tender age, the focus for child development and care must focus on child protection, healthy stimulation nutrition and health. Realizing the need for quality child services for the age cohort, Catholic Relief Services Lesotho introduced a programme named *Whose Child is This?* (WCIT) that focuses on provision of quality services for the children. This chapter shares Lesotho's experiences in addressing delivery of quality informal early learning environments. A case study of one daycare centre in the Maseru Industrial settlement was undertaken focusing on practices and services rendered to children aged below 3. New lessons learned were the need for partnerships among agencies serving children's needs, and collaboration with parents strong advocacy for implementation of the Nurturing Care Framework is critical for all ECCD service providers. Institutions of higher learning need to step forward to produce research evidence on importance of strong foundations for children aged below 3 years.

Keywords: quality, nurturing, daycare, vulnerable, nutrition, health, stimulation

1. Introduction

Global initiatives, among them, *A World Fit for Children, Education for All (EFA), the Millennium Development Goals (MDGs)* and now, *the Sustainable Development Goals 2030* (with specific reference to Goal 4.2 – that reads "… ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education") have all devoted attention to the well-being and development of children indiscriminately. To this effect, the issue of providing children below 3 years of age with quality early care and stimulation, is of paramount importance because to ensure a good start in early childhood, children need attention from the earliest moments of their lives. Therefore quality early childhood services matter. Furthermore, following the quest for action to implement the rights of children below 3 years of age to "survive and thrive", global institutions (WHO, UNICEF, World Bank, Maternal

Health and Newborn and Child Health) partnered to turn this wish into reality, and implementation of the rights of the children through developing the Nurturing Care Framework.

1.1 Nurturing care framework

The Framework is a new initiative that was launched at the 71st World Health Academy to address recognition of the importance of, and research evidence on investments in early childhood development. The Framework addresses five main components of care which are; *good health, adequate nutrition, safety and security, responsive* caregiving *and opportunities for learning*. Needless to say, the components listed form the basis for child survival and development. It all begins with a pregnant mother who has to stay healthy, eat well, be emotionally balanced and is safe and protected in order that the unborn baby is surrounded by a positive environment that ensures its survival when it is born.

The quality of care and nurturing could however differ in different contexts depending on each family's socio-economic background. For instance, where families are poor, infants and children become vulnerable and they face many threats that affect their quality of life, such as infant and childhood diseases like diarrhea, and exposure to poor nutrition due to families' inability to provide food and other livelihood needs.

As the world journeys to 2030, countries have committed to "leave no one behind" hence the SDGs require urgent action in order to implement actions and programmes that will ensure all children are included in the global development agenda.

2. The context

The Kingdom of Lesotho is a small landlocked mountainous country located in Southern Africa and it is completely surrounded by the Republic of South Africa. The country has four distinct ecological zones; the mountains, foothills and Senqu River Valley which altogether occupy almost three quarters of the total land area in the eastern parts, and lastly, the remaining one quarter of the land is the western lowlands area. Lesotho's population is estimated at 2.2 million people [1]. Children aged between 0 and 5 years are reported to form 13.5 percent of Lesotho's total population [2]. The 0-5 years old children are served in early childhood development programmes and the parents who afford to pay the fees charged in the ECD and daycare centres enroll their children [3]. The Government of Lesotho regards education as key to the country's economic development and; early childhood development and education (ECDE) is recognized as the foundation level for lifelong learning. The Lesotho government is therefore committed to supporting programmes for the 0 to 5 year old children [4] and for government, setting up quality programmes that offer integrated and holistic early childhood services are the hallmark of child development.

Lesotho, like many developing countries, experiences challenges in providing quality early childhood services for children below 3 years of age. Despite research on neuroscience informing that the first three years of life are critically important for ensuring good child development, many countries still face challenges in improving children's developmental outcomes. The Lesotho National Policy for Integrated Early Childhood Care and Development (IECCD) 2013 [5], calls for individualized and intensive home visiting services for Lesotho's most vulnerable

children who, if they are not identified and served between 0 – 36 months of age, shall cost society and result in provision of costly remedial services to children later.

In Lesotho, one of the strategic goals for Early Childhood Care and Development (ECCD) is "Improved access to comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children [4]. As it is currently, there is yet no formal early childcare and education programme for children below 3 years of age in Lesotho, except for the informal daycare centres run by inexperienced child-minders who provide a much needed service by the working parents while they go to earn income for their families. Realizing the gap in child services for the children below 3 years of age, in April 2015, Catholic Relief Services Lesotho, one of the partners and a member of the IECCD Multi sectoral team, embarked on a project for this age group, named *Whose Child Is This?* (WCiT). The intention was to support efforts of the ECCD programme in the delivery of quality informal early childhood survival and learning environments.

This chapter presents a case of a specific daycare centre in Thetsane industrial area in Maseru and shares experiences of Lesotho regarding the extent to which the care practices implemented by the caregiver seemingly address the five components of the Nurturing Care Framework. A combination of care and nurture attributes that are: trained caregiver, childcare facility, child care guidelines and early stimulation, health and nutrition, safety and protection, are likely to enhance the quality of care of infants who could otherwise be vulnerable and disadvantaged if they never received such care.

Until recently, early childhood education in Lesotho was offered through three approaches: the Early Childhood Care and Development (ECCD) centres for children aged 3–5 years, the Home base centres (2-5 year old children) and the preschool/reception class phase for 5 years old children who will enroll in primary schooling at age 6. The newest approach is the daycare service that provides childcare services for toddlers and infants below 3 years of age.

A number of stakeholders such as ECCD service providers, line ministries, non-governmental organizations and individuals in the country have, over the years expressed concern over the plight of children aged below 3 years. This age cohort is generally serviced in uncoordinated services that present poor health conditions, poor nutrition, inadequate social welfare and protection. As a result, the development of these children is compromised. Lesotho's population is approximately 2.2 million people and of that about 227,000 are children aged between 2 and 4 years.

The Lesotho Demographic Health Survey [2] presents the situation of children in Lesotho. Statistics below depict a depressing picture of the children. The under 5 mortality is 85 deaths per 1000 live births, while infant mortality is 59 deaths per 1000 live births. Breastfeeding stands at 95 percent with 67 percent babies exclusively breastfed while maternal mortality stands at 1,024 deaths per 100,000 live births. Immunization coverage is 68 percent, stunting stands at 33 percent while birth registration at national level is 68 percent and lastly, hand washing with soap and water stands at 46.2 percent. This situation calls for concerted effort of all stakeholders to engage in actions that provide care aimed at addressing the overall well-being of children below 3 years of age.

In Lesotho, because of an increasing number of women engaged in paid employment, particularly young women in urban areas living around the textile factories, infants and toddlers of some of the working mothers are cared for in paid daycare facilities that offer child minding services in the absence of better options for child care in the family. The facilities are usually private family homes where the caregiver uses her house for both child care services and own household activities. Caregivers who are providing the service are volunteers. They charge a monthly fee

amounting to about US$18 - US$22 which is deemed rather steep by many parents. While the day care service is critical for families that access it, the caregivers are mostly untrained and have quite limited information about child development and child care for that age cohort.

Catholic Relief Services (CRS) attests to this situation as they highlight that "delivery of quality IECCD services to all children in Lesotho under the age of 5, regardless of their social or household economic status, is not currently a reality. Poorly trained teachers are working in sub-standard teaching environments with little support from the community; parental training programmes for the stimulation of children are not provided..." [6]. Due to lack of training, the caregivers have limited knowledge of how to run a daycare service while others regard the service as mainly income generation opportunity. In these circumstances, the lives of the children are in danger. Therefore, in a country that is concerned about its young, quality and well-structured early child care programmes are a requirement and must ensure holistic development of the children. The Lesotho National IECCD policy expresses the need to pay attention to the critical ages of early childhood however the government of Lesotho is not yet formally committed to support the daycare programme where children aged below 3 years are cared for. Although legislation such as policies, guidelines and protocols for children exist within different ministries that address children's matters, (particularly Ministry of Education and Training, Ministry of Social Development, Ministry of Health and Ministry of Home Affairs), what remains is the need for strengthened collaboration between these ministries to agree on cost sharing of activities and services for young children.

2.1 Retšepile Jesu Daycare Centre

Retšepile Jesu Daycare centre was started in 2009 as a voluntary service of child care provided by a young woman aged about 30 years. The daycare facility is located in the Thetsane industrial area which is inhabited largely by families comprised of single mothers who are employed in the textile factories in the area. The caregiver was prompted to open the daycare centre after realizing that the women factory workers with babies and young children did not have a place to leave their children while they were at work. She started the centre with only three (3) children; a boy aged 3 months, a girl aged 5 months and another girl aged fifteen months. The caregiver used her two-roomed rented house and particularly her kitchen was used for all activities with the children. She provided child care services of feeding and changing nappies only. There was no schedule for daily routine or any organized child activity. A monthly fee ranging between US$4.4 (for toddlers who were toilet trained) and US$6.9 (for toddlers who were not toilet trained) was charged for the child care service. With time, other women also brought their young children. The centre grew and more children were enrolled. There was no feeding programme as a result the parents who could afford, provided meals for their children. In many cases, the food was not nutritious and it comprised mainly of soft porridge and one vegetable or soft porridge with beef stock. The caregiver had no training in child care except the experience she had from raising her own children. She was not aware of what quality child care meant and why it was important. However, there was concern from some ECCD teachers in the area that since the caregiver cared for infants; she had to inform the community chief about the daycare centre. Infants and young children need special care offered by a knowledgeable or trained adult who would be able to monitor their safety and general wellbeing. Similar conditions in many other surrounding daycare facilities in the area were experienced. The situation of the young children cared for in those facilities called for immediate attention and intervention that would save their lives.

2.2 Description of intervention

In 2015, the Catholic Relief Services (CRS) Lesotho, a partner with Ministry of Education and Training, the Early Childhood Care and Development (ECCD) Unit, started a project, *Whose Child is This?* The project was an intervention to address the deplorable condition of children in the daycare facilities at the Thetsane Area. In 2014, a child who had been seriously ill-treated by a caregiver in one of the day-care centres in the area prompted action of the community and ECCD stakeholders. The story had gone viral in local radio stations and newspapers. Due to that, the ECCD Unit visited the concerned facility and discovered there were many other daycare facilities that had mushroomed and were not known or "registered" with Ministry. The response to this situation resulted in more visits to the facility from ECCD stakeholders, partners and non-governmental organizations. The visits revealed the following concerns: "unsafe physical environments where children were cared for, unsanitary practices among facilitators/caregivers, overcrowding, inadequate and poor nutrition, and lack of activities to stimulate the development of children" [7]. The major challenge faced by caregivers in the daycare centres was lack of training and experience in the care of children aged below 3. Catholic Relief Services therefore designed the *WCiT* project to address the situation. Three strategic objectives of the project were:

S.O 1. "Children in targeted communities access higher quality and inclusive IECCD services.

S.O 2. Key stakeholders in Lesotho take ownership of IECCD services in targeted communities.

S.O 3. Improved development outcomes are monitored and improved" [6].

One of the interventions made was the design of "one stop service delivery centres" that offered critical services needed by children and families and the services were provided by specialist agencies such as nutrition sector, immunization and health checks to detect any malfunctions and disabilities among the children, protection and education services. Activities days named *well-being days* (WBD) were designed by CRS and held once every quarter on a Sunday in the community affected. The WBDs were meant to sensitize parents and communities about the importance of child development. On such days, CRS in collaboration with the departments of health, social protection, nutrition and other critical partners, offered their specialized services of immunisations, deworming and others to ensure all children whose parents attended the activity, benefited from the services given. Additionally, there is training of caregivers in child care and stimulation that is provided, resulting in implementation of all the three strategic objectives of WCiT? project indicated above.

2.3 Achievements

Achievements were realized due to the intervention. First, the training of caregivers including their willingness to participate in the project was realized. In the particular daycare centre, the caregiver went further to enroll for a 2-year training programme in early childhood education with the Lesotho College of Education. She reported that she completed her studies and now holds a certificate in early childhood education (CECE). She further explained that she took the decision to enroll because she felt it was important for the children to receive proper care provided by a knowledgeable person. She alluded that she was aware that children had the right to *good and loving care* provided by knowledgeable and trained adults.

Secondly, the project was successful in introducing well-being days (WBDs) since the services that were offered attracted a lot of parents who under normal circumstances rarely had time to take their children to access some of the services, particularly in the health centres. In her words, the caregiver said, "*Now I understand the importance of good nutrition in the early years of a child's life, therefore I cook for them so that I can introduce different foods and menus. That has made me happy.*"

Lastly, the project has helped to improve child development outcomes through parents' better understanding of child nutrition, health, protection and stimulation by parents and families. In this regard, parents provide children with adequate and proper nutrition.

3. Lessons learned

In discussing the lessons learned by the caregiver, the Nurturing Care Framework (NCF) is used to form the basis of the discussion. The Framework [8] promotes a holistic approach in early childhood development. It asserts that for a child to grow up well it must be healthy, have good nutrition, responsive care, stimulation, safety and security. There are five components of the NFC. However, in this paper, specific focus is on components 1, 2 and 3. Components 4 and 5 were not specifically highlighted in the study because issues of safety and security including early learning surfaced in the care practices discussed in the three components researched on. The components are presented as individual themes that guide the discussion and are accompanied by questions that were posed to the caregiver and the observations that were made. In that regard, it is hoped that the study would inform how the caregiver's care practices linked with the Framework.

3.1 Component 1: good health

The nurture and care surrounding this component relates to monitoring of children's physical and emotional condition; giving affectionate and appropriate responses to child's daily needs, protecting child from household and environmental hazards, practicing hygiene which minimizes infections, use promotive and preventive health services and seeking appropriate treatment for children's illnesses.

In **Table 1** below, the caregiver commented on good health and related health matters of babies in her centre.

Questions asked	Caregiver response	Finding/result
Why must improvement of health and child wellbeing begin from pregnancy to 3 yrs. of age (0-3)?	Wellbeing of a child begins during pregnancy, health and nutrition status of the expecting mother affects the development of the child.	Caregiver has knowledge of the requirements for preparing for a healthy start for a new-born baby.
How are you as caregiver, able to influence that?	I have no influence because I do not know much about the pregnancy of the mothers. I only see the children when they are enrolled at my daycare centre.	Caregiver does not seem to have direct influence over what the condition of the mothers is during pregnancy. Here there is a gap in knowledge of the caregiver regarding a mother's status during pregnancy and the subsequent transition of a child from home to daycare.

Questions asked	Caregiver response	Finding/result
But then what interventions do you as the caregiver undertake to ensure babies under your care are fed appropriately?	Caregiver informed that she discusses with the mother the importance of good nutrition in the first 2-weeks of the life of the infant. I advise the mothers to visit health centres and to abide by the requirements for mixed feeding.	Caregiver has knowledge of disadvantages of mixed feeding but that if the mother is unable to provide breastmilk for the child at the daycare centre, then she has to follow proper feeding practices as advised at the health centre.
How do you ensure children in your centre are protected and safe in the environment they are cared for?	I am renting a room where I have established the centre. I do not keep dangerous objects that can harm children, example sharp objects, buckets of uncovered water and paraffin.	Caregiver is aware of safety issues for children. She has taken care to ensure the environment is safe. The children are however mostly kept indoors where most of the activities are undertaken such as sleeping, eating indoor play and stimulation activities.
What do you do when a child cries consistently?	I know it is a sign of illness or the child is telling me something. Children cry when they want to talk to us. I therefore check if they are wet, or they have a high temperature. These are the skills I have always practiced with my own children.	Caregiver has some skills she learned as a mother and she applies them with the children to attend to their needs. It is good that she knows that babies cry to communicate with adults.
What do you do when a child falls sick while in your care?	There is a clinic nearby. I have entered into some agreement with the parents to allow me to take children to the clinic when they are sick and then call to inform them afterwards. I have their mobile numbers. From the fees they pay, I use some of the money to buy airtime to talk with them.	Caregiver knows she has to seek immediate medical attention to address the sick children's ailments. She seems knowledgeable about health and wellbeing of the children in her care and she takes responsibility to safeguard the children's health.
Do you know the kind of immunisations babies and young children need to ensure they stay healthy and develop appropriately?	The parents are required to bring children's Health Record Books "Bukana" to the daycare centre and when the nurses or health workers visit the centre, they check the immunization history of the child and inform me if the parent has not taken the child for the required immunization injection. I know of some the immunizations but not all, particularly I do not know the times when those immunisations have to be administered.	Caregiver does not seem to have clear knowledge of the immunization schedules. However, she relies on the clinic nurses when they visit and they are able to detect which immunization the children have skipped.
How do you interact with the child during feeding and, or nappy change?	I talk with the children, during such activities. I engage in baby play motions, sooth the baby who cries, and generally engage with the baby to calm him. However, when the child cries continually I check his nappy and sometimes I discover that the nappy is wet or is soiled.	

Table 1.
Good health and health matters of babies.

3.2 Component 2: adequate nutrition

The component relates to a baby's nutrition right from when a mother is pregnant and eats well in order to supply micronutrients and supplements that help baby to develop. Brain development is critical in the first three years of a child's birth hence breastfeeding, particularly exclusive breastfeeding, is critical from immediately after baby's birth. Complementary feeding must be introduced from 6 months hence food safety and family food security are essential for adequate nutrition.

Below in **Table 2**, the caregiver commented on the issue of nutrition of the babies in her centre.

Question asked	Caregiver response	Finding/result
How do you think nutrition affects children's development?	I believe that good nutrition is important for children to develop. Lack of proper nutrition can affect all areas of development.	The caregiver recognizes the importance of good nutrition in the development of children.
Are children provided with balanced and nutritious food at the centre?	Initially parents were providing lunch boxes for the children, but some of them were not providing children with balanced meals. Due to insufficient funds, they would provide only porridge or rice which are starch food.	The caregiver is aware that children need to eat all the three types of food – energy giving, body building and protective foods.
How did you address the problem of children not being provided balanced food?	I talked to parents to make sure that they provide children with balanced food, and also to include fruits in the lunch boxes. Many parents failed to oblige because they said they had no extra funds to buy other "extras" for the children. I was concerned with this situation because some children had started to show signs of malnutrition. The visits by the clinic nurses raised the same concern,	The caregiver realized that the poor nutrition of children had a negative impact on their healthy development. A strategy she devised to address the children's nutritional needs was to introduce feeding at the centre. Caregiver held meetings with individual parents when they came to collect their babies and she raised concerns about the child's nutrition. Parents were requested to ask parents to pay some money for feeding so that caregiver could provide some nutritious and adequate meals at the centre.
How did you decide on the menu for the children's feeding?	*Through CRS training I was able to draw feeding menu to ensure that children are fed well.*	CRS training had impact on the children's feeding at the centre.

Table 2.
Nutrition of babies.

3.3 Component 3: responsive caregiving

Responsive caregiving entails observing and responding to babies' and children's needs and their movements. This caregiving practice is the basis for protection of baby against injury; recognition of baby's illness or discomfort, learning and building of social relationships and trust.

The caregiver was surveyed on how she provided responsive caregiving to babies and toddlers in her centre (**Table 3**).

Question asked	Caregiver response	Finding/result
What kind of stimulating activities did you do with children when you first started the centre?	Initially I used to think that all I needed to do was to see that the children are fed and their nappies were changed.	The caregiver had not received any training regarding young children's development.
	After receiving training from CRS and Certification in Early Childhood Education from Lesotho College of Education I now know that children need to be stimulated in order for them to develop to their full potential.	The caregiver has acquired knowledge and skills of stimulating young children.
What kind of activities do you do with children?	Reading stories and playing games with the toddlers mostly. The 0-1 year old children needed one-to-one attention when doing the stimulation activities. However, sometimes I could not attend to a single baby if more than one were awake. That was a challenge because sometimes I would have to soothe one who is crying and somehow ignore to provide necessary attention to the others. As children become toddlers, I started to make sure that I stimulated them in at least three learning areas each day but that the activities were short in duration. There are some toys and manipulatives, bright objects to dangle and teddy bears to play with.	The caregiver seems to have knowledge of the importance of play in young children's development, and in developing their communication skills and early learning.
Why should the activities be of short duration?	I know that babies cannot engage in the same activity for a long time, I have to give them time to rest but ensure that at the same time they develop their muscles. I learned this in my studies at the College.	The caregiver is aware of the role of play in child development and she keeps play materials that stimulate learning of children.

Table 3.
Responsive caregiving to children's needs.

4. Discussion

The Nurturing Care Framework provides the importance of why care and nurture must be accorded the children in order that they can "survive and thrive". The critical attention we need to pay to the earliest moments of a child's life cannot be understated. A child's foundation to survive and thrive is nested in the nurturing environment in order for a child to develop socially, physically, cognitively, emotionally and spiritually [9]. The role of nutrition, good health, early stimulation, protection and safety of both the mother and child can ensure that children have a chance to develop holistically.

In the case study centre, the caregiver seems to be familiar with some of the critical actions and requirements for child development and wellbeing. She further applies some of the knowledge she had when she was bringing up her own children and she applies that appropriately. However, being unsure of the immunization schedule and proper injections children require at a specific time might compromise the health of the child and put children at risk. Nonetheless, she seems to rely on the services she gets from scheduled visits of clinic nurses in the area to undertake

health checks of the children. One critical finding from the daycare centre was that the caregiver had no knowledge of the pregnancy history of the mother. That lack of knowledge would possibly deny the baby proper attention it required in the event the mother herself had had a difficult pregnancy period that might have affected the baby's healthy development. It would seem the caregiver needs to conduct one-to-one interviews with the mothers of the babies in her care in order to learn more about the history of the baby from conception. Such additional information would then be documented in the baby's health book and when necessary it would be shared with the health facility when need arose.

On the other hand, some serious challenge the caregiver had was that of parents who did not provide balanced and nutritious food for the children's meals. The fact that some children had only starch-based foods compromised their nutrition. Nevertheless, the caregiver with consent from the parents introduced feeding at the centre and parents had to pay increased fees and that practice allowed children to be provided with good nutrition. Through the CRS training that the caregiver had attended, she was able to design an appropriate menu for the children. Adequate nutrition throughout the early years from pre-natal to eight years cannot be over-emphasized. Inadequate nutrition before birth and in the first years of life can seriously interfere with brain development and lead to such neurological and behavioral disorders as learning disabilities and mental disorders [10]. Therefore, when children do not feed well, they become vulnerable to diseases that could otherwise have been curbed through good nutrition.

At the beginning, Retšepile Jesu Day Care centre was neither registered nor formally known to the Ministry of Education and Training. Resultantly, the day-care centre was not receiving any support in terms of training of the caregiver and advice or guidance on baby care. After the Day Care centre and others in the area were known to the Ministry and other partners in ECCD, the caregivers in the area were exposed to basic training on child development and care. The care-giver's enthusiasm and desire to provide improved and quality child care service, prompted her later to enroll for a Certificate in Early Childhood Education (CECE) course at the Lesotho College of Education. She qualified in 2018 and currently she strives to improve her practice at the centre. In a study conducted in Kenya in 2000, mothers of children below 3 years of age reported that they ensured their babies were happy by singing lullabies to them or feeding them (p. 132, [11]). On the other hand, Dodge and Phinney [12] highlight the importance of play in early childhood. They inform that "play provides the foundation for academic or "school learning". It is the preparation children need before they learn...play is the work of young children", (p. 3). The issue of care and nurture is one of the critical ingredients to a healthy start for young children and where parents engage in such care practices, as stimulation and play, the children are likely to benefit.

5. Conclusions and recommendations

As mentioned earlier, this study was undertaken to establish how far the care practices offered by the caregiver were aligned to some of the components of the Nurturing Care Framework. The Framework is relatively a new innovation and as such, had never been introduced to the caregiver, let alone to a number of ECCD stakeholders in the country. The extent of the quality of care and nurture that the caregiver has been sensitized about may be sufficient to ensure children benefit extensively from how she interacts and handles them. If the caregiver had been knowledgeable about the Framework, it would be expected that her care and nurture practices would be adequate. It is therefore concluded that

some aspects of components 1, 2 and 3 of the NCF are practiced by the caregiver although the quality of care and nurture may still remain inadequate given that the caregiver is still learning how to implement some of the practices in the Framework.

5.1 Recommendations

To ensure nurturing and care are entrenched in care practices for young children, it is recommended that:

First, at national policy level where decisions are taken, attention should be made on enforcement of policies and other legal instruments that support ECCD providers and other stakeholders with knowledge on how to provide an enabling environment to cater for the needs of children. Such environment should raise issues of resource allocation, both physical and financial, in support of the endeavor.

Second, the lead ministry, in collaboration with the IECCD multi-sectoral team and with support from partners (UNICEF, World Bank, World Health Organization) must ensure that training in the application of the Framework is offered and guidelines for its implementation are availed. Advocacy for implementation of the Framework must be set as a priority in all efforts undertaken to improve the wellbeing of children, and particularly children aged below 3.

Third, lessons learned from the practices of the caregiver at the daycare centre could form a platform for other caregivers in the area regarding how child care can be improved for the benefit of children's wellbeing. Furthermore, experiences that have been uncovered in the case study centre could be used as a basis for designing a study with wide coverage to investigate the care and nurture practices as outlined in the Nurturing Care Framework, among the different caregivers in various settings in the country.

In summary, quality child care is a partnership between day care settings and a child's parents (family). Caregivers, as providers of the valuable service of child minding, play a critical role in the healthy development of children. Therefore, the ability to nurture children to optimal growth and development depends on the quality of skills, knowledge and attitudes that caregivers learn from training. The Nurturing Care Framework offers support to how caregivers are guided to provide good health, good nutrition, responsive caregiving, stimulation, safety and protection of the children. Therefore, strong foundations must be built right from the start. The above sentiment is represented graphically below.
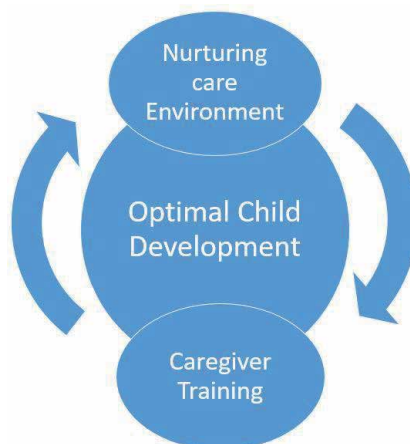
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Conflict of interest

The authors declare that the contents herein are entirely their own work, except where other sources have been acknowledged and furthermore the chapter has not been previously submitted for publication elsewhere.

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The Influence of Career Adaptability on Career Calling and Health of Teachers

Herring Shava and Willie Tafadzwa Chinyamurindi

Abstract

The challenge of work often imposes a range of physical and mental health challenges to teachers. There is a need not only to find strategies that promote the health of teachers but also to assist teachers in their profession, albeit challenges that may exist. The chapter explains whether the presence of a career calling predicts employee mental and physical health. Focusing on a sample of teachers in rural high schools, the moderating effect of career adaptability on the relationship between the presence of a career calling and employee mental and physical health was investigated. Quantitative data were collected from a sample of 214 teachers through a self-administered questionnaire. Simple linear regression and hierarchical regression analysis were the statistical techniques performed to make meaning of the data. Simple linear regression results indicated that the presence of a career calling significantly influenced mental health but had no statistical significant influence on physical health. The hierarchical regression results revealed that career adaptability negatively influenced the relationship between the presence of a career calling and both aspects of health (mental and physical). Based on the findings, strategies are put in place that are three fold aimed at improving career development and health of teachers.

Keywords: career adaptability, calling, mental health, physical health, teachers

1. Introduction

Career calling has emerged as a popular subject of interest within the contemporary career academic and practitioner press [1]. Traditionally, career calling has been studied mostly from a religious context internationally [2] and in South Africa [3]. However, due to the pressures with in modern life, work is affected. Lent [4] noted a major driver of the world of work being technology. This is also coupled by other individual and environmental factors that affect not just the work but also the possible meaning that can be ascribed to work [1]. This has all led to calls for more nuanced multidisciplinary understanding around the experience of work under such difficult times [5]. Put simply, career calling is ascribed to refer to the drive that assists an individual to gain some form of purpose or meaning in their life [6]. This state of being is derived from the interplay between individual and environmental forces [7]. In essence, others, for example, Duffy and Sedlacek [8] associated quests for a calling to emanate from outside pressures and subsequently

influence the individual internally. The presence of a calling is argued to bring a sense of direction in an individual's life [9] and ultimately becomes an occupation an individual settles in [10].

There has been a notable positive response to calls for research focusing on understanding the notion of a career calling. We note some gaps in the extant literature. First, with regard to research, we note a scant focus as a link between career calling and outcomes related to health [11] and within professions such as teaching. Most research has centred on outcomes of work such as work engagement, job satisfaction, and turnover [12–16]. Given challenges affecting the contemporary world of work, we magnify the need to explore health outcomes related to the lived experience such as mental health and physical health.

1.1 Chapter context

The teaching profession is in a state of flux. The journey into teaching for some, especially in South Africa, may not have been due to the exercise of choice [17]. Career paths such as teaching were mostly positioned for the Black populous who could not exercise career choice [18]. Also included are career paths such as being a social worker and a nurse [19]. This positions for the need for redress in South Africa [20–22]. Linked to this are also challenges affecting those within professions such as teaching (inclusive of the public service). These challenges are mostly health related such as mental health and have their origin in the work done by such employees [23–24]. This chapter is positioned in a South African rural context, using a sample of teachers working in the Eastern Cape Province of South Africa. Rural areas in South Africa remain marginalized with issues illustrating the poverty and inequality gaps being apparent [4, 25, 26]. The challenges in rural communities may potentially affect how teachers perform duties around teaching and learning with implications also for career mobility [27]. Given such a context, strategies are needed to assist teachers in rural areas to adjust to the harsh realities they face that impact their career paths [17].

1.2 Chapter goals

The chapter's goal is to explain whether the presence of a career calling predicts employee's mental and physical health. The chapter further explains whether career adaptability moderates the relationship between the presence of a career calling and employee health measured through mental and physical health. Overall, the chapter answers the following question: What is the influence of career adaptability on the relationship between the presence of career calling and employee mental and physical health?

The chapter is structured as follows: first, the theoretical and empirical literature is presented. This is inclusive of the hypotheses that were tested and of the conceptual model. Thereafter, the methodology, results and discussion sections are presented.

2. Theoretical lens

Given the interdisciplinary nature of this chapter, some theoretical positions are noted. Making use of the Calling Theory of Psychological Success (CTPS) developed by Hall and Chandler [28], the presence of a calling has been linked to positive behaviour inclusive of a range of organisational outcomes [29–30]. This can also be linked to the Career Construction Theory (CCT), a popular career theory [31–33].

The thinking here through the presence of a calling is that individuals develop a set of meta-competencies such as career adaptability. A contemporary response to the ideas espoused in the CTPS and CCT is through the Work as a Calling Theory (WCT) [1]. The WCT explores the experience of how an individual when perceiving their career as a calling, this may in turn result in the living of a calling. The distinction, yet linkage, is between the perception and ultimately the reality. This distinction and linkage do not in any way divorce the individual from facing individual and contextual challenges [34] but proffer a way of managing these.

3. Empirical literature

3.1 Career adaptability, career calling and health

The empirical literature appears to show connections between the variables under study. Research found the absence of a calling to be associated with negative behaviours such as depression, irritation, anxiety, withdrawal intent, and physical symptoms [11]. The thinking here could be that in the life of an individual, work, especially decent work, has the potential to satisfy individual needs and drives with the added benefit of creating social connections [34]. The presence of such a state of being around the meaning of work for the individual has the potential to affect not just individual but also community well-being [35]. This also leads to the salient link that has been made between the meaningful work and calling with outcomes such as (a) life satisfaction, (b) life meaning, (c) job performance, (d) job productivity, (e) commitment, and (f) motivation [36–37].

Career adaptability becomes a critical aspect of individual career development. The thinking here is that through career adaptability, the individual has a strategy that assists to manage career shifts and experiences [38]. These shifts and experiences may have their origin within an ever-changing work environment. Research attributes the current environment especially with reference to the economic outlook to have a bearing on employee loyalty as well as morale motivation and job security [39]. Potentially, career adaptability may exist as a possible panacea to manage such change.
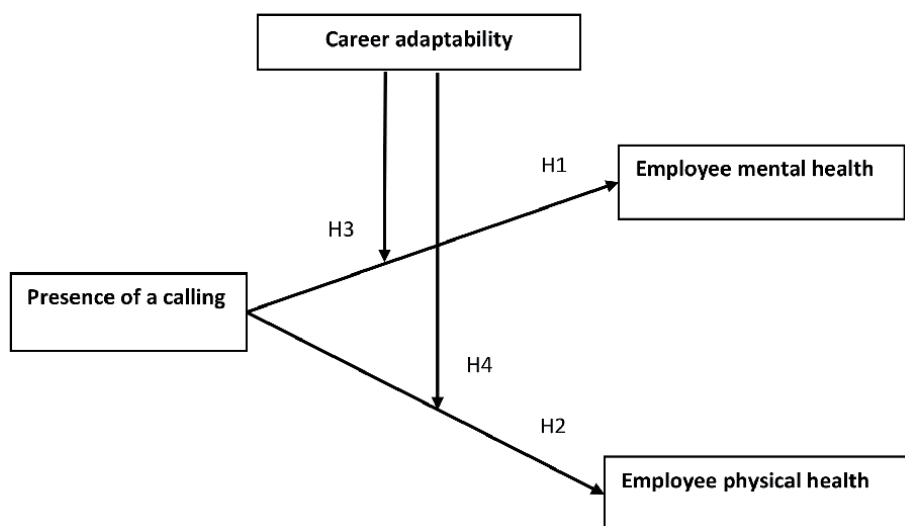

Figure 1.
Conceptual model.

The empirical evidence appears to show support for the notion that career adaptability functions as a self-regulatory tool for managing stress, thereby promoting employee health in the periods of career shifts [38, 40–41]. Subsequently, the nature of the changes happening in the world of work affects employee well-being [42]. Based on the presented literature, the following hypotheses were formulated:

H1: Presence of calling predicts employee mental health.

H2: Presence of calling predicts employee physical health.

H3: Career adaptability moderates the relationship between presence of calling and employee mental health such that when career adaptability is high, the relationship between presence of calling and employee mental health is stronger.

H4: Career adaptability moderates the relationship between presence of calling and employee physical health such that when career adaptability is high, the relationship between presence of calling and employee physical health is stronger. **Figure 1** presents the conceptual model that was tested.

4. Materials and methods

4.1 Respondents

Participants were a convenience sample of 214 high school teachers (grade 11 and 12), working in the Eastern Cape Province of South Africa, accessed over a 10-month period. The sample by gender consisted of 53% females and 47% males; by race, the majority (95%) were from the black population and only 5% were Coloureds. About 65% were aged between 30 and 40 years, and most of the sample (70%) had over 10 years of work experience.

4.2 Measures and outcomes of reliability tests

Given that three main constructs existed in this study, this section reports on the measures used for these constructs. Career adaptability was measured through four subscales on a measure originally designed by Savickas and Porfeli [43]. The measure for career adaptability had four subscales, namely, concern, control, curiosity, and confidence. Each of the mentioned subscales is made up of six items, each measured on a five-point Likert scale ranging from 1 = not strong to 5 = strongest. We performed reliability tests of the career adaptability scale and found associated Cronbach alpha coefficients as follows: concern (0.735), control (0.718), curiosity (0.742), and confidence (0.739).

The presence of a calling was measured through a scale consisting of two items measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), with a Cronbach alpha of 0.766. The scale used to measure this was the Brief Calling Scale [44]. The scale consists of two statements: "I have a calling to a particular kind of work", and, "I have a good understanding of my calling as it applies to my career." Employee health consisted of two measures of health, namely physical and mental health. The physical health scale with a Cronbach alpha coefficient score of 0.795 was developed from a previous work [45]. The physical health scale is made up of six items measured on a five-point Likert scale with scores ranging from 0 = none of the time to 4 = all of the time. Finally, the second indicator of employee health was mental health taken from a previous study [46] and yielding a Cronbach alpha coefficient score of 0.751. The mental health scale is made up of six items measured on a five-point Likert scale ranging from 0 = none of the times to 4 = all of the times. Based on the analysis we conducted, all yielded Cronbach alpha coefficient scores were above the recommended threshold of 0.7 [47, 48]. A Cronbach coefficient

equal to or above 0.7 indicates that a scale has internal consistency. This means that the items within a scale are correlated and they all speak to the same theme that is being investigated. In other words, the scales used to measure the variables utilized in this study can be relied upon, as they are reliable.

4.3 Procedure

Ethical clearance was granted through the University of Fort Hare Research Ethics Committee (UREC), with a certificate number CHI001 (Project). Participants consented to take part in the study and were approached over a 10-month period at teaching and learning summits organized within the Eastern Cape Province of South Africa.

4.4 Data analysis

Given the presented hypotheses, simple linear regression analysis was utilized to measure the influence of the presence of a calling on employee mental and physical health, that is H1 and H2. To measure the moderating effect of career adaptability on employee mental (H3) and physical health (H4), hierarchical regression analysis was undertaken. The Statistical Package for Social Sciences (SPSS) version 25 was used to perform the statistical analysis.

5. Results

5.1 Presence of calling and mental health

To test the hypothesis stating that the presence of calling predicts employee mental health, the independent variable (IV) data, that is the presence of calling and the dependent variable (DV), that is employee mental health were checked to determine whether they adhered to the assumptions of normality. The Kolmogorov-Smirnov and the Shapiro-Wilk tests were performed and the results revealed that the IV and DV data violated the assumptions of normality, given $p = .001$. With this result, the simple linear regression was performed and the bootstrapped confidence intervals and their associated significance levels were requested. These do not rely on assumptions of normality and homoscedasticity.

Simple linear regression analysis output revealed a moderate positive correlation between presence of calling and employee mental health, $r = 0.406$. The presence of calling further accounted for 16.4% of the variation in employee mental health, $R^2 = 0.164$. As much as there are other factors accounting for approximately 84% of the variation in employee mental health not measured by this model, the results imply that if we are to better understand the concept of employee mental health, it is worth paying attention to the presence of calling as a factor. Further, the results also revealed the F—ratio which seeks to explain if the model is better at predicting employee mental health as opposed to making use of the mean value. The F-value = 41.732 and significant $p = .001$ were observed. This result informed us that the study's model is significantly better at predicting employee mental health as opposed to relying on the mean value. **Table 1** provides a summary of the discussed results.

Parameters of the model estimates were observed, $b_0 = 20.157$ and $b_1 = 0.438$. This result informed us that given a unit change in the presence of calling, there will be an increase in the score of employee mental health equivalent to 0.438 units. More importantly, this positive change is significant at $p < .001$. Given this result,

Source	Df	Sum of squares	F value	Pr > F
Regression	1	641.04	41.73	0.000[*]
Residual	212	3256.53		
Total	213	3897.57		
Model summary				
R	*R2*	*Adjusted R2*	*Est. standard error*	
0.406	0.164	0.161	3.92	

Note: Independent variables: constant, calling. Dependent variable: mental health.
*Significant fit.

Table 1.
Simple linear model fit and summary for the presence of calling on mental health.

we failed to reject the hypothesis stating that the presence of calling predicts employee mental health as there is enough evidence to substantiate this claim. **Table 2** provides a summary of the mentioned results.

5.2 Presence of calling and physical health

The study's second hypothesis sought to establish whether the presence of calling predicted employee physical health. The IV and DV data were subjected to normality tests, namely the Shapiro-Wilk test and the Kolmogorov-Smirnov test, which were both observed to be below 0.05. This result indicates that the data do not adhere to the assumptions of normality. As a result, to test the hypothesis, a simple linear regression analysis was performed and bootstrapped confidence intervals, and their associated significant levels were requested as these are not affected by the assumptions of normality and homoscedasticity.

Simple linear regression analysis results revealed a very weak positive correlation between presence of calling and employee physical health, $r = 0.122$. Further, the results revealed that presence of calling accounted for just 1.5% of the variation in employee physical health, $R^2 = .015$. This informed us that approximately 98% of the variation in employee physical health is accounted for by other factors not measured by this model. The F-ratio = 3.22 and nonsignificant, $p = 0.074$ indicate that this model is not better at predicting employee physical health as opposed to the use of the mean value. **Table 3** summarizes this discussion.

Parameter estimates of the model, $b_0 = 27.160$ and $b_1 = 0.119$, were observed. From these parameters, we learnt that a unit change in the presence of calling results in a positive but nonsignificant change of 0.119 units in employee physical health, $p = 0.074$. Given this result, we therefore rejected the hypothesis stating that presence of calling predicts employee physical health as there is no sufficient evidence to support the hypothesis. These results are outlined in **Table 4**.

5.3 Linear model predictors of mental health

Hierarchical regression analysis was performed with career adaptability entered as the moderating variable, presence of calling as the explanatory variable, and employee mental health as the outcome variable. The results indicated a significant negative relationship between presence of calling and employee mental health, $b = –0.052$, 95% CI [–0.074, –0.030], $t = –4.678$, $p = 0.001$. The conditional effects of the focal predictor at values of the moderator output were observed which revealed that given a low value of career adaptability = –4.622, a relatively strong

Parameter	Unstandardized coefficients		Standardised coefficients		
	B	Std error	B	t	Sig
Constant	21.157	1.147		17.568	0.000[*]
Calling	0.438	0.068	0.406	6.460	0.000[*]

Note: Independent variables: constant, calling. Dependent variable: mental health.
[*]Significant fit.

Table 2.
Parameter estimates for the presence of calling on mental health.

Source	Df	Sum of squares	F value	Pr > F
Regression	1	47.021	3.222	0.074
Residual	212	3094.287		
Total	213	3141.308		
Model summary				
R	*R2*	*Adjusted R2*	*Est. standard error*	
0.122	0.015	0.010	3.82	

Note: Independent variables: constant, calling. Dependent variable: physical health.

Table 3.
Simple linear model fit and summary for the presence of calling on physical health.

Parameter	Unstandardized coefficients		Standardised coefficients		
	B	Std error	B	t	Sig
Constant	27.16	1.118		24.284	0.000[*]
Calling	0.119	0.066	0.122	1.795	0.074

Note: Independent variables: constant, calling. Dependent variable: physical health.
*Significant fit.

Table 4.
Parameter estimates for the presence of calling on physical health.

and significant positive relationship between presence of calling and employee mental health does exist, $b = 0.612$, 95% CI [0.437, 0.786], $t = 6.912$, $p = 0.001$, and when the value of career adaptability increases to –1.622, a relative weak but significant positive relationship between presence of calling and employee mental health does exist, $b = 0.455$, 95% CI [0.321, 0.589], $t = 6.699$, $p = .001$. The results also revealed that with a further increase in career adaptability score, to be precise, given career adaptability = 4.379, although significant and positive, the relationship between presence of calling and employee mental health further weakens, $b = 0.142$, 95% CI [0.004, 0.280], $t = 2.026$, $p = 0.04$.

The Johnson-Neyman method revealing the significance level regions on the relationship between presence of calling and employee mental health at the values of career adaptability further confirmed the above results indicating that the relationship between presence of calling and employee health is stronger, positive, and significant at the weakest score of career adaptability, to be precise, career adaptability = –14.622, $b = 0.134$, 95% CI [0.767, 1.502], $t = 6.082$, $p = 0.001$. Conversely, at the highest score of career adaptability, that is, career adaptability = 18.379, a

very weak and significant negative relationship between presence of calling and employee mental health is observed, b = –.589, 95% CI [–0.986, –0.193], t = –2.929, p = 0.004. Given this result, it is evident that career adaptability does moderate the relationship between presence of calling and mental health as shown by an inverse negative relationship, b = –0.052. However, this finding does not support the hypothesis stating that career adaptability moderates the relationship between presence of calling and employee mental health such that when career adaptability is high, the relationship between presence of calling and employee mental health is stronger, and as a result, we rejected the stated hypothesis as there is no evidence to support it.

5.4 Linear model predictors of physical health

Hierarchical multiple regression analysis was also performed with career adaptability as a moderating variable, presence of calling as an explanatory variable and employee physical health as the outcome variable. The results revealed a significant negative relationship between presence of calling and employee physical health, b = –0.033, 95% CI [–0.056, –0.010], t = –2.873, p = 0.005. Examining the conditional effects of the focal predictor at values of the moderator, the results indicated that at the lowest value of career adaptability, to be precise, career adaptability = –4.622, a relatively strong significant positive relationship between presence of calling and employee physical health is observed, b = 0.199, 95% CI [0.019, 0.379], t = 2.175, p = 0.03. However, when the value of career adaptability increases to –1.622, a relatively weak nonsignificant positive relationship between presence of calling and employee physical health is observed, b = 0.099, 95% [–0.039, 0.238], t = 1.418, p = 0.16. The relationship between presence of calling and employee physical health further weakens when career adaptability increases, that is, career adaptability = 4.379, resulting in a nonsignificant negative relationship between presence of calling and employee physical health, b = –0.099, 95% CI [0.242, 0.043], t = –1.372, p = 0.172.

The Johnson-Neymar method was further observed to determine the significance regions on the relationship between presence of calling and employee physical health at the values of the moderator. At the lowest value, that is, career adaptability = –14.622, a relatively strong and significant positive relationship between presence of calling and employee physical health is observed, b = 0.529, 95% CI [0.150, 0.908], t = 2.753, p = 0.006. As the value of career adaptability increases, to 6.661, a relatively weak and significant negative relationship between presence of calling and employee physical health is observed, b = –0.175, 95% CI [–0.350, 0.000], t = –1.971, p = 0.05 but when the value of career adaptability is increased further, the relationship between presence of calling and employee physical health further weakens, for example, at the highest value of career adaptability, that is, 18.379, a significant negative relationship between presence of calling and employee physical health is observed, b = –0.562, 95% CI [–0.971, –0.153], t = –2.71, p = 0.007. From this finding, we also observed that career adaptability moderates the relationship between presence of calling and physical with the interaction revealing an inverse relationship, b = –.033. This finding does not support the study's hypothesis stating that career adaptability moderates the relationship between presence of calling and employee physical health such that when career adaptability is high, the relationship between presence of calling and employee physical health is stronger. Therefore, we rejected the stated hypothesis as there is no evidence to substantiate this claim.

6. Discussion of findings

This study aimed to investigate the moderating effect of career adaptability on the relationship between the presence of a career calling and employee health measured through mental and physical health. The finding around the link between the presence of a calling and mental health appears to support the theorizing around the role of a presence to calling to positive behaviours in the workplace [11]. In this chapter, the findings support empirical literature with regards to the effect of presence of calling on mental health but paint a different picture with regards to the effect of presence of calling on physical health. The existence of a calling potentially offers individual drive in the midst of challenges to fulfil outcomes expected of work [34]. At the core here, could be as found through the study that the important role of the presence of a calling to teachers and its implication is not just for career progression but also for mental health outcomes. In essence, we extend the work that shows the influence of presence of a calling and constructs such as career adaptability on outcomes of not only outcomes of work [35–37] but also health outcomes that cover mental and physical health. In achieving all this, the role of career adaptability [38] becomes critical and may be a buffer to the challenges faced by teachers.

The two (career adaptability and presence of calling) can be thought to work in different directions. Career adaptability may be used in the short term to manage ongoing changes faced. Conversely, the presence of a calling may exist as a long-term strategy used by teachers as part of their work within the profession. This thinking supported by the findings appears to show support of the idea of the two acting as individual self-regulatory tools [38, 40, 41] for addressing employee mental and physical health-related issues at the workplace. This positions quests for employee health, given focus in this study, as important issues of employee well-being [42].

6.1 Practical implications

We draw some implications based on the findings outlined in this chapter. First, given the positive role that the presence of a calling has on employee mental health, we advocate for some interventions. These could be in the form of encouraging employees around issues related to the presence of a calling. This could be in the form of teacher assistance programs that assist the professional development of teachers within the teaching profession. There is a need for constant reminders to teachers of the important role they play. Such moral support should also be actuated by material gain through competitive salaries and also addressing challenges that may be imposed by the aspect of rurality where the participating teachers to this study are located. Second, given the result around the moderation of career adaptability on the relationship between presence of a calling and employee health, support interventions can also be provided that assist the career adaptability of teachers to aspects of change. This has potential ramifications for health outcomes. Some strategies here, noting the high turnover within the teaching profession, could be constantly seeking for an alignment between changes within the external environment while also understanding the needs of the teachers on the ground.

7. Limitations

Some limitations exist with our study. We acknowledge challenges with obtaining a reliable sampling frame. Therefore, caution should be exercised not

only when interpreting the findings of this research but also with regard to the issues of generalizability. In our study, we utilized self-report measures, which may potentially result in issues of social desirability bias. We further acknowledge that in measuring both physical and mental health, the scales focused on the pain issue which is an emotional one and can neither be seen nor measured, and it poses a serious challenge for the research to be absolute when measuring. However, the use of well-evaluated scales and well-embraced scales enabled us to approach this subject with caution. In essence, the findings though interesting in enhancing understanding around teacher experiences may need to be viewed with caution given these limitations.

8. Future research

Future research can be suggested. First, a qualitative research approach can be useful to unpack some of the findings and understand prevailing complexity that may accompany the experience of teachers in view of career adaptability as well as the presence of calling and health outcomes. Second, a comparative study between teachers in urban centers and those in rural areas may offer insightful findings. This may bring into focus understanding the role of geographic location against the variables under study. Finally, future research could also consider collecting views from those who are involved in the administration and setting the scene for the work teachers do. These could also be interesting aspects that inform issues relating to the career development of teachers but also strategies are that in place in safeguarding the well-being of the teachers.

9. Conclusion

The present research provides evidence for the role of presence of a calling as an important organizational variable and its influence on employee health, which includes mental and physical health. The findings become relevant especially given the harsh working conditions teachers may be exposed to. In addition to the presence of a calling, individual experiences of career adaptability are also important in assisting employees. Ultimately, to assist teachers, consideration should be given to a balance between individual aspects deemed necessary for professional development and also aspects of well-being accounting for employee health outcomes such as mental and physical health.

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Conflict of interest

The authors declare no conflict of interest.

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Chapter 5

E-Learning Acceptance: Online Teaching Degree Earners and What Principals Think

Christopher Applegate

Abstract

Online education continues to increase in popularity and one degree currently offered is a bachelor degree of education. Once students graduate, they will begin to seek employment. Those seeking positions in K-12 education settings do not know if they have the same opportunity to get hired as someone from a traditional degree program. Previous researchers on this topic have failed to address the issue of an online degree earner getting hired. Based on the growth of online education, it was necessary to find out if K-12 principals' perceptions of online education programs may prevent graduates of online teacher programs from successful employment. The purpose of the qualitative critical case study was to explore how K-12 principals' perceptions directly related to the hiring of licensed graduates with bachelor degrees from online teaching programs. The results identified numerous factors related to principals making hiring decisions of teacher candidates, however, where or how they complete their degrees is not one of them. The study became more pertinent with the arrival of Covid 19 in the United States and school districts moving to an online learning environment.

Keywords: online degrees, perceptions, licensed, qualitative, higher education

1. Introduction

Online learning continues to grow in popularity, no more evidence is needed than the recent explosion of online learning in schools around the United States throughout the Covid 19 pandemic. Those that previously may have scoffed at the online learning environment are now trying to learn more about this process to find out how effective online learning can be for the future. School districts like the one in Collier County, Florida have even gone so far as to develop an E-Collier Academy where students can now elect to attend school virtually. While this seems like the direction education is headed, what was the perception of online learning prior to Covid? Was there evidence that it was acceptable in higher education prior to the Covid shutdowns?

Online education continues to increase in popularity and one degree currently offered is a bachelor degree of education. Once graduates complete their online degree in education, they will begin to seek employment. Those seeking positions in K-12 education settings did not know if they would have the same opportunity to get hired as someone from a traditional degree program. Many of the studies

concerning online degrees have focused on the programs and the evidence shows leaders have negative perceptions of online programs. Previous researchers on this topic have failed to address the issue of an online degree earner getting hired. Based on the growth of online education, it was necessary to find out if K-12 principals' perceptions of online education programs may prevent graduates of online teacher programs from successful employment. The purpose of this qualitative critical case study was to explore how K-12 principals' perceptions directly related to the hiring of licensed graduates with bachelor degrees from online teaching programs. Current principals in Pittsylvania County Virginia were contacted to participate in phone or email interviews using predetermined questions. Principals' answers were reviewed, analyzed and the data were categorized, patterns were identified and conclusions reported in order to establish their perceptions of teaching candidates with a degree from an online teacher preparation program. The results identified numerous factors related to principals making hiring decisions of teacher candidates, however, where or how they complete their degrees is not one of them.

Institutions of higher education offer online courses embedded within some programs and some offer complete online degrees [1–4]. Student enrollment in online courses increased by half a million students from 2002 to 2008 [5]. Currently there are over 7 million students taking at least one course online through their university studies [1, 2, 6]. Research has revealed that K-12 principals believe online programs teach the proper theories associated with being a classroom teacher but lack the preparations in classroom management, diversity, special needs, and social aspects of teaching [7–10]. These principals believe it is possible to learn the information associated with being a teacher but that online programs lack the social aspects needed for someone to be a properly prepared teacher [7, 8, 11].

The research available focuses on K-12 principals' perceptions of online teacher preparation programs and less on if these graduates can get hired after completing their degrees [7–9, 12, 13]. Online teaching programs offer participants flexibility while they obtain their degree [14]. Students can continue to work a fulltime job and take courses at home, when time allows, instead of being confined to a specific course schedule [10, 14]. Online coursework and degrees offer students flexibility with taking their classes and planning their schedule, however, K-12 principals believe there should be a balance between online and traditional face to face courses; and that field experiences are vital to teacher training [7–10, 15]. The research available is limited since researchers have examined how principals perceive online teacher preparation programs. An online bachelor's degree in teacher education offers students the opportunity to obtain their degree through online courses [10]. Past researchers found that these online degrees may not be as positively viewed as a traditional degree, by K-12 principals who make hiring decisions [7, 8, 11–13, 16]. There is evidence of research reporting K-12 principals strongly favor brick and mortar institutions as opposed to online institutions [12]; due to the perception of a lack of time working with an experienced teacher learning skills first-hand [14, 15]. K-12 principals may not be aware online programs do offer practicum experiences as well [14, 15]. This has led K-12 principals to perceive online programs as not offering the necessary experiences to produce graduates prepared to teach in a classroom environment [7–9, 11, 17, 18]. Even with the increase in graduates from online programs, the number being hired is not increasing [1, 16, 18, 19].

Previous research did not address a principal's perceptions of a graduate from an online program who is applying for a teaching position, which is why it was necessary to conduct a study to determine if online programs were worth the time and money students invest, in the hopes of getting hired after they have completed their degrees. The amount of published research is limited concerning K-12 principals'

perceptions of hiring licensed online graduates even though online course and degree programs continue to increase in popularity and enrollment [1].

The purpose of this qualitative critical case study was to explore how K-12 principals' perceptions directly relate to them hiring licensed graduates with bachelor degrees from online teaching programs. According to Huss [12], this type of study allowed the researcher to conduct interviews which are semi-structured, talking directly with those involved in hiring prospective teacher candidates, both online and brick and mortar trained. By using a qualitative critical case study there was an opportunity to develop an understanding or inform based on comparing similar situations to the case being studied [20]. The study was conducted through personal interviews by phone or email of principals who hire candidates who have graduated from both online and brick and mortar institutions. Principals were asked to complete a pre-screening form to make sure that all who are interviewed have had experience hiring both types of candidates.

Research shows how many administrators who have been questioned in the past do not feel online programs carry any credibility and they do not feel these programs adequately prepare potential teacher candidates to be classroom teachers [7]. There is a concern online education lacks the personal contact and time spent through the social aspects to be a successful teacher [8]. There is also the concern how certain skills and information cannot be gained through an online environment [21]. Administrators lack confidence in online teacher preparations and their lack of confidence extends into their hiring decisions and when confronted with two candidates who have similar backgrounds and training, those surveyed will hire the traditional brick and mortar candidate one hundred percent of the time [11]. However, there was some indication a portion of administrators would take into consideration the institution the candidate received their online degree and it could have either a negative or positive influence depending on where the degree was completed [13]. Principals could begin to trust online trained teacher candidates once they have the opportunity to experience online trained teachers on their staff. This brings up the chicken or the egg analogy though, if hiring online trained teachers will prove they are just as capable as their traditionally trained counterparts, principals are going to have to take a chance in order to find out if these teaching candidates are capable of working as a classroom teacher. Overall, research has shown the attitude of administrators to be very negative when presented with candidates whose credentials were obtained through an online program [12]. Online courses are not perceived as an acceptable method to properly prepare a teacher to teach in a classroom [7–9, 13]. There is a social aspect to teaching which administrators perceive is missing when a course or degree is completed online [9, 22]. Information available reports how students who participate in online courses actually engage socially more than if they in a traditional classroom setting. In fact, teacher to student communication is enhanced in the online setting because students are required to make discussion posts, have more time to consider their response, and should contact their professor through email to discuss any questions [23]. Students in a traditional based program learn from watching and following the lead of the teachers they work with, which allows them to get a hands-on understanding of what their potential future career entails [8, 9, 17]. Field experiences allows the student the chance to gain those skills necessary to be a good classroom teacher. Field experiences are critical for students to have the opportunity to observe, reflect, and practice numerous aspects of their future career prior to stepping into the role as the main classroom teacher [24]. Administrators do not feel comfortable with the idea of hiring someone who had completed their degree online [11]. Administrators seemed to have confidence in a candidate's ability to learn the proper theories and principles related to teaching [7–9]. Although, research does not address why administrators have confidence

in these particular areas but so vehemently are against teaching candidates with a degree from an online degree program. There are overall beliefs candidates who have been trained through an online program would not be sufficient teacher candidates, and given the choice between two candidates, one of which has completed their degree online and the other through traditional means, almost one hundred percent of the time, they will choose the traditional candidates [7–9, 11, 25]. There is this belief system, but then again there are programs such as the one in California which follows the same rigorous accreditation process when compared to brick and mortar schools follow and whose students must pass the same certification test at the end of the course [14]. Principals do not have confidence in online learning as an effective method of properly preparing teachers to work in a classroom [22]. The research gathered also shows a lack of acceptability of online credentials for principals as well [22]. Even when other factors are considered such as a principal's experience with online earning and their age, there does not seem to be a deviation from an overall negative perception of online learning as being an acceptable method of preparing educators for the career they seek. The results continue to be the same; principals do not feel comfortable with the training received through online program to feel comfortable offering an online graduate a position over a student who received their degree through a traditional brick and mortar institution [7–9, 13, 26]. Principals are uncertain with the preparation received by candidates who have completed their coursework through an online environment and feel the online work may not be as difficult, which again continues the belief concerning online education and how students could be taking online coursework in an attempt to avoid the rigor of brick and mortar courses [8, 9, 13, 22].

2. Study of principals' perceptions

The study was conducted in the spring of 2017 and asked principals what their perceptions were in regards to hiring a teaching candidate who has completed a bachelor degree from an online teacher preparation program compared to hiring a teaching candidate from a traditional campus based teaching program? This study was done as a case study by doing an interview of K-12 principals to gain an understanding by using in depth questions to gain detailed information from the participants. This study focused on interview questions and participants' responses to gain insight into the perceptions principals have concerning potentially hiring online degree earners. By using open ended questions, the researcher gained in-depth information concerning the participant's perceptions, opinions, and feelings as they relate to hiring teachers who have obtained their teaching degrees through an online program. It was conducted by contacting principals in a county in Virginia through email and setting up times to conduct interviews with each one or giving them the option of responding by email. The participants were also given a scenario similar to [26], who had given permission to use the questions in this study. Adams and Defleur [22] presented three different scenarios concerning interviewing teaching candidates with a traditional, partial online, or online degree and which they would choose to offer a position to and why. This portion gave participants three candidates to choose from for an upcoming open teaching position. The only difference between the three candidates was the level of online studies they have completed to obtain their degree. The participants were asked to explain which candidate they would choose and why.

The results showed that principals interviewed have an overall positive perception of teacher candidates who have completed their degrees through a web-based teacher preparation program. The information presented details how principals pay

little attention to where a teaching candidate completed their degree but instead focus their attention on the experiences the candidate has completed in addition to their degree plan which may have prepared them to teach in a classroom. This could happen through student teaching, practicum, and internships. The study was conducted in a public-school county in Virginia and out of 20 principals who were asked to participate in the interview process, eight offered their responses to the questions; three high school, one middle school and four elementary school. Only principals who participate in the hiring process were invited to participate in the interview process. Principals did not indicate a desire for one specific method of obtaining a degree but were more concerned with a candidate's hands-on experiences as well as recommendations from those familiar with the candidate's abilities in the classroom. While there were, numerous factors associated with hiring a teaching candidate, principals made it very clear that where or how a degree was obtained was not a factor. Principals put a different emphasis on multiple items when making a hiring decision but how a degree is obtained is not one of them.

What are principal's perceptions of hiring a teaching candidate who has completed a bachelor degree from an online teacher preparation program compared to hiring a teaching candidate from a traditional campus based teaching program? Participants were asked a series of 16 questions with no follow up questions asked in an effort to maintain uniformity throughout the process. When appropriate, the participants' responses were analyzed and determined to be positive perceptions, negative perceptions, or neither positive nor negative perceptions. Participants were asked how they would respond to an interviewee who completed a web-based online teacher preparation program to attain his/her certification and the overall perception was a positive one. One reoccurring theme concerning this question and others was how much additional experience the candidate had in addition to their degree. Seven of the eight participants indicated they would have a positive perception of a candidate who had completed a web-based online teacher preparation program to attain a teaching certificate. The one person did not have a positive or negative perception but instead indicated a desire to know more about the program the candidate completed and the program's requirements. All respondents indicated a desire to know how much experience a candidate had in a real classroom environment. Principal D stated "I interview people, not degrees."

When participants were then asked to address any advantages, or disadvantages they could perceive for this candidate, again the overall response was positive. Participants did not perceive candidates as having any specific advantages or disadvantages related to their completing an online teacher preparation program. However, another reoccurring theme was the lack of personal interaction unless the candidate's program required a student teaching or internship assignment. Six of eight participants indicated have their own positive experiences as they related to online courses. The other two did not have any experience with online courses. Those who had indicated having positive experiences as they related to online learning, had utilized online coursework either for re-certification or to work on their own graduate degree aspirations. Principals noted the flexibility of completing their work online and perceived this type of learning as effective. One complaint by two principals was the lack of hands on learning which they perceive as valuable in the learning process.

Principals were asked to describe their own personal opinions of web-based teacher preparation programs and six out of eight principals indicated a positive perception of online teacher education/preparation; as long as they are obtaining the necessary degree/certification. One principal did not feel comfortable enough with online teacher education programs to provide an answer and another indicated the belief that a classroom environment is just going to be better for preparing a

future teacher candidate. It is worth noting that this principal had recently hired a teacher candidate who completed their degree online. This principal did not feel comfortable addressing the question concerning the use of online teacher preparation programs but still felt confident enough to hire a teaching candidate who had completed their degree through an online program.

Principals' perceptions of an online teacher program preparing a teaching candidate for classroom management, their methodology/pedagogy of teaching, and how to handle special needs students or diversity were neither positive nor negative. Principals had confidence that the information could be taught and learned but an overwhelming theme related to these questions was the need for students to participate in a classroom as a student teacher or through an internship. Experience was mentioned numerous times by all those who participated in this questionnaire. Principal E stated, "theory can be taught in the online classes and the actual field experience would be used to fine-tune in the field through the internship."

All of the principals who participated in this study indicated at least minimal knowledge of the use of online teacher education with their knowledge increasing for those who have used online education as source for their own continuing educational experiences. Principals were presented with a scenario where a teaching candidate, had completed wholly or almost wholly a degree via the internet and were asked to describe their level of concern. Principals indicated their level of concern would be minimal to none. Two had concerns related to if the candidate had completed any student teaching or practicum experiences. They also wanted to know more information about the candidate than just the fact that they had completed an online degree program. Principal F stated; "my only concern would be that the candidate could show actual field experience that would demonstrate their overall understanding and application of what they had learned in their coursework". Principal C added "I have personally seen the level of persistence it takes because one of my teacher aides was going to school online to get her teaching degree and is now working on a Master's degree."

Principals indicated that their organization does not place an emphasis on the reputation of a specific college or university. Principals elaborated on their response and the desire to find someone who would fit in their school setting regardless of how they obtained their degree. Principals are aware of a school in the local area who produces teaching candidates but they all stated that where someone graduates is not a factor in deciding to offer them a position teaching in their school. Principals perceive how the degree is earned as being irrelevant. To continue a common theme throughout their responses, there was a continued focus on the candidate themselves and the personal experiences or internships which allow them to put what they have learned to action. Principal D reiterated an earlier statement, "I am interviewing the person, not the degree."

When asked further if principals perceive online candidates the same as students from traditional programs they responded with a positive perception of students from online programs and perceive them as being like candidates with a traditional degree. The subject of experience in the classroom and student teaching assignments was brought up again, with five of the eight respondents who felt they had the necessary experience to address this question mentioning it being essential for the candidate to have had a field experience. The other three respondents did not feel they had the experience necessary to respond to this question. The overall perception is that online degrees are equal to traditional degrees. Although, two respondents did say they would want to know more about the program the candidate completed. Principal C said, "I believe traditional

should be better, but I need teachers with degrees and I am not concerned with where they obtained them from." All but one respondent had at least some experience with online coursework, even if it was a training course required by the county for which they worked. Three participants had worked or were working on their own post graduate online degree. Regardless of their personal experiences, principals have a positive perception of teaching candidates regardless of their past experiences with online learning. Principals are more concerned with the experience gained through the program completed and with issues such as the interview, references, and additional details gained rather than how the degree was obtained.

Finally, principals were given the option of telling how they would decide who to hire between three candidates. One attended a traditional brick and mortar college or university, one completed part of their degree traditionally and another part online, and the third completed a web based program online. All three interviewed well and their transcripts are almost identical. Participants responded unanimously to this particular question and stated that how a candidate completed their degree would not impact the final decision concerning hiring a candidate. There were numerous statements made:

- Principal A "When we hire a candidate, we always interview as a committee and we ask tough questions and it is a tough process but one thing I have never heard a committee member discuss is where a candidate received a degree from."

- Principal B "I would need to find something that set them apart from one another but how they obtained their degree would not be something I would think of using."

- Principal C "I would review experience, resume, etc. to determine the best fit for the position without regard for which learning experience they had participated in."

- Principal D "It would depend on factors other than what is listed above."

- Principal E "My choice would be how I feel about a candidate after the interview. A teacher needs the degree but also needs the personality for the position."

- Principal F "I am inclined to hire the candidate that has a glowing recommendation from a teacher that they worked under during their practicum and that has good references from co-workers and other teachers and/or administrators."

- Principal G "The individual who has the best recommendations, most well-rounded experiences and most productive, positive student teaching placement. Success in a student-teaching placement indicates that a candidate works well with students and colleagues."

- Principal H "I will hire the candidate whom I feel connects best with people and has a stronger content area knowledge base. I will also look to see who best fits into the existing culture and climate of the school. How they earned their degree will be irrelevant to me."

3. Evaluation of findings

Based on the information presented from the principals' responses to the 16 questions asked, there are numerous factors which can impact how they perceive a teaching candidate but the one factor which does not impact their decision for hiring a candidate is how they obtained their degree. These findings are in stark contrast to Faulk [7–9] and Huss [11, 12], who reported the negative perceptions principals had concerning web-based teacher education programs. Principals expressed confidence in web-based programs providing the training necessary in order to understand the proper theories, principles, and knowledge necessary to be a competent classroom teacher. This was similar to the positive perceptions principals have expressed in past studies [7–9]; however, the principals were also very clear on the need for actual experience in the classroom getting an opportunity to put into practice the information they had learned in through the online environment. This was consistent with past studies which addressed the continual need for hands-on time in the classroom getting experience actively teaching a group of students [7–9, 11, 12, 26]. There is a concern expressed by principals that without the personal experience in the classroom, teaching candidates could miss out on some of the skills and information an internship or student teaching assignment afford. This aligns with the study conducted by Grossman and Johnson [21], who also reported the need for those being trained to be a teacher to get an opportunity to gain personal experience and learn in an actual classroom environment. Principals made it very clear that having a degree from a web-based program would not impact a candidate and that when given the option between three candidates whom are all similar other than the method they chose to obtain their degree; the method of degree completion would not be a defining factor. This is a contradiction to Huss [11], who reported than when given the choice between two candidates, one who completed an online degree and the other traditional, principals would hire the traditional candidate every time.

It was also evident that even principals who had limited experience with online programs still had confidence these programs could prepare a teaching candidate appropriately. There are other factors that go into a principal deciding who they should hire, but as the principals have stated, how the degree was obtained or where it was obtained does not get evaluated. Thornton [15], instead they discussed the reasons they believe there is no difference between web-based and traditional teacher preparation programs if they require similar experiences outside of the learning environment. Even though past researchers have shown that principals are concerned with where a degree was completed or the reputation of the school offering the degree [9, 13]. The principals interviewed were not concerned about where the degree was completed but instead need teachers who have completed a degree program and are certified as teachers. They are looking for the person who has a degree and is the most qualified to do the job. This aligns with Bourke & Brown [27], which addressed the main point when it comes to looking to hire a teaching candidate is finding the best person for the job. This was not the anticipated outcome of this study since almost all the previous research in relation to online degrees or online teaching degree programs reported that principals had a negative perception of these teacher preparation programs [7–9, 12, 16]. There is also evidence that principals place an emphasis on the amount of time spent in a classroom through practicums, internships, or student teaching which was consistent with past research [14, 15, 26]. The number one word used by principals throughout their responses was experience.

4. Summary

Eight out of 20 principals in a school district in Virginia agreed to complete the interview and their statements concerning web-based teacher preparation programs identified numerous factors related to a teaching candidate getting hired, but having a degree through an online program was not a factor. Principals made it clear they pay attention to experience, interviews, as well as recommendations from others but that they are more concerned with the candidate having a degree and certification necessary as well as making sure they are a proper fit within their organization. This contrasts with previous studies which focused on web-based preparation programs and principals' negative perceptions of these types of programs [7–9, 12]. Principals may or may not have experience with online courses themselves but regardless their concerns about web-based teaching degrees centers around if the programs have the same requirements as traditional programs and making sure the candidate has had an opportunity to show what they have learned through the program by doing a practicum or student teaching experience. Candidates who have had that opportunity can also help themselves in the interview process by providing letters of recommendation from those who have seen the candidate performing the would-be job. It is then up to the candidate to sell themselves to the principal or committee who is interviewing perspective employment candidates. This is consistent with other studies which focused on what principals look for when searching for teaching candidates to fill open positions [14, 27–29].

5. Conclusion

Online education has become an integral part of the educational process and the popularity of this kind of education has continued to grow which is evident since 9 million students took online courses in 2020 (Education [30]). With this rapid growth in online coursework and programs, it seemed appropriate to determine how online degree programs could impact students completing their teaching degree with this method. In this study, the researcher sought to determine what principal's perceptions of hiring a teaching candidate who has completed a bachelor degree from an online teacher preparation program compared to hiring a teaching candidate from a traditional campus. The responses were concise that the amount of time a teacher candidate has had in the classroom is more of a factor than the method used to obtain the degree. Principals made it very clear that when it comes to determining who to hire for a teaching position, there are issues like how the person interviews, references, as well as evidence which shows they can apply the book work they have learned in an actual classroom. The principals were concerned about the social aspect of teaching and how that would be addressed through an online program but that is contradictory to Hendricks [13], which reported that students who complete a web-based degree engage more socially than those completing a degree traditionally. The principals' responses centered more on the social interaction of working in a classroom instead of the social connection of a taking a course. The biggest limitation to this study was the size of the county and the number of principals available to be interviewed. There were only twenty principals and while eight responded, providing a good response for this county, a larger county may have provided more responses.

Online education continues to grow and for this author, the rigor and requirements of online learning is equal to traditional brick and mortar schools and this

opinion stems from his time teaching online programs and supervising student teachers who are finishing their online programs and working toward certification. All of this culminates with a licensure and the prospective teacher being offered a job where they are completing their student teaching assignments. There has yet to be a principal who has expressed concern over the fact that they student teacher completed their degree through an online program.

This form of education took on a whole new meaning in the spring of 2020 when Covid-19 shut down schools and left districts with only one option for educating our youth. Since that time, online education for K-12 has exploded on the scene and the methods used continue to evolve. It would only make sense that if schools are taking advantage of the online environment for educating students that they would reach out or be interested in teachers who, themselves had worked through and completed an online program. The power of understanding the circumstance of taking a course online is far more powerful than trying to gain an understanding through reading and feedback from students. This author was an online student and now teaches online students for the university. Knowing how it feels to wait for a grade, a return email, or feedback pushes him to complete all of those tasks in a timely manner so they student can continue to work toward their goal of finishing their degree. Covid-19 has caused schools to accept online learning, even if they do not care for it and the results should show that students are still learning and teachers are still being successful delivering their lessons.

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Chapter 6

The Social Isolation Triggered by COVID-19: Effects on Mental Health and Education in Mexico

Ana Karen Limón-Vázquez, Gabriel Guillén-Ruiz and Emma Virginia Herrera-Huerta

Abstract

Public health in Mexico was on alert since the World Health Organization declared a pandemic of COVID-19. This disease represents a challenge not only for the health system but also for the education system, which implement emerging measures such as online education. In Mexico online education has several limitations associated with computer and internet access, which affect the academic achievement of the students. Additionally, the main measures against the pandemic are social isolation, but this measure can generate stress and affect the academic achievement and mental health of the population. The present review was based on Mexican scientific and journalistic sources, and a thesaurus system such as Medical Subject Headings (MeSH) terms to find original articles to social isolation, mental health, and academic achievement. The contribution of this chapter is to describe the effects that social isolation has caused on mental health and scholar challenges in the Mexican student population.

Keywords: social isolation, COVID-19, stress, online education, academic achievement

1. Introduction

Humanity has always coexisted with several microorganisms, groups of bacteria and viruses that surround us at all times, with some of these, mainly bacteria, even symbiotic relationships have been established, for example, the various bacterial species that make up the intestinal microbiota. On the other hand, the relationship with viruses has been more conflictive, from adenoviruses that cause respiratory infections, conjunctivitis and gastroenteritis, to the human immunodeficiency virus that causes acquired immunodeficiency syndrome, pathologies caused by viruses have always been present. In this sense, the occurrence of a new virus that affects humans causes uncertainty. Currently, the COVID-19 disease (coronavirus disease 2019) caused by SARS-CoV-2 or severe acute respiratory syndrome coronavirus 2, a virus of the coronavirus family, originated in Wuhan, China in late 2019 [1]. It is a disease of the respiratory tract that presents with symptoms such as fever, dry cough, shortness of breath, muscle pain, rhinorrhea, chest pain, and some patients may have diarrhea, nausea, and vomiting [2], it is transmitted from person to person through small particles of contaminated fluids [3] or by contact with contaminated surfaces [4].

On January 30, 2020, the World Health Organization declared a public health emergency of international concern due to COVID-19 [5] and on March 12, 2020, due to the speed of transmission of the disease was declared a pandemic, by this date, 125,000 cases had been reported from 118 countries and territories [6] including Mexico, which was in phase 1 (importation) and reported its first case on February 28, 2020. Due to the spread of the pandemic in Mexico, phase 2 (community dispersal) of the disease began on March 24, 2020, and on March 30, the government declared a national health emergency [7]. The national day of healthy distance was implemented, a national strategic program of actions to mitigate the spread and transmission of the virus that included the suspension of non-essential activities, cancelation of events or meetings of more than 50 people, hygiene measures such as the washing of hands frequently, sneezing or coughing applying the respiratory tag (using the fold of the arm at the elbow level), not shaking hands or kissing and home protection of the entire population [8], however, despite the actions implemented, April 21, 2020, was released phase 3 (epidemic) of the disease [9].

As part of the Mexican government's strategy to reduce the spread of the virus, since March 14, 2020, the Ministry of Public Education suspended face-to-face education in the classroom [10], and to continue with academic activities, they were implemented new teaching strategies through the use of virtual media and work from home, to conclude the school year, which at the time of suspension had an advance of 73% [11]. However, in Mexico online education has several limitations such as the absence of a computer or lack of access to the internet, which affects the academic achievement of the students. Additionally, the main measures against the pandemic is social distancing and isolation [12], but social isolation added to the uncertainty of progress, the lack of an effective treatment and vaccine, and the prolongation of quarantine have generated negative psychological manifestations such as anger, irritability, aggressiveness, excessive vigilance in the face of possible symptoms of the disease, predisposing the population to the development of anxiety disorders, depression, panic attacks and post-traumatic stress disorder [13–15]. Therefore, the objective of this chapter is to describe the effects that social isolation has caused mental health and scholar challenges in the Mexican student population.

2. Influence of COVID-19 on the mental health of Mexicans

Mass confinement at home, lack of social interaction, adaptation to new work and study routines at home and lack of physical activity are stressful changes that affect emotional regulation [16]. Social isolation generates maladaptive behaviors that affect work, family, social and educational relationships (**Table 1**).

In addition to the negative effects associated with social isolation, in people who have been in contact with COVID-19 positive patients, there is an increase in negative feelings such as fear, nervousness, guilt, and sadness compared to people who have not had these contacts [18], possibly due to fear of contagion.

In the Mexican population, it is estimated that up to 50.3% of the population may present psychological distress, 15.7% symptoms of depression, and 22.6% symptoms of anxiety due to the COVID-19 outbreak [19], and these manifestations are even greater in the female population, they reveal elevated levels of psychological stress, anxiety and depression [19, 20]. In general, it is estimated that the indicators that generate more stress in the Mexican population are that the health system collapses and there are insufficient resources to care for the sick, which also generates episodes of anxiety and uncertainty [20].

Behavioral disturbance	
Sadness feelings	Difficult to focus
Apathy	Wishes to die
Indifference	Mental exhaustion
Ira	Loss of interest in daily activities
Cry frequently	Impact on decision making
Lack of appetite	Social dysfunction
Difficulty to sleep	

Table 1.
Maladaptive behaviors associated with social isolation [17].

Additionally, other studies have revealed that the greatest concerns of the Mexican population center on the possibility of contracting COVID-19, the loss of employment, and the reduction of economic income [21]. According to the international project COVIDSTRESS, the Mexican population has a moderate level of stress, and only 11% of the surveyed population shows high levels, and the data is consistent in stating that the female population is the one with the highest levels, this associated factors such as economic concerns, the risk of contagion of COVID-19, fear of being hospitalized, concern for friends and family who live far away [22], additionally this study also showed that the population showing the highest levels of stress, they are those who have followed the indications of maintaining social isolation, compared to the population that did not make changes in their social life to face the pandemic [22]. Consistently, the Universidad Iberoamericana, AC, through the Research Institute for Development with Equity (EQUIDE) conducted the Monitoring Survey of the Effects of COVID-19 on the Well-being of Mexican Households (ENCOVID-19) to learn how the crisis due to the pandemic has affected the well-being of Mexican households and reported that as of May 2020, 8.4 million people had lost their jobs, were suspended without pay, or could not go out to look for work and of these, 31.4% presented severe anxiety symptoms, mostly women [23], consistent with the studies mentioned above.

On the other hand, there are social groups that are more vulnerable to stress and mental health problems associated with the COVID-19 pandemic (**Table 2**), which have even higher levels of anxiety than the general population.

Mexican university students report that, during the confinement stage, they have suffered headaches, a feeling of lack of control and little satisfaction with carrying out their activities, others suffer from overwhelming, nervousness, bad mood, less activity and feelings of futility and sleep problems [25]. Interestingly, in this population it is men who present higher levels of anxiety; however, women present higher levels of psychosomatic symptoms, insomnia, social dysfunction, depression, and stress [25]. Frustration, high levels of stress and physical and emotional exhaustion are some of the characteristics of the population that changed their daily routine and began to work from home.

It should also be noted that the uncertainty generated by the pandemic is perceived differently, depending on the social strata. Although the fear and stress caused by the pandemic affects the entire population, definitely people in marginalized situations, with low income, in situations of poverty and extreme poverty, see stress situations intensified due to the presence of other factors such as unemployment, violence, lack of access to digital, and medical services among others [26] situations, that make this population especially vulnerable to the effects of mental health generated by the fear of suffering from COVID-19.

On the other hand, people with better economic income and in more favorable social situation can fall into a state of susceptibility and false interpretations of the symptoms, which leads them to carry out irrational behaviors such as frequently attending the health system, excessive hand washing, social withdrawal, and compulsive purchases, for example, antibacterial gel, masks, gloves, and disinfectant soap [27] generating shortages and consequently an increase in the price of these items [28], adding even more stress to the classes less favored social groups who will be unable to access disease prevention supplies.

Added to this, the misinformation generated in social networks, the media, and the false news found on the internet create alarm and concern, and this misinformation is associated with panic purchases of unnecessary medical supplies and drugs [29], which also causes states of stress, and negative emotions and thoughts that put the mental health of the population at risk [30].

In this regard, the Citizen Council for Security and Justice of Mexico City has declared that calls to the psychological support line increased by 40% compared to the records before the pandemic. Most communicating patients express fear and anxiety about contagion and agree that this situation is associated with prolonged periods of social isolation [31]. Some recommendations issued by the Council and other authors, to mitigate the effects on mental health by the COVID-19 pandemic are summarized in **Table 3**.

Vulnerable social groups in Mexico	
Population that must be exposed to contagion due to the need for employment	People with pre-existing mental disorders
Health personnel	People who lost loved ones to COVID-19
Older adults	Prisoners
Patients with chronic diseases	Homeless
Children and adolescents subjected to stressful conditions at home	People with low income

Table 2.
Social groups vulnerable in Mexico to the negative impacts of COVID-19 on mental health [24].

Recommendations	
Recognize the feelings and emotions that alter mental health	Maintain frequent contact with friends and family
Seek professional help	Have quality sleep
Consult reliable information	Sleep at the same time and approximately 8 hours
Avoid excess information	Be physically active for at least 30 minutes a day
Establish schedules to carry out activities	Maintain established mealtimes
Maintain an active routine like the one performed before isolation	Eat and drink healthy
Limit the use of sources of false information about the pandemic	Avoid substances like alcohol or drugs
Keep busy	Do recreational activities at home
Perform activities according to their priority	

Table 3.
Recommendations to mitigate mental health effects from the COVID-19 pandemic [18, 21, 32, 33].

3. Effects on education and new teaching strategies derived from social isolation due to the COVID-19 pandemic in Mexico

As a strategy of the Mexican government to reduce the spread of the virus, face-to-face classes were suspended, and measures were implemented to continue academic activities applying new teaching strategies through the use of virtual media and work from home [11].

The Ministry of Public Education implemented the project "Learn at Home on TV and Online" during the period of suspension of school activities, it was pointed out that this isolation measure would serve to prevent the spread of the virus and that students would have a learning opportunity in collaboration with the family. Contents ranging from preschool to upper secondary education were transmitted, with information based on the contents of the Free Textbooks provided by the government, and the activities planned by the teachers [34, 35].

The education program "Learn at Home" was broadcast through various open signal television channels and pay television service. The Radio Strategy for Indigenous Communities and Peoples was also implemented, which integrated auditory content for speakers of 15 different languages [36]; and in isolated communities, the National Council for Educational Development (CONAFE) delivered more than 300,000 packages of school supplies to students [37] to promote access to education.

In basic education, which is that which contemplates the minimum knowledge that a person between 6 and 14 years of age must have, booklets were delivered with activities obtained from the textbooks provided by the government, while for secondary education, that which contemplates the knowledge expected in people aged 15 to 18, the strategy consisted of increasing extracurricular tasks concerning the content provided by teachers via virtual or the broadcasts that the government carried out on television, radio frequencies or via the Internet [38].

The universities implemented actions to continue virtually or remotely, therefore the most outstanding actions were the transformation from classroom to virtual teaching, the provision of video graphic resources and videoconferences through digital technologies [39], as well as the implementation of 4 main work modalities [40], whose characteristics are summarized in **Table 4**.

Derived from social isolation associated with the pandemic, the traditional school has changed, the attendance of students in classrooms at a specific time has

University work modalities	
Modality	**Characteristics**
Teaching-learning	Generate self-study activities Monitoring and evaluation of activities Generate evidence of learning
Investigation	Activities for the care of animals, plants, crops, and laboratory supplies Maintenance of equipment and facilities Adequate activities to continue ongoing investigations
Bonding	Establish adequate agreements with third parties to continue or pause field practices, stays in companies and industries, social service, and professional practices
Organization and planning	Rethink or conclude regulations, study plans, inventories and propose strategies for the resumption of activities

Table 4.
Work modalities implemented in university education during the COVID-19 pandemic [40].

been replaced by new distance education strategies, which implies that students and teachers make use of technological tools to effectively comply with learning, using digital folders through applications such as Google Drive®, Dropbox®, OneDrive®; establishing communication through social networks such as WhatsApp® or Facebook®; and by giving lectures and virtual seminars through platforms such as ZOOM®, Google Meet®, Microsoft Teams®, Skype®, among others [41, 42]. However, for both teachers and students, social isolation and online and distance education have been a challenge.

Teachers are in a process of self-learning of new technologies to create creative and innovative content, putting their imagination to prepare a lecture, develop exercises to reinforce learning, promote student participation through forums and chats, enrich contributions of students, create debates and appropriate conclusions of the topics covered, and to verify the learning obtained, they should propose evaluations based on essays, summaries, projects, oral or written exams, as well as self-evaluations [39, 43, 44]. In this sense, evaluations cause that teachers get concern due to the fear that students consult sources of information to respond correctly and in this way the learning process is not ensured, however, open-book exams are useful and present advantages as to promote creativity, critical thinking and develop the ability to find information and interpret it correctly. Therefore, teachers can view online exams as a useful way for students to substantiate various topics based on bibliographic material and as a part of transforming their teaching-learning processes [45].

On the other hand, online education presents greatest challenges for students that involve greater responsibility, discipline, perseverance, organization, time planning, autonomy, and self-learning, causing online education to be more demanding than face-to-face education. Although virtual classes could produce a reduction in knowledge caused by lack of effective communication, and exchanging ideas, lack of feedback from teachers, or disinterest by students, as well as physical fatigue [46], students should establish a work plan with daily objectives, prioritize activities, work and rest schedules and interact efficiently with teachers when there are doubts [47].

The success of online and distance education depends on various factors, among which are the profile of the disciplines taught, the educational and academic model of the institution, the socio-economic profile of the students, the profile of the teachers (age, teacher training, digital skills and willingness to change) and financial resources [39] some recommendations for successful distance education are: continue with the usual class schedules, establish 10-minute breaks with students because long sessions are boring or tedious and promote the participation of all students [45].

4. Social isolation and its influence on academic performance

Currently, students are less physically active, spending more time in front of screens, which deteriorates their sleeping and eating habits, and these negatives effects are exacerbated by social isolation [48]. Social isolation was implemented as a preventive measure to avoid physical contact and reduce the number of infections due to the COVID-19 disease without the intention of affecting social communication, establishing new forms of social interactions, e.g., communication through virtual platforms and social networks, unfortunately the results have been different and isolation it has been presented as a stressful situation that has generated conflicts and an unfavorable environment for young people to function effectively in the new modality of distance study [41].

Unfortunately, during the stage of isolation, distance education has generated that students go through situations for which they were not adequately prepared, for example, the difficulty in organizing their time and the lack of the necessary resources to carry out their school activities, added to factors such as family dysfunctions, lack of communication and violence, subjecting them to high levels of stress, frustration, physical and emotional exhaustion [49, 50], which can lead students to develop episodes of anxiety or depression [51].

In this sense, positive emotions such as happiness or joy, hope, inspiration, interest, motivation, enthusiasm, among others, stimulate good brain function, improve concentration capacity, reasoning, memory, and decision-making [52], which influences in good academic performance, while social isolation, anxiety, and depression generate attention and memory problems and affect decision-making [53]. It has been reported that in adolescents with depressive characteristics such as low self-esteem, there is poor academic performance, difficulties in understanding content, antisocial behaviors, and a predisposition to drug abuse [51]. A student who perceives himself as a good student ensures high academic performance, on the contrary, students who make a negative evaluation of themselves avoid academic tasks for fear of failure [54], which generates low academic performance [55], similarly students with symptoms of anxiety and depression are perceived as incompetent affecting academic performance [54, 56].

Anxiety, depression, fear, and uncertainty influence the learning process, so it is recommended that teaching be flexible and adapted to the needs of each student [57]. The resilience, motivation and, skills to learn independently of everyone are important factors to obtain the knowledge imparted through the new distance education systems.

The United Nations International Children's Emergency Fund (UNICEF) in Mexico established some recommendations so that children and adolescents can maintain healthy mental health (**Table 5**).

Recommendations	
Learning activities should not exceed 20 min for children and 45 min for adolescents	Find ways to keep learning
Establish schedules to carry out activities	Be kind to people and yourself
Recognize and not repress emotions	Take care of your health by taking preventive measures
Establish communication with friends through virtual means	Attend medical attention if necessary

Table 5.
UNICEF recommendations for the maintenance of mental health in children and adolescents [58, 59].

5. Limitations of online education

In Mexico, there is great economic, social, and educational inequality, mainly in rural areas [60]. According to the National Survey on the Availability and Use of Information Technologies in Households 2019, only 43% of the population has a computer and 56.4% of households have internet access, however, access to such technologies are not equitably distributed between urban and rural areas. 49% of the Mexican population living in urban areas has access to a computer while only 22.1% of the rural population has that access, in urban homes 65.5% have access to the internet while in only 23.4% of rural areas have such access [61]. Social inequality also makes a big difference in access to information technologies, since in

people with low economic incomes (<$ 30,016 MXN per quarter) only 20.1% of the population has access to a computer and 19% have access to the internet, in contrast, among people with higher income (> $ 55,495 MXN per quarter), 76.6% have access to a computer and 89.7% of them have internet access [61, 62].

Adapting to "online" educational life has been complex, mainly due to the lack of access to computers, tablets, or smartphones, but also because the speed of Internet connection in the country is inefficient [63]. This digital gap in Mexico will lead to great challenges, especially in students who lack self-regulation and self-discipline [64].

In the new educational program implemented in response to the contingency, not all educational institutions nor all teachers have responded in the same way to the demands of online education, for example, private education institutions have greater access to digital environments [65], on the contrary, public schools have to implement other strategies such as teaching classes through open television or radio, private school teachers also have more experience and access to information technologies, the real challenge is that the online education is delivered with the highest possible quality [66] with scarce resources.

On the other hand, some institutions have not shown interest in the face of the pandemic, virtual classes are supported by tasks that are sometimes not reviewed or given feedback, and teachers have lost communication with their students [67]. On the contrary, there are teachers overwhelmed and concerned about sending educational activities, establishing effective communication with their students and trying to ensure that they acquire the best possible knowledge and skills, also there is concern for those students with limited resources who eat in school canteens and who are currently not receiving adequate food [26].

Another limitation of online education is that public institutions are not equipped or have the experience to teach online classes, or teachers are not prepared to do so [68], because there was not adequate training for teachers to integrate the information technologies to the pedagogical experience [69]. However, institutions continue to require teachers to provide evidence of evaluations and work plans to justify compliance with the educational program [67].

There are many shortcomings and inequalities, both in the availability of resources and in the preparation of teachers, at the higher level, there are few universities that have adapted efficiently to the transition to online education, implementing appropriate learning systems and with experienced academic staff [64]. A survey carried out among professors of the National Autonomous University of Mexico (UNAM), the main public institution of university education in the country, indicated that 60% of them have received support from the university to transform their distance activities, 43.3% have problems with the availability of time and class schedules or lack adequate spaces to work remotely, 39.7% indicate they have problems with access to the Internet, computer equipment or have no experience in handling of educational platforms, and 14.9% indicated having affective affections such as sadness, frustration, anxiety or fatigue [70]. In this survey, teachers comment that the biggest problems their students present are that they do not have access to the internet, they lack computer equipment or they do not know educational platforms, lack of time and adequate spaces to work remotely [70].

On the other hand, it has also been reported that students report having a computer at home, but that it is used by more than one member of the family, which makes it difficult to access to the equipment and generates feelings of frustration, anxiety, fear and insecurity [71, 72] given the uncertainty of their professional preparation.

Online education also affects children who have some type of learning disorder, the education given by parents with the help of manuals and instructions by teachers,

do not ensure that they are learning and that this remote process is as effective as the learning obtained in person by specialized teachers, causing deterioration in the academic levels of children, with implications for the future [73]. Sometimes parents are not able to guide their children in school tasks because they do not know pedagogical strategies that make it easier for them to explain various topics, or they lack the necessary knowledge simply, on the contrary, if the parents have a high educational level, these difficulties are overcome and doubts are resolved and activities are created to promote learning [50].

Parents with a higher degree of education have the advantage of being able to support their children in complex procedures, such as mathematical activities, while parents who have no academic training are at a total disadvantage, in addition, the time that parents invest in the education of their children at home is also a factor that influences learning, some parents continue to work from home and others, even with mobility restrictions, must go out to work [65].

6. Final comments

The social isolation generated by the COVID-19 pandemic has generated behavioral changes such as sadness, apathy, anguish, loss of sleep, anger, fear, among others, these maladaptive behaviors have an impact on the mental health of Mexicans, making them vulnerable to developing various disorders such as anxiety, depression or post-traumatic stress disorder, added to this, the population has had to adapt to various activities to continue with social dynamics, such as the case of education, which went from being face-to-face to being taught remotely, this has represented a challenge in a country that seeks to implement measures to provide quality education, considering that Mexico ranks 53 out of 75 countries in terms of quality of the education system, according to the Program for International Student Assessment's (PISA) with scores below the international average [74].

The new teaching strategies implied migrating to the use of information technologies, this has meant that teachers and students make use of technological tools such as applications and virtual platforms to teach or receive classes.

Online education involves great challenges of responsibility, self-learning, discipline and organization, challenges that impact positively or negatively on student performance, for example, the need to study online forces students to become disciplined and self-taught. However, unlimited access to the internet during virtual classes has several disadvantages because they can deviate from the educational purpose by entering leisure platforms, which causes lack of attention and concentration. Because population inequality in Mexico places at a disadvantage the student population that presents a low socioeconomic level and cannot have access to a computer or the internet, coupled with this demographic conditions, the lack of parental attention or the violent environments at home are factors that do not favor learning.

For these reasons, online education is a strategy that has little chance of being effective in the vulnerable population, so far the impact caused by the limitations that students face is unknown, however, the authorities must consider and plan the strategies to mitigate the effects caused.

7. Conclusion

The pandemic caused by SARS-CoV-2 has caused the population to implement prevention measures such as social isolation; however, this causes mental

health effects, placing the population in a state of susceptibility to develop various mental disorders such as anxiety or depression. Additionally, social isolation also damage academic performance of students who are currently receiving an education different from the one they are used to, online education, however, there are also other limitations such as lack of a computer and inaccessibility to internet servers, which cause that academic performance to not be satisfactorily developed, strategies must be implemented so that students receive equitably the education that they are entitled to.

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Conflict of interest

The authors declare no conflict of interest.

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Due to the COVID-19 pandemic, the fields of health and education have been extensively revisited worldwide. This book addresses the importance of wellbeing in education. *Health and Academic Achievement - New Findings* provides recent reflections on the quality of informal learning environments in preschool-aged children, the acceptance of employing online education professionals, the mental health of teachers and students, and the challenges posed by current teaching and learning strategies during COVID-19. This book focuses on human behavior in health and education and will be of interest to readers in fields ranging from biology to sociology as well as readers interested in wellbeing and mental health.

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