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Putting an end to this virus: Practical and ethical issues in stopping COVID-19 in Africa

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Abstract

As Coronavirus disease (COVID-19) continues to rise globally mutating into new variants, concerns are growing on how to put an end to the virus. Ongoing clinical trials are showing some hopeful results, yet other non-clinical factors such as people's perception of the virus and their attitudes towards COVID -19 guidelines for prevention are important. Most countries in Africa have adopted various preventive measures to slow down the rapid spread of COVID-19. Some of these measures include patient screening, contact tracing, regular hand wash with soap and water, social distancing, use of hand sanitizer lock down and quarantine. However, some of these measures have raised concerns regarding ethical issues in Africa and other countries worldwide. To stop the spread of the virus in Africa, there is a need to address certain practical and ethical issues. This paper presents a reflections on practical and ethical issues on mitigation of COVID-19 pandemic in Africa

We conducted a literature search online of various journals and databases including Medline, PubMed, Google Scholar, policy documents and newspaper reports on COVID-19 published from December 2019-September 2020. In our search, we identified keywords "practical", "ethical", "ethics" "COVID-19", "pandemic" "EndCOVID" and "Africa". We included only articles in English.

Centred on practical and ethical issues drawn from a Kantian ideology, firstly we discuss how the implementation of pandemic control measures promotes public trust in public health emergency leadership and governance structure. Secondly, we raise the question of what pandemic control policies best promote the greatest benefits to the greatest number of the public.

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Thirdly, we reflect on the extent to which the policies are just and fair to the public. Fourthly, we interrogate the potential consequences of the pandemic control measures on the public. Fifthly, we discuss the risks involved in the pandemic control measures and management style. Finally, we present an analysis of how these processes reflect on the extent to which the individual citizen is/has been able to make an informed decision about the pandemic control measures.

We concluded that country and context-specific ethical frameworks are required to effectively combat the COVID-19 pandemic in Africa.

Introduction

In some African countries like Nigeria, Ghana, Kenya and Malawi [1-4], the social organisation of the public health apparatus is weak due to poor governance and leadership system, social structure, stakeholder engagement, and information sharing that could have enhanced effective control of diseases of public health emergencies. The social organisation is the pattern of social relationships that are formed between and amongst the people as a social group within the entire social structure. This pattern of social relationships defines the nature of social relations in the public health systems from one country to another. As such the failure of the social organisation of healthcare continues to affect the planning and organisation of the public health system to contain the spread of diseases and infections such as the Coronavirus diseases (COVID-19), which continues to increase daily in Africa [5]. The political economy of African societies rooted in culture influences the social organisation of health systems leadership and governance, as interest in who gets what, why, when, and how hinders the way resources are deployed in the health systems, even in the management of the COVID-19 pandemic control. At present, COVID-19 adds to the existing burden of diseases (infectious and non-communicable diseases that include HIV/AIDS, mental illness, stroke, cardiovascular diseases, and malaria) on the health system. More so, because there is insiffcient stakeholder engagement, decision making is taken solely by the government with little community consultation on ways to tackle COVID-19 despite their relevance in public health management. Similarly, the social organisation of the health systems is being affected by the imbalance in information and data sharing which is a result of the skewed pattern of social relationships that exists. An improvement in the social organisation of public health systems to strengthen governance and leadership, social structure, stakeholder engagement, and networking is imperative as ways to addresses public health-related challenges in the present and the future.

The public health system in some African countries do not possess the capabilities required in controlling the COVID-19 pandemic. For instance, the 2019 Global Health Security Index showed that the preparedness of Nigeria for an outbreak was generally weak [6]. In addition to this, Nigeria's 2019 proposed health budget was only 2% of the national budget and a significant proportion of the budget was allocated to vaccination programs [7]. Thus, the problems of resource-allocation, double-burden of disease, and a poor workforce ratio put a disproportionate burden on the health system. Most isolation centres and testing facilities have not been in use after the 2014 Ebola outbreak. Most facilities were dilapidated, obsolete, or unavailable. There were only seven (8) testing laboratories across Nigeria in the wake of COVID-19 outbreak [8]. Hence the need for more structures as well as rapid testing. These issues were prominent among other systemic challenges which the Nigerian health system grappled with before the outbreak.

In this article, we offer practical and ethical approaches to improve the social organisation of public health systems in Africa for mitigating COVID-19. We begin with an analysis of how ethics relate to these issues.

Ethical framework

Kantian deontology emphasizes the importance of staying bound to the cause of duty regardless of the outcomes. Deontological ethics is bound by the 'categorical imperatives' to produce actions that are capable of becoming universal principles, respect for humanity by not seeing people as means to an end, but as ends in themselves, and acknowledging the human will as a universal law. Because duty is a corollary of roles and expectations, duty is not free from moral conflicts. Hence, a reflection on the need for decisional equilibrium and common morality necessitates an appeal to principles. According to [9], there are certain ethical and moral principles which should guide individuals as rational agents in their decision making. As such encouraging the pursuit of actions that respect individuals' autonomy, produce beneficial outcomes, does not induce any form of harm, and are fair to all concerned. In extending the ideals of principlism to benchmarks, [10] advanced the benchmarks which should guide against exploitative relationships when duty is to be dispensed. In practice, consequentialism analyses the potential (positive/negative) outcome of policies and frameworks [11]. The outcome of an action in comparison with not taking such action is considered important. This notion gives expression to the utilitarian principle which considers the goodness of actions in terms of the number of people who benefit from them. Hence, consequentialism lies at the intersection of duty and utilitarianism (consequentialist moral action). It evaluates the extent of benefit in an action. Virtue ethics, however, differs. Virtue ethics justifies actions not simply based on duty, or to measure the consequence of neither action/inaction nor the number of people who benefit from a course of action. Virtue ethics highlights the cause of good or bad actions, as proceeding from the dominant virtue.

Virtue ethics apply relativism as an important ethos. This situates the transcendental nature of virtue as being cross-cultural.

The preceding ethical foundations and orientations provide us with the framework for the ensuing ethical analysis of COVID-19 response in Nigeria. First, we examine how the implementation of pandemic control measures promotes public trust in public health emergency leadership and governance structure. Second, is the question of what pandemic control policies best promote the greatest benefits to the greatest number of the public? Third, is a reflection on the extent to which the policies are just and fair to the public. Four is an interrogation of the potential consequences of the pandemic control measures on the public. Five, we discuss the risks involved in the pandemic control measures and management style. Six presents an analysis of how these processes reflect on the extent to which the individual citizen is/has been able to make an informed decision about the pandemic control measures.

Governance and leadership

Public Health emergency leadership and governance structure are vital for community resilience in outbreak containment, treatment, and public perception.

Outbreak containment: COVID-19 outbreak containment has been challenging for many African countries. Africa's first case of COVID-19 emerged 45 days after on 14th February 2020 [12] sequel to when China reported the Wuhan outbreak to the WHO. The time-lag of spread notwithstanding, the governance structures in most African countries were unable to translate these windows into opportunities for COVID-19 containment. Most African countries relied on the WHO guidelines to provide some direction for a response. However, the ideals were not situated within the social, economic, and cultural peculiarities of Africa [13]. It is a fact that about 65% of Nigeria's GDP economy thrives in the informal sector [14]. Hence, the transplant of Western disease control approaches created a gap between the machinery of disease control leadership and governance and the citizens. This fuelled insinuation of Western conspiracy, as well as connivance and complicity on the part of Africa leaders. This quickly eroded the trust that people should have had in the process.

Treatment: Search for effective treatment is still a challenge and more complicated in Africa due to the weak health care system. The weak health governance structure compounds the quest for an inward-looking approach for effective treatment. Aside from the politics of science in African states are still constrained by the strings attached to their former colonial masters. Even internally, the neo-colonial agenda being implemented in the continent does not allow freedom of utilising home-grown innovation for development. While there is no perfect system in the world, lack of support for

Madagascar's treatment by African governments is a demonstration of the insincerity of the continent's lack of preparedness for the industrial revolution. It is easily apparent that tropical medicine requires tailored tropical solutions demanding effective health governance and leadership structure taking proactive actions, especially during public health emergencies. While the government can save from foreign exchange needed for importing drugs so that individuals to have access to effective and cheap treatment. However, this is not the situation. Most African countries rely on donations and loans currently to address the problem. The risk is enormous for the public due to exposure to vaccine trials that might not have considered gene variation which may lead to unnecessary harm. The choice is still a problem for Africa countries due to the burden of debt and string attached to the aprons of their colonial master including China leading the new agenda for scrambling for Africa.

Public perception: Trust is a vital element of pandemic control. Public trust emerges from the approach to disease control policies and activities.

The transparency and the availability of stakeholder engagement platforms provide important dimensions of ownership and involvement. In Sweden, *the herd immunity* or *community immunity* approach to addressing COVID-19 was based on the principle of trust which was an outcome of the moral obligation/contract of leadership [15].

In Nigeria and Malawi [16] for example, the urgency of the situation moved the government to implement the recommendations of the WHO without recourse to local realities and with minimal stakeholder engagement. This was a major cause of the failure of the initial containment/mitigation measures [17,...]. Governments can draw from the lessons learned from the HIV/AIDS programme implementation or the 2014 Ebola crisis and the ongoing H3 Africa project. Although these exist in Africa they may not be exactly what is needed in the fight against COVID-19. However, lessons can be learned from these for better stakeholders' engagement.

Preparedness for COVID-19 control and the utilitarian effect

For policies [18] that improve basic health provision, disease/epidemiologic surveillance and preparedness systems cannot be overemphasized as potential approaches to promoting health benefits among a large proportion of the population. In addition, [19] identified the value of risk communication policies that has the potential of bringing the greatest health benefits to the country. These have the capacity to enhance the ability for early recognition and containment activities needed to curb the spread of the disease. Local contexts, the extent of disease severity/infectiousness, and the category of public health emergencies are important considerations in disease control activities. This is

especially so because there is not one single sufficient that can provide an optimal response to public health emergencies of the magnitude of COVID-19.

Africa had the advantage that COVID-19 did not enter the continent until mid February [12] when the first case was announced in Egypt; yet some African governments like Tanzania refused to accept and properly prepare to combat the spread of the virus. Presently, the number of confirmed cases on the continent is estimated at 335,791. This inadequate preparedness shows that the leadership and governance structure for health on the continent are weak. Due to governance inadequacies at the larger state level, the spread of COVID-19 continues to rise across Africa. The governance structures fail in their duty to protect the lives and properties of citizens. Preparedness strategies used by African governments ve been lopsided as issues of equity and fairness have not been guaranteed in the various containment and mitigation measures employed against COVID-19. For example, in Nigeria and Malawi, as the confirmed cases of COVID-19 continued to rise many states lacked testing centres for a country of over 200 million people. Only Lagos state and Abuja as of March 2020 had a functional COVID-19 facility. In Nigeria, like in most African countries, the adoption of isolation, lockdowns, and other restrictive measures have been mostly unsuccessful since they lasted longer than necessary. The restrictive approaches were not supposed to last for long [19]. They were to be imposed to allow governments to assess the situation and implement disease control responses. One positive consequence of the restrictions (lockdown and other approaches) was the increase in terms of testing capacity in Nigeria. The number of laboratories grew from five to thirty-three [19-20]. However, in economic terms, the restrictions generated disaffection among the masses in Nigeria. This led to the breakdown of law and order the beginning of protests. Immediate underlying explanations include the fact that Nigeria thrives on a highly informal economy, coupled with the indirect problems of depleted foreign reserve, global oil price crash [21], and decreased purchasing power of the Naira against the dollar. Also, there were marked inequalities in the administration of the restrictive measures [22]. There were complaints about the quality of care in the isolation centers, consistent with the history of poor service delivery in the Nigerian health system [23], and in some cases, infected persons broke out of isolation centres [24].

In Malawi, a state of disaster to prevent COVID-19 was declared on 20th March 2020 and the first Covid-19 cases were reported on 2nd April 2020. A national COVID-19 Preparedness and Response Plan was developed in June 2020 to ensure prevention of COVID-19 spread into the country, preparedness and readiness for a timely, consistent and coordinated response to COVID-19 pandemic [25]. Malawi, like other countries around the world adopted the various measures recommended by the WHO to slow down the spread of COVID 19. The measures include but are not limited to: social distancing, regular hand washing with soap and water, use of hand sanitizer, practising respiratory hygiene, putting on masks, restriction of gatherings, use of personal protective equipment (PPE), screening, contact tracing, self-isolation and quarantine of suspected or confirmed cases. However, implementation of some of these measures has been a challenge due to resistance by the public especially due to the socio-economic and ethical concerns. For instance, issue about disclosure of information and mandatory testing in contact tracing has been one of the key issues of ethical concern in the country due to its potentiality to infringe on individuals' privacy and confidentiality.

These germane issues have made preparedness strategies for COVID-19 lopsided and an ethical issue, as the implementation of already existing strategies to combat the continued spread of COVID-19. More so, the isolation strategies infringe on the rights of the infected persons. While the ethics of treatment on who gets tested and who does not has led to the underreporting of cases of COVID-19 pandemic in Africa.

Restrictions

Restrictions were set up to reduce the spread of the virus and to provide government time to be able to make provision for mitigation and treatment. However, two major risks emerged from the restrictions that were imposed. First, was increased poverty and second, was the spike in the rate of infections. Poverty rates increased [21] putting more people into the poverty class. The effect of the restrictions increased the burden on the informal sector as the largest employer of labour, even as lockdowns are being partially lifted. The non-inclusion of Nigeria's informal economic sector in the social protection programmes of the government further made the sector more vulnerable [21] (ACAPS, 2020). The rate of infection has been on a steady rise and the implication of this is another wave of lockdown if the number of infections keeps rising. In most African coutries, the restriction measures faced a resistance making enforcement difficult. For example in Malawi, the Covid-19 response policies restricted gatherings like weddings and funerals, whilst political rallies occurred without adhering to Covid- 19 measures [26]. This resulted in loss of public trust in the government and affected compliance of the public to Covid 19 prevention measures.

Self-Isolation: The adoption of self-isolation as a means of disease control was not properly managed in the Nigerian context. The self-isolation rule was not observed and, in some situations, people who were of the elite class flouted the directives [27]. There were social class-based disparities in terms of the management of self-isolation. The government also recognized the failure of this measure of disease

control as most travellers did not stay true to the guidance to stay in self-isolation for 14 days following their arrival from international travels. This non-compliance was a key factor in the proliferation of cases across the country [27].

Social distancing: Social distancing is alien concept to Africa. Africans live by the principle of being their brothers' keeper. The implementation of social distancing is unpopular and difficult for people to adapt into practice. The practice is a major concern as it hinders persons from rendering the necessary care to loved ones which is critical on a continent with a very weak health system. Hence, this may cause more harm than benefit.

Quarantine: The structure of quarantine on standards of care, proper management of gatekeepers, scope [28] and contact tracing, monitoring, and ensuring compliance is based on coercion and force [29] which has infringed upon the rights of persons. The structure of quarantine for COVID-19 in Africa has not been effective in a time of COVID-19 pandemic. Both self and forceful quarantine measures have been used to combat the spread of COVID-19 [19]. For example, in Kenya people that violate curfew are subjected to forceful quarantine [30]. These reports of forceful quarantine have been one of the ways the government has infringed on the rights of the citizen. This is deemed unethical as it erodes the right to justice for those concerned and affected.

Lockdown: Based on the recommendation of the WHO, the lockdown was the first level of response to addressing the outbreak.

The situation was an evolving one, governments were bound to carry out a situational analysis and generate informed decisions to guide disease control activities. However, in Nigeria like in Uganda, Kenya, Malawi and Zimbabwe, the lockdown was announced without viable structures for providing palliatives. It was still extended without feasible next steps [31]. In Malawi, immediately after the President announced a national lockdown an injunction was obtained against the lockdown. The Malawi High Court overruled the lock down policy arguing that it would be unconstitutional because its negative consequences on the socio-economic state of the majority of Malawians [32]. The 'conditional cash transfer' [33, 34...], school feeding program at 'home' [35], and use of TV/Radio platforms for the teaching of school children were major points of controversy [36]in most African countries. The governments did not provide clear directions/ guidelines regarding the management of these processes. The provision of palliatives in most African countries was plagued with party politics, partisanship, and political clientelism [37-40]. This approach made it very impossible for non-political groups and unaligned persons to access support from the government. Also, varied dimensions of

inequity were identified in the use of lockdown. This lower social class in the society interpreted the lockdown not just as a 'protective' measure, but as a part of the government's 'historical' conspiracy against the 'poor'. There were social class differences in the implementation of the restrictions [41-42].

Capacity to make informed consent for prevention
The capacity to make informed consent is dependent on access to the right information. The reportage of COVID-19 has been fraught with hoaxes and rumours. The ideological state apparatus is the press/media and it is through the media that the citizens can rightly access the information required to make informed safety decisions.

The misinformation has led some citizens such as in Nigeria to consider the outbreak as being politically motived or manipulated. There have been conspiracy ideas about the global political structure of COVID-19 origin and spread. Hence, in some cases, people have explored the use of natural remedies as preventative and curative measures. These have made the use of personal protective equipment to require significant enforcement. Although there are mass-media advertisements to provide information regarding the virus, the aetiology (controversial) and epidemiological reports have been scanty. For example, the government of Tanzania has restricted press freedom, provided sporadic COVID-19 data, and communicated COVID-19 health information that may potentially compromise the health security of the East African region. In another dimension, the available information about the patterns of COVID-19 in Nigeria has been limited to simple dis-aggregations like gender and local government areas. With better-disaggregated data, Nigerians would have been better able to make informed choices about control and preventive decisions. These and other possible reasons demonstrate that individual citizens have been rendered less capable of informed decisions.

The way forward
In low-and-middle-income countries, the financial inability of the government to readily respond to health emergencies requires a reflection. While it is established that there is no one-size-fits-all approach to disease control efforts, we suggest two valuable ways to develop ethical contexts for better outcomes. First, the government must leverage the role of stakeholders, and second, is the need for country-specific ethical framework to guide the allocation of resources, priority setting, and community-ownership.

In Nigeria, the Coalition Against COVID-19 (CA-COVID) was set up by leaders in the private sector to support the government in her activities regarding COVID-19. This provided ownership to the private sector and has significantly helped the process. Stakeholder engagement at all levels is a useful resource in countries with limited resources. In Kenya, Ethiopia, and Tanzania [43], the governments

are leveraging extensively on the willingness of the Community Health workforce. They have significantly helped to accelerate contact-tracing, reaching hardest-to-reach communities with supplies, and providing health education about COVID-19. Stakeholders are vital for ensuring the implementation of disease control strategies as they have a grasp and understanding of approaches for reaching their constituents.

Another approach that is potentially viable for pandemic mitigation and control activities is an ethical framework. Most African countries require ethical frameworks to guide community engagement, resource allocation, priority setting, and clinical care among other important areas of control activities. The development of an ethical framework will help governments to provide healthcare for all. Although the WHO has developed a related guidance document, this may not be sufficient to address the governance and resource peculiarities of the African continent. Hence, country-specific ethical frameworks will focus on addressing the local realities and providing directions for resource allocation and other engagements in a pandemic. Indigenized strategies potentially benefit from inputs from the local communities. This approach is ethically sound, respects the autonomy of locals, and drives ownership and the possibilities of achieving higher levels of compliance in their implementation.

Conclusion

Governance and leadership are central to stopping COVID-19 in Africa. At the centre of strengthening the social organisation of public health systems in Africa, there is a need for better governance and leadership for health. The need for country-specific ethical frameworks that are practical in implementation across Africa is needful, as the social construction of COVID-19 differs across the continent.

Competing Interest

The authors declare no competing interest.

Acknowledgements

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The Early Hours of the COVID-19 Pandemic: Issues encountered by Students at Malaysian Higher Education Institution

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Abstract
With COVID-19's exponential spread threatening the entire population, lockdown was imposed where all universities, schools, restaurants, and other public areas come to a standstill and closure. No more face-to-face teaching at the universities, as everybody was asked to work from home (WFH). From here, all teaching and learning turned to virtual or remote learning. Everything goes online as both teachers and students are at risk. This study explored the issues encountered by Malaysian students in higher education during the early months of the COVID-19 pandemic. It employed a phenomenological approach to qualitative design. The qualitative data came from an online survey with 617 student respondents. Results revealed the following issues: dealing with limitations due to the pandemic, personal-related struggles, keeping oneself healthy, boredom, and changes in school dynamics. When asked for their suggestions, the following top themes emerged: upgrade internet speed, apply practical teaching methods, stay safe, abide by laws and guidelines, and improve government support. Based on the results, it can be argued that the students' challenges brought about by the pandemic is not purely academics, more to social presence. They had to deal with other issues, just like any ordinary person affected by the pandemic's adverse impact.

Introduction
The COVID-19 pandemic caught everyone by surprise in one way or another. Many people lost their jobs (Baert et al., 2020; Wilson et al., 2020), and the lockdowns imposed by governments had severe economic repercussions (Ozili & Arun, 2020). In the educational sector, teachers and students had to find ways that education can continue. As the government implemented lockdowns and other movement restrictions, schools were forced to stop doing face-to-face classes. As a result, online courses or online platforms were used to continue their studies and for the schools to continue operating. However, students were not used to the platform. Some were having difficulty adapting to the new setup (Alharthi, 2020). Although students were quick to point out the advantages of having online classes (Shim & Lee, 2020; Naji et al., 2020), like allowing them to listen to their teachers at the comfort of their homes or anywhere they want (Naji et al., 2020), there were disadvantages that they encountered. Some complained of having so much work to do, causing them fatigue in the end (Niemi & Kousa, 2020). Others reported having been stressed out (Elmer et al., 2020; Salari et al., 2020; Simamora, 2020). Hence, the COVID-19 pandemic has brought so much inconvenience for both students and teachers.

The pandemic brought another dimension to education. Unprecedented in history as regards education during a pandemic, educators need to know the situation of their students. In this paper, we look into how this pandemic affected the students. We dig deeper into their lived experiences by raising their voices through a qualitative inquiry. This study explores the issues based on the experience of the higher institution students in Malaysia during the COVID-19 pandemic. This paper addresses the gap in understanding the real score on the ground, meaning the students' situation. The findings contribute to the literature on the debate about the effectiveness of implementing distance education amidst a pandemic.

Online Education during COVID-19 Pandemic
Schools shifted to an online platform to cater to the students' needs during a pandemic. While online education is nothing new and is beneficial during a pandemic (Basilaia & Kvavadze, 2020; Muthuprasad et al., 2021; Paudel, 2021), it also has its disadvantages. During the COVID-19 pandemic, several challenges emerged, such as lack of technological resources or internet problems (Doyumgaç et al., 2021; Muthuprasad et al., 2021; Paudel, 2021), stress (Chandra, 2020; Husky, 2020; Rajab et al., 2020), communication difficulties (Alawamleh et al., 2020; Dhawan, 2020; Rajab et al., 2020), and student assessment (García-Peñalvo et al., 2021). Despite these challenges, both students and teachers work hard to attain the goals in education. Aside from online classes, other forms of learning are through modules or a combination of both. Hence, the terms blended learning or flexible learning became more popular during the pandemic.

There were also concerns among teachers as regards themselves concerning online education. Some of these included low motivation in using technology (Aytaç, 2021), unpreparedness (Atiles et al., 2020; Carver & Shanks, 2021), communicating with students (Primdahl et al., 2020), academic dishonesty among students (Moralista & Oducado, 2020), and most especially their concern about the quality of teaching (Cheng & Lam, 2021). Teachers knew how the pandemic impacted their role in the teaching-learning process. They also were very much aware of the difficulties their students went through. Thus, they needed to be innovative and exerted more effort to reach out to them.

Both students and teachers have their share of difficulties because of the pandemic while online education is implemented. Nevertheless, there are also positive developments in doing online classes during the pandemic. For example, the interactive communication tool used by teachers, in some degrees, compensated their actual classroom presence (Roque-Hernández et al., 2021). Students found flexibility and convenience as positive features of online education (Bdair, 2021; Muthuprasad et al., 2021). In one study, both teachers and students agreed that online education promotes online research (Paudel, 2021), a skill that is very important for learning. Moreover, the pandemic and online education help promote internalization. For example, exchanging online modules became possible and even broadened the scope into global classrooms (Shahrill et al., 2021).

The Chronology of Covid-19 Pandemic in Malaysia
On January 31, 2020, the World Health Organisation (WHO) announced that globally, COVID-19 is at a pandemic level. Authorities reported that the virus was discovered on December 8, 2019, from Wuhan City in Hubei Province in central China where many patients worked at or lived around the local Huanan Seafood Wholesale Market, although other early cases had no exposure to this market (Lu, Stratton, & Tang, 2020). On January 25, 2020, Malaysia was first hit by this COVID-19 by contacting three Chinese that came in through Singapore in Johor Baharu (Malaysian Health Ministry, 2020). However, the numbers kept increasing until early March 2020. Then, the government imposed the first national lockdown called Conditional Movement Control Order (CMCO) or Targeted Enhanced Movement Control Order (TEMCO) from March 18, 202, to March 31, 2020. As the cases became more serious, the government imposed a second lockdown from March 31 to April 14, 2020 and continued the third lockdown extended to April 28. The government extended again until the end of December 2020. During this lockdown, the term "new normal" emerged, replacing the old normal routine that people usually do before the pandemic. Under this new normal situation, all higher education institutions (HEIs) in Malaysia implemented virtual learning for the foreseeable future and complied with standard operating procedures (SOP) and directives set by the authorities to keep the virus at bay and break the infection chain (Lee, 2020).

Students continued their schooling without going to school campuses. Using technology, teachers and students made it possible to engage in the teaching-learning process. However, as the weeks and months passed, both students and teachers noticed and experienced several problems. In this paper, we present the issues as identified by the students and at the same time discuss their suggestions to help them in their situation during this new normal situation.

Research Questions
1. What are the issues the Malaysian Higher Education Institutions (HEIs) face during the early hours of the COVID-19 pandemic?
2. What are their suggestions to help them continue their studies during the pandemic?

Methods
The study employed a qualitative design using a phenomenological approach. The phenomenon we investigated was the lived experience of Malaysian higher education students affected by the changes brought about by the COVID-19 pandemic. According to Creswell (2007), the phenomenological approach in qualitative research focuses on the lived experiences of people who are directly or indirectly involved in the phenomenon being investigated. Specifically, we employed descriptive phenomenology. As cited by Giorgi (2007), descriptive phenomenology, from the perspective of Husserl, is "designed to deal with any type of object and its manner of appearance is the basis upon which investigative procedures should proceed" (pp. 73-73). Descriptive phenomenology is more on knowing the phenomenon per se rather than giving an interpretation of it. In this study, we focused on the actual experience of the students.

Study Participants: The study participants were the 617 students of a university in Malaysia who participated in the online survey. They were students enrolled in different programs during the COVID-19 pandemic.

Data Sources and Data Collection: The main source of the data was from the students' responses in the survey questionnaires of an online survey. Hence, we only analyzed the qualitative data from the open-ended questions included in the online survey.

Analysis & Interpretation of the Data: We followed the six phases of thematic analysis, as suggested by Braun and Clarke (2006). *First*, we familiarize ourselves with the data. We read and re-read the students' responses for us to have a better grasp of their experiences. *Second*, we generated initial codes. It was the first step in organizing the data. *Third*, after generating initial codes, we searched for

themes. We did this phase by sorting out the different codes by analyzing which codes are similar or combined. We then started to see the possible relationship between codes or between themes. *Fourth*, when we identified themes, we reviewed these themes to come up with some refined ones. We narrowed down our themes in this phase after eliminating those with not much data to support or combine two themes into one. *Fifth*, we defined and named the themes. Here, we explained the essence of each theme and narrated a story-like discussion. *Sixth*, we produced the result. Here, we wrote the results by explaining each theme. We further explained each theme by providing actual responses from the participants.

Trustworthiness: We ensured that we followed the protocols in conducting qualitative research by observing the trustworthiness. According to Guba (1981), the following must be observed to achieve trustworthiness: credibility, transferability, dependability, and confirmability. Our long experience as educators and researchers gave us the confidence and credibility to conduct this study on credibility. We carefully crafted the online survey's qualitative questions to ensure the students' right and appropriate responses. We also asked for comments from our colleagues, who are qualitative research practitioners, to ensure that we followed acceptable standards. For transferability, we believed this study is worth emulating or replicated in other contexts since the phenomenon we were investigating was true in Malaysia and other countries. Hence, we desired wider dissemination of the study's findings. As to the dependability, we provided here a detailed account of how we conducted the study. We also supported our findings with related literature. For confirmability, we created an audit trail in our analysis of the data. Also, we observed and conformed to the descriptive phenomenological theory of focusing on the real experience without giving our bias and interpretation.

Ethical considerations
Since the data came from the online survey, there was no problem with identifiers like the participants' names. The data only contained students' numbers. We got permission to use and analyze the qualitative data, which already had prior consent from the survey respondents. Furthermore, we did not use any name or even Pseudonyms but only numbers of students' entry in our database and the result section. We also hid the name of the university.

Results
The presentation of this study's findings is clustered into two. These are issues experienced by students and their suggestions to help them continue their studies during a pandemic.

Issues Experienced by Students in Malaysian Higher Educational Institutions
For the students' answers to the qualitative question about the issues they experienced during the early months of the COVID-19 pandemic, we analyzed using Colaizzi's (1978) method. The analysis of data yielded five themes, namely, (1) dealing with limitations due to the pandemic, (2) personal-related struggles, (3) keeping oneself healthy, (4) boredom, and (5) changes in school dynamics.

Dealing with Limitations Due to the Pandemic.
The students recognized the limitation they experienced because of the lockdowns imposed by the Malaysian government. As classes were no longer allowed in an actual classroom setting, the students were forced to go online. Their number one limitation is the problem with an internet connection or the limited connection to it. For example, student number 110 shared how this internet problem affected him, saying, "It's really difficult to access e-learning due to slow internet connection."

The other limitation they commonly experienced was the difficulty of online classes and the lack of resources. These limitations pushed them to lose focus on their studies. They also expressed having problems with online classes, particularly with doing their assignments. They said this format, referring to an online class, is not efficient. One student expressed her sentiments, saying:

> *"It's a challenge to be at home and to study/ doing assignments. Hearing that the whole semester will be done online tear me apart. I don't ever think I can. I hope the university thinks of people who live in rural areas and do not have internet privilege. Please, think of those in need"* (Student # 562).

The other common limitation they identified was the availability of facilities such as food and transportation. For example, student #608 enumerated several limitations she experienced, such as "restrictions in studying, lack socializing, less physical activities, and restricted food supply." Transportation is also identified as another limitation. Student # 47 shared, "I have difficulties to go outside and so little access for transportation."

Personal Related Struggles
Aside from the aforementioned school-related issues and challenges identified by the student respondents, they also had to deal with personal struggles. For example, their usual daily routine before, which included part-time work, was in peril. One student, living away from home, described her situation this way:

> *"It is difficult to survive as a student, staying away from my parents, reconsidering that they need to save and had to spend too. So here I am. I did a part-time job. I hope this outbreak will cease"* (Student #148).

The other personal related struggles they had were financial. They said they did not have enough money to save. They were worried about what happens if the pandemic would drag for long. Undoubtedly, it would have affected their finances. One student expressed her fears, saying:

"I have many challenges that I face. We will never know what will happen in the future. If we look through the broadcast news, this makes me worry. In addition to the difficulty of buying personal protection equipment, I must have financial reserves for the next few weeks" (Student #400).

Based on the responses from the students, the pandemic did not only affect their studies. It had a trickling down effect on all the aspects of their lives, including their personal lives.

Keeping Oneself Healthy
The students were afraid. They had fears about the virus. Since they could not do anything much, they shared that they had to be healthy not to contract the unseen enemy. They also recognized that pandemic had caused the lack of food supply, access to necessities, and other health problems. One student had this advice to fellow students:

"I hope we still in healthy condition, and for the students, we need to keep studying at home" (Student #326)

With the limited or lack of food supplies, students also expressed the need for health care protections. For example, another student enumerated her problem, such as:

"Low stock of foods, a load of assignments and presentations, non-healthy lifestyle, and being homesick" (Student #462).

Boredom
Although closely related to the number three theme, the other issue that the students faced was boredom. Again, students were glued in their apartments or houses because of movement restriction, with obviously not much to do. The lockdown prevented people from going out. Social distancing was strictly observed; hence, the students were forced to stay where they were. However, the lack of social interaction affects the students, especially that they are sociable, meaning they want to be with their friends. Another student explains this scenario.

"Social distancing might be challenging because I cannot simply interact with other peers" (Student #148).

Staying at home for a more extended period made the students bored, distracted, and even emotional. They were constricted to interacting with people online. They wanted to go outside and resume regular classes. One student expressed it this way:

"I am too bored at home! I want to go to a class soon. I still study though, but yeah, I need to

communicate with others as well. My Wi-Fi… damn! it's a problem" (Student #396).

Indeed, the longer the pandemic drag on, the more the students felt isolated and did limited activities causing them boredom. They were used to moving around freely, but the pandemic constrained such movements, and they had to deal with the psychological impact.

Changes in School Dynamics
When the government employed lockdowns and other movement restrictions, schools have to adapt and implement appropriate measures. However, the student participants had to deal with the changes with so much difficulty on their part. Top on the list for the changes in school dynamics was limited guidance from teachers. They felt that the lessons were not imparted to them due to the limitations of the new setup. In short, compared to the actual classroom setting, they had less help from their teachers. In fact, some expressed the difficulty of reaching out to their teachers for consultation. In particular, Student #32 shared this experience, saying:

"Lesson prepared for the school were not imparted to the students; thus, these may affect the learning of the students."

As schools' main response to continuing classes, the transfer to online classes had its own disadvantages, like lessons not received by the students. For instance, an observation of one student explained the issue.

"There are problems associated with the learning process for lecturers and students. The lecturers' input does not reach 100% to the students" (Student # 531).

The other school changes they noticed were the postponement of school activities such as research presentations, examinations, classes, and on-the-job training. All these have affected the routine of students' lives, although they have to deal with these changes due to the pandemic's adverse effect.

Suggestions of Students to help them continue their Studies during the Pandemic
Besides asking them about the issues and problems they encountered during the pandemic, they were also asked about their suggestions. The top five common suggestions were (1) upgrade internet speed, (2) apply practical teaching method, (3) stay safe, (4) abide by laws and guidelines, and (5) improve government support.

Upgrade Internet Speed
Because schools use online platforms for the continuity of classes, students have no recourse but are dependent on the internet in the first place. However, as already shared in the issues they encountered, internet speed was a big problem. A student who had a poor internet connection had this to say:

"Before turning to an online platform, please do make sure that students have good internet access and reachable" (Student #615).

Apply Practical Teaching Method

Students felt difficulties in how the teaching-learning process was conducted as online classes replaced the usual face-to-face interaction. It started with the checking of attendance. Depending on how teachers check the attendance, it was varied, but one student suggested an easier way of doing it. She said:

"I hope the online teaching more flexible as some lecturers would like to take attendance on that specific period by using face to face online teaching, but I think there is another method to prove the attendance" (Student #686).

As to the teacher's best learning method, students suggested that teachers take a video of themselves discussing the lesson. One of the specific suggestions from the students was:

"I hope that our lecturers upload a video of them teaching us as if we are in class" (Student #407).

The above suggestion was echoed by one student, saying:

"It is better having the video teaching. This also can let us repeat if we miss some important notes" (Student #237).

Stay Safe

Students knew there was no much to do on their part aside from studying. But, in terms of fighting or escaping from the virus, they suggested staying better safe. A good number of the participants mentioned this advice of keeping themselves safe. Moreover, one student put his suggestion in this way:

"Although self-quarantine may be boring, it is for the safety of everyone. I think it is important to educate people on how telecommunicating so they can do physical distancing and still socialize with others" (Student #57).

Abide with Laws and Regulations

Besides keeping themselves healthy, students also agreed to follow the government's protocols to ensure everyone's safety. There are rules and guidelines that they believed must be followed. For example, one student suggested:

"Keep yourself healthy and stay at home during this pandemic and follow government rules" (Student #534).

However, students would like to be clear on the students' guidelines when it comes to school. For example, one student commented:

"We need clear and immediate instructions on what to do. At least, a guideline for us to follow. How do school assess our progress? What are the tasks?" (Student #137).

Improve governmental support

In times of pandemic, the people relied heavily on the government. The students felt this way too. First, the students wanted the government to support their schooling, especially with the internet. A particular student even suggested for the government to lower the charges for data usage. Another student told the government:

"Government need to upgrade the wireless coverage to all slow coverage regions" (Student #155).

Some students wanted the government to provide them with other non-school support. For instance, one student expressed her desire for the government to give them money and food, saying:

"The government should give the people incentive so that we have enough food and money" (Student #204).

Moreover, students would like their government to do the right and effective ways to address the pandemic problem. They wanted to end the crisis with the government's bold move. For example, a suggestion about what the government should do was shared by another student:

"My advice regarding this case, hopefully, this outbreak is completed quickly. The government must learn a lot from countries that can solve problems quickly and solve us as a society and care about cleanliness and health. For human resources in the health sector, they must also learn a lot from developed countries" (Student #400).

Discussion

The COVID-19 pandemic has affected the lives of all people around the world. In the education sector, the students suffered a lot. They lost the luxury of learning face-to-face with their respective professors. Schools turned into online classrooms to continue operating and providing access to education. However, the students faced the most difficult hurdle- the internet problem. The Malaysian students were not alone as students from other countries also had to deal with no or slow internet connection (Adnan & Anwar, 2020; Lokanath Mishra & Gupta, 2020). Also, in Malaysia, students had to deal with the same problem (Ahmad et al., 2020; Chung et al., 2020). The internet connection was highlighted as the main concern, particularly for those living in rural areas. The absence of face-to-face classes forced students to venture into unfamiliar territories, like having less guidance from the professors (Adnan & Anwar, 2020). The participants of this study pointed out the hurdles of doing their assignments and the lack of resources. Food was also mentioned as one issue. All these issues were summed up into the limitations that students had to deal with as the government restricted school campuses' opening, thereby alienating them in their respective homes or apartments.

The COVID-19 pandemic disrupted almost all facets of the daily lives of people. Besides dealing with the limitations of slow internet connection and the lack of food and other resources, they had to deal with school dynamics changes. For example, the lack of guidance from their professors added to the problem of slow internet connection. They relied on online classes where professors can either use video conferencing or gave materials online. In one study, students demanded their professors to change their teaching style to conform to an online platform (Akyıldız, 2020). Other studies also identified the negative effects of online classes, such as the inability to perform practical applications (Radu et al., 2020). A survey of higher education students in Pakistan revealed that online learning is not effective (Adnan & Anwar, 2020). Indeed, the school dynamics changes added to the difficulty students were already experiencing during the COVID-19 pandemic. The new normal in the education sector is a rich area for research. Teachers and administrators are interested in seeing if the online platform is effective or not and how to improve it.

The students in this study also share their personal-related struggles, specifically the disruption of their part-time work and financial problem. The loss of jobs during a pandemic was already expected to cause many financial and other related problems (Baert et al., 2020; Wilson et al., 2020). Losing a part-time job was difficult because they needed to support themselves. They also, like regular employees, could not avail of any assistance from the government. However, losing one's job can also lead to mental health problems like depression and anxiety (Wilson et al., 2020). It is another issue that the students faced- boredom. There were already earlier reports that students are experiencing depression because of the effect of the pandemic (Akyıldız, 2020; Islam et al., 2020; Kapasia et al., 2020; Mechili et al., 2020; Son et al., 2020), while some lost the motivation to learn (Niemi & Kousa, 2020). The lack of interaction (Akyıldız, 2020) among students and between them and the teacher changed the teaching-learning process, which also affected the students' emotional and psychological status.

Amidst the numerous challenges of the pandemic, the student participants highlighted their concern about making themselves healthy. This issue emerged because of the problem of the food supply. Understandably, the lockdowns had limited movements both for people and transportation services, including transportation for food supplies. However, the government made sure that these services continue to flow as a priority. However, food supply remained a big concern. Even in the United States, a study reported food insecurity among college students during the pandemic (Owens et al., 2020). Overall, students were worried about their health. Globally, several studies had already reported the adverse effects of the pandemic on people's health (Xiong et al., 2020). The same

scenario with the students who had to deal with maintaining their good health condition while handling the new normal set up in school.

Students provided valuable suggestions for the schools and the government with all the identified struggles they were facing. One of these is the speeding up of internet connection. This problem had existed even before the pandemic. Without this technology, education is in peril. Students will suffer because the quality of education is sacrificed. The internet is the lifeline between students and professors or school, for that matter. Added to this were reports of students' dissatisfaction with online classes (Sarwar et al., 2020). For teachers, quality and timely exchanges in online classes could help the students (Nambiar, 2020), but this cannot be made possible without a stable internet connection. The students also demanded teachers to adapt to a more effective teaching method. Teachers asked for technical support (Nambiar, 2020), while the students suggested objective assessment (Kaliyadan et al., 2000; Radu et al., 2020). Moreover, students would like the teachers to change their teaching style to conform to an online platform (Akyıldız, 2020).

The students' other suggestions were to keep themselves safe and healthy and follow the rules and guidelines. Governments worldwide are working so hard to address the pandemic's problems and ensure that the people are safe from the virus (Ha et al., 2020; Weible et al., 2020). Many of the protocols implemented by governments are on social distancing, wearing masks, and handwashing. These were considered the minimum health standards. Just like the rest of the population, students need to observe these protocols. Moreover, the student-participants demanded clear instructions from the school on what to do for them to follow.

Lastly, students suggested that the government increase support, particularly on increasing the internet speed, non-school support, and measures to address the pandemic. The internet problem seems to be the most mentioned issue among students. This is something that the government on the macro-level and schools on the micro-level have to address seriously. The new normal setup will not prosper without technological support, particularly the availability of the internet.

Implication of the Study
The findings have implications for the government, particularly in ensuring faster internet speed by the providers. Similarly, governments can look into additional support to students, particularly on food and even transportation, to make sure they can continue their studies while at the same time ensuring their safety. The students had valuable insights on appropriate teaching methods, reliable assessment, and an internet connection to the schools.

Concluding remarks

The COVID-19 pandemic has revolutionized the educational setting due to the stoppage of actual classroom classes. However, online classes are nothing new to schools as there are already mechanisms wherein blended learning is applied. However, the pandemic caused a lot of inconvenience among students. They had to deal with limitations due to the pandemic, school dynamics changes, personal related struggles, boredom, and keeping oneself healthy. With these issues, they suggested upgrading internet speed, applying practical teaching methods, staying safe, abiding by laws and guidelines, and improving government support. In other words, while there are issues attributed to the pandemic, there are ways to address or limit the adverse effects to the students and the school in general. The suggestions of the students are just a few of these. Hence, more can be done, and research could play an important role in providing information and recommendations.

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The Impact of COVID-19 Pandemic on Mental Well-being of African Students in Chinese Universities

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Abstract
Background: The COVID-19 Pandemic is associated with various stressors that deteriorate the general population's mental well-being (MWB). Students are among the most mentally-affected people by the current Pandemic, and it is known that college students are usually associated with the low MWB. However, compared to local students, international students face additional challenges related to living in a foreign country, making them more prone to mental instability than their local peers.

Objectives: This study aimed to investigate the status of MWB of African students in Chinese universities after two years of challenges related to the COVID-19 Pandemic and explore the different stressors deteriorating their MWB.

Methods: This was a cross-sectional study. The questionnaire was built using a WeChat-based online survey. The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS-14) questionnaire was used to assess the MWB of our participants. The higher scores represent the higher levels of MWB. Respectively, 14-32, 32-40, 40-59, and 59-70 scores indicate very low, below the average, average, and above the average level of MWB. Therefore, the cutoff of ≤ 40 scores designated the low level of MWB, and scores of > 40 were considered good MWB.

Results: 134 students from 31 cities and 54 universities completed the survey. The mean WEMWBS-14 was 47.84 ± 9.416, and the lowest level of MWB was observed among the tested positive students for COVID-19 (35.50 ± 7.778; P = 0.033). Of all, 6.72%, 13.43%, 67.16%, and 12.69% of students had very low, below the average, average, and above the average level of MWB, respectively.

Conclusion: The COVID-19 Pandemic has worsened the preexisted poverty and unemployment rate in African countries, deteriorating the MWB of African people, especially African students. Universities should make a flexible teaching environment, consider financial support, and provide stress management guidelines.

Keywords: *COVID-19 Pandemic, International students, Mental well-being, University students, WEMWBS-14*

Introduction
The COVID-19 Pandemic is associated with the general population's poor mental well-being (MWB). Complete mental health comprises mental well-being and mental ill-being. MWB is characterized by the optimal psychological functioning and experience, without any psychopathological symptoms, and with the satisfaction of the individual's emotional, social and psychological life, including optimism, coping, feeling of control, self-esteem, resilience, functioning, psychological flexibility, and adjustment. On the other hand, mental ill-being is a wide range of hard experiences which decrease optimal psychological functioning and lead to worries, stress, loneliness, and psychological disorders [1].

Healthy mental life in this pandemic era is linked with MWB and strengths such as resilience, hope, and meaningful living. Looking for a meaningful life is the fundamental MWB of human beings. A meaningful life is a subjective concept with different essential factors such as love, success, and not suffering. Subjective well-being (SWB) is related to the gratification of life and positive and negative feelings. In contrast, psychological well-being (PWB) is related to the positive ability to contribute to virtue life to achieve excellence. PWB has six dimensions of optimal psychological functioning: autonomy, self-credence, life's aims, positive relations, environmental mastery, and personal growth [1,2].

Being a college student is usually associated with low MWB, which deteriorated more due to various stressors related to the COVID-19 Pandemic. Compared to local students, international students face additional challenges such as living away from their families, homesick feelings, continuous worry about their family during the Pandemic, cultural differences, language barriers, inability to access public resources, and lack of access to reliable information. Consequently, international students are more exposed to psychological disorders than their domestic peers [3]. Moreover, on-campus international students are usually the minority and can be neglected in some universities [4]. The COVID-19 Pandemic has worsened African countries' preexisted poverty and unemployment rate. Therefore, African students in different universities face financial crises, thus deteriorating their MWB and psychological health.

Furthermore, due to tough measures taken by the Chinese Center for Disease Control and Prevention (CDC), students in many cities are still under lockdown inside their campus. Due to the borders' closure policy, international students cannot travel to their countries and return. This study investigates the status of MWB of African students in Chinese universities after two years of challenges related to the COVID-19 Pandemic. Additionally, we explore the different stressors and factors influencing the deterioration of their mental health.

Methods
Design
This cross-sectional study surveyed African students currently enrolled in Chinese universities using WeChat-based online survey questionnaires. The survey link was posted on WeChat groups of African students for one month and took approximately 15 minutes to complete. The aims and purposes of the study were explained, and the participants were asked to read the consent form carefully and voluntarily choose to participate or not, with an option to withdraw their participation at any time. Participants didn't receive any financial compensation for participating in this study. This study was conducted online in full compliance with the provisions of the Declaration of Helsinki regarding research on human participants. The study was reviewed and approved by the Institutional Review Board of the American University of Sovereign Nations.

Measures
The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS-14) questionnaire was used to assess the MWB of our participants. WEMWBS-14 is a 14-item tool assessing SWB and mental functioning. The total score is obtained by the sum of scores for every 14 items and ranges from 14-70. 14-32 score indicates a very low level of MWB, 32-40 score indicates below the average level of MWB, 40-59 score indicates the average level of MWB, and 59-70 score indicates above the average level of MWB. The National Health Service (NHS) and other studies set the cutoff of ≤ 40 as the cut score for a low level of mental well-being [5-7].

Socio-demographic information was obtained by asking participants questions involving their name, age, gender, home country, marital status, university, major, level of education, academic year, and residence. In addition, close questions were asked to explore how this Pandemic has affected our participant's physical, emotional and mental health. Moreover, we investigated the related financial issues raised by this Pandemic. Finally, we assessed the participants' own experience during the COVID-19 pandemic era by asking them the following open questions: describe in your own words anything positive and negative you felt about your COVID-19 Pandemic experience?

Statistical Analyses
Descriptive statistics were utilized to describe demographic characteristics. Pearson Chi-Square ($\chi 2$) test was conducted to analyze the distribution of survey items and find whether there was a significant association between variables and WEMWBS-14. Pearson correlation was conducted to find an association between WEMWBS-14 and variables. Ordinal logistic regression was performed to determine the independent predictors of low MWB. Finally, Cronbach's alpha was examined to test the internal consistency. P ≤ 0.05 was considered

statistically significant. All analyses were performed by IBM SPSS version 25.0 (IBM Corporation, Armonk, New York, United States).

Results
A total of 134 students in 31 cities in China completed the survey. All participants were originally from 29 African countries (Table 1). The demographic characteristics of our study sample are detailed in Table 2. The internal consistency of items and scale was good, with a high level of reliability and the Cronbach's alpha of 0.892. The range score of the WEMWBS-14 was between 20 and 70, with a mean of 47.84 ± 9.416 and a median of 48.00. Low MWB was associated with being tested positive for COVID-19 (35.50 ± 7.778; $P = 0.033$). According to WEMWBS-14 scoring, 9 participants were in the range of 0-32 (low level of MWB), 18 participants were in the range of 32-40 (below the average level of MWB), 90 participants were in the range of 42-59 (average level of MWB), and 17 participants were in the range of 59-70 (above the average level of MWB). The higher scores represent the higher levels of MWB.

The Pearson correlation analysis was performed to determine a significant relationship between measure scores and gender. It was hypothesized that female students had a lower level of MWB. The result revealed a very low correlation of gender with WEMWBS-14 ($r_{(134)} = -0.057$, $P = 0.511$). However, ordinal logistic regression showed that female students predicted low MWB (Table 3). The mean was 47.07 ± 9.148 and 48.21 ± 9.572 for females and males. Furthermore, we found a very low correlation between age and WEMWBS-14 ($r_{(134)} = 0.154$, $P = 0.076$).

WEMWBS-14 wasn't statistically significant with marital status ($P = 0.115$). The mean was 51.83 ± 8.750, 51.61 ± 9.894, and 47.00 ± 9.245 for married living with partners, married living alone, and single, respectively. The results found no association between education level and WEMWBS-14 ($P = 0.411$). The mean was 45.80 ± 8.581, 49.12 ± 9.384, and 49.31 ± 10.24 for undergraduate, master, and Ph.D. students, respectively. There was no statistical difference between students living on campus or outside ($P = 0.290$), with a mean of 47.92 ± 9.937 and 47.63 ± 8.069 for those living on-campus or off-campus, respectively.

Comparing WEMWBS-14 and the factor of testing positive, the results showed a statistical significance ($P = 0.033$), with the mean of 47.75 ± 11.99 for those who had close friends or classmates who tested positive, 44.33 ± 7.154 for those who had a tested positive family member, 48.63 ± 9.424 for who didn't have anyone tested positive, and 35.50 ± 7.778 for who themselves tested positive. The results failed to find a statistical significance between WEMWBS-14 and the factor of having someone who died due to the COVID-19 ($P = 0.361$).

The mean was 43.62 ± 10.92, 42.00 ± 11.32, and 48.57 ± 9.011 for those who had a died close friend or classmate, a dead family member, and no one who died, respectively.

**Table 2:** Socio-demographic information of participants

Characteristics	N (%)
Age	27.25 ± 6.60
Gender	
Male	90 (67.16)
Female	44 (32.84)
Marital Status	
Single	113 (84.33)
Married/Cohabitation	21 (15.67)
Living with partner	8 (5.97)
Living alone	13 (9.70)
Level of education	
Undergraduate	54 (40.30)
Masters	41 (30.60)
PhD	39 (29.10)
Parent lost job	
Yes	60 (44.78)
No	74 (55.22)
Decreased financial income	
Yes	82 (61.19)
No	52 (38.81)
Unable to pay tuition fee	
Yes	38 (28.36)
No	96 (71.64)
Problem paying basic needs	
Yes	60 (44.78)
No	74 (55.22)
Worry about the academic delay	
Yes	80 (59.70)
No	54 (40.30)
Worry about getting a job	
Yes	93 (69.40)
No	41 (30.60)
Currently in university lockdown	
Yes	35 (26.12)
No	99 (73.88)

Table 1: Participants' Origin Country by Region.

NORTHERN AFRICA	Algeria, Egypt, and Sudan.
SUB-SAHARAN AFRICA Eastern Africa	Burundi, Eritrea, Ethiopia, Kenya, Malawi, Mauritius, Mozambique, Rwanda, Somalia, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe.
Middle Africa	Angola, Cameroon, and the Republic of Congo.
Southern Africa	Namibia and South Africa.
Western Africa	Cape Verde, Ghana, Guinea-Bissau, Liberia, Nigeria, Senegal, and Sierra Leone.

Table 3: Predictors of low mental well-being

Variables	SE	OR	95% CI	P
Female	0.796	1.834	0.274 – 3.394	0.021
Died family member	1.388	3.353	0.633 – 6.073	0.016
Increased alcohol consumption	0.954	-2.501	-4.371 – (-0.632)	0.009
Increased sexual activity	1.145	-3.733	-5.977 – (-1.490)	0.001
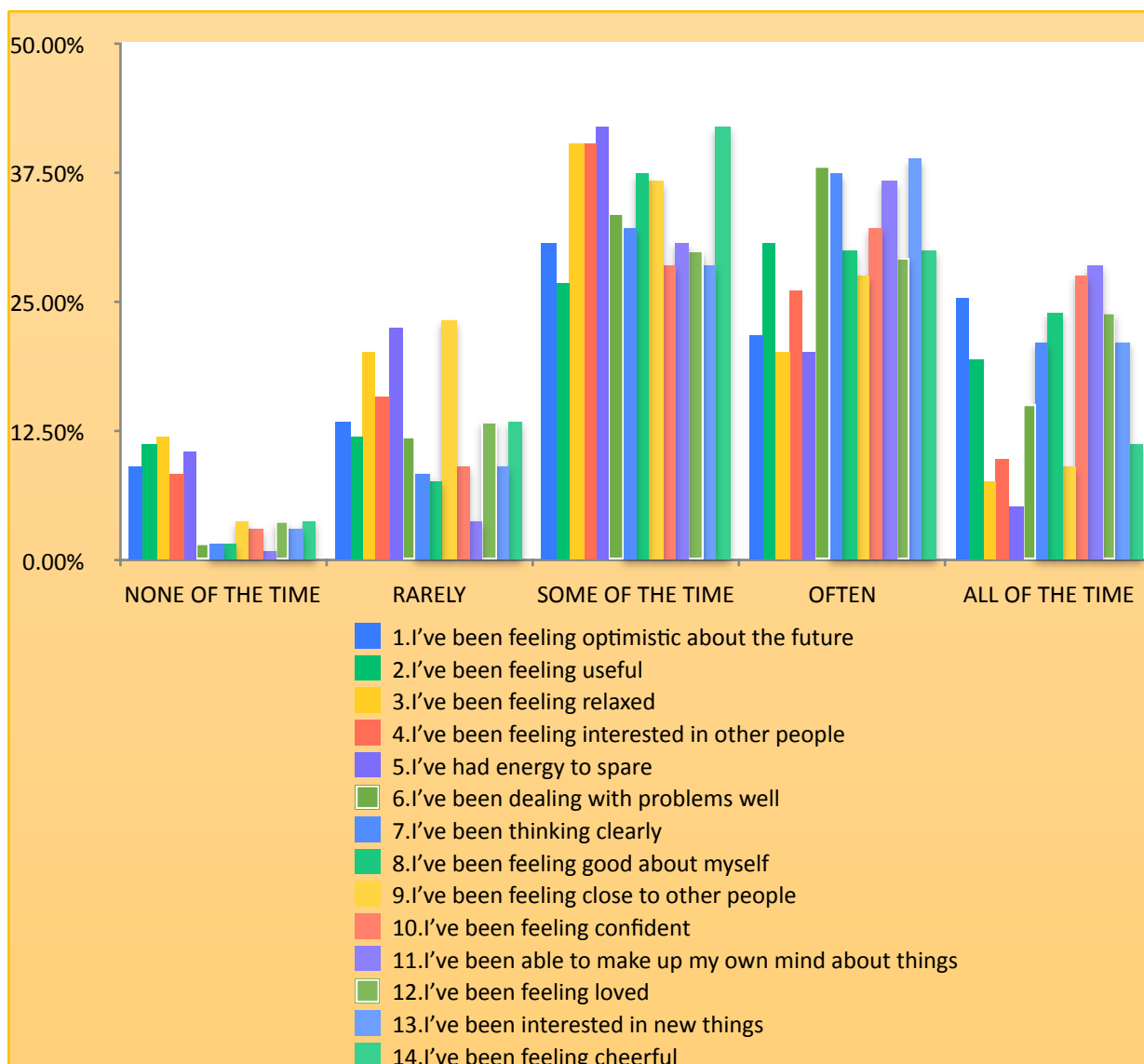
Figure 1: The WEMWBS-14 scoring of participants

The results showed a significant association between WEMWBS-14 and behavioral changes (P = 0.010). The mean was 43.29 ± 10.41, 40.00 ± 8.435, and 41.00 for those with changes in increased alcohol consumption, increased sexual activity, and increased tobacco smoking, respectively. WEMWBS-14 was compared with the factor of losing a job for parents, and no statistical significance (P = 0.741) was found. The mean was 49.09 ± 9.268 and 46.28 ± 9.442, respectively, for those who had parents who didn't lose their job and who lost their job. No statistical significance was observed between WEMWBS-14 and the factor of decreasing income (P = 0.864). The mean was 50.52 ± 9.587 and 46.13 ± 8.954 for those who didn't experience decreased income and experienced decreased income, respectively.

The results do not reveal any association between WEMWBS-14 and the factor of difficulty in paying tuition fees (P = 0.945), with the mean of 48.49 ± 9.517 and 46.18 ± 9.070, for those who didn't have difficulty paying tuition fees and those who said that they had difficulty paying tuition fee, respectively. WEMWBS-14 didn't have a significant association with the factor of difficulty in paying for basic needs such as food and housing (P = 0.282). The mean was 49.88 ± 8.620 and 45.32 ± 9.811 for those who didn't have difficulty paying for basic needs and who had difficulty paying for basic needs, respectively. We failed to find a statistical significance in the association between WEMWBS-14 and the online studying factor (P = 0.284). The mean was 49.81 ± 8.758 and 45.32 ± 9.694 for those who weren't studying online and who were studying online, respectively. Our results didn't find a significant association between WEMWBS-14 and the factor of being in lockdown (P = 0.547). The mean was 48.33 ± 9.800 and 46.43 ± 8.201 for those who were not in lockdown and those in lockdown, respectively.

Discussion

The WEMWBS-14 is the most popular assessment scale of MWB for population and individuals, created by a research team at the University of Warwick and the University of Edinburgh. It was first used in the United Kingdom as a psychometric assessment of the MWB of adults over 16 years old and then validated for teenagers and adolescents (13 to 16 years old) in England and Scotland [8]. The dominant feelings self-reported by participants were "I have had the energy to spare" and "I have been feeling cheerful," and the least reported feeling was "I have been able to make up my own mind about things" (Figure 1).

Maheswaran et al. [9] summarized twelve surveys of MWB in different nations and found the baseline mean WEMWBS-14 score of the general population to be 50.7. Most studies reported the mean WEMWBS-14 higher than 50 [10-14]. Our study population showed a lower level of MWB compared to the general population (mean WEMWBS-14 of 47.84 ± 9.416), which was surprisingly the same as the recent study among Chinese university students

(47.41 ± 8.93) [15]. Conventionally, the WEMWBS-14 cutoff score ≤ 40 refers to low MWB [5-7]. Therefore, 20.15% (including very low: 6.72% plus below the average: 13.43%) of our participants had low MWB (Figure 2).
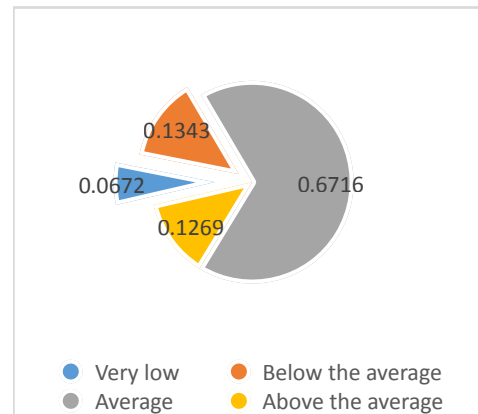
Figure 2: Prevalence of mental well-being among our participants

We didn't observe a significant correlation of MWB with age. However, one study showed that the MWB of the Danish population rose with age [12]. The same study reported a significantly higher MWB of males than females (P = 0.047). Moreover, Gray et al. [16] reported an important effect of COVID-19 on the psychological well-being of female and younger adults, yet, they didn't ascertain any reason for this. Inconsistently, our results failed to find a significant relationship between males and females, but the mean WEMWBS-14 was slightly lower in female students than in males. This was probably due to the low prevalence of females in our sample (32.84%). It is known that younger adults are hard to tolerate the prohibition of social interactions and interdiction to meet up with friends, which are vital for maintaining good well-being at their age [17]. Furthermore, it has been reported that the good MWB of older adults can be attributed to their employment security and financial stability [18]. Also, pre-COVID-19 studies, as well as COVID-19 era studies, announced lower MWB in females. Although the reasons are unclear, some studies associated this with the lack of social-cultural support, coping styles, and biological mechanisms for gender well-being differences [19-21].

Our study revealed a very low level of well-being in single students and greater well-being in married students who live together with their partners. However, no significant difference was observed (P = 0.115). The insignificance might be due to a small number of married students among our participants (15.67%); of them, only 5.97% were living with their partners at the time of the study. Several studies have reported lower MWB among single individuals and showed that they are prone to mental distresses. In comparison, married individuals are linked to satisfying well-being and are unlikely to experience mental disorders [22-24]. On the contrary, the Catalan population showed higher MWB among

single people than married people [11]. The same study found that any difficulty or limitation to secure daily living expenses influences well-being. Approvingly, a study of the Northern Irish population revealed a very low MWB among unemployed people [25]. Similarly, we found that students who had difficulties paying their tuition fees or basic needs such as food and housing presented with lower MWB. Same, the students who experienced decreased income and those with parents who lost their jobs had low MWB.

The MWB of undergraduate students was very low compared to postgraduate students (masters and Ph.D.). Unlikely, a study among French students didn't find any difference in WEMWBS-14 score by education level [14]. Also, we observed a low MWB among students whose family members, friends, or classmates were affected or died due to COVID-19, with the lowest mean WEMWBS-14 (35.50 ± 7.778) among students infected with the COVID-19. Consistently, Gül and Yeşiltaş [26] highlighted increased psychological problems and mental unwell-being among Turkish people who had infected or died friends or family members due to COVID-19. Moreover, the latter was stressed by Asghar et al. [27] when discussing coronaphobia.

This pandemic period is associated with different challenges and stressors that negatively affect the MWB of people. China implemented the strongest prevention measures to control the Pandemic. In general, students are among the most affected by these regulations. They must stay locked inside the campus and compel to study through online platforms. Some international students had to extend their stay because they couldn't complete their internship on time, which resulted in a financial crisis. Moreover, medical students can not only rely on online platforms to study because they need to do rotations in hospitals for clinical and surgical training. In addition, many international students miss their families and friends because China's borders have been closed since the beginning of the Pandemic. Unfortunately, they are facing an ambiguous dilemma of choice. Either they stay in China and somehow cope with the difficulties of isolation, or they go home near their families, yet knowing that they will not be able to return to continue their studies. Also, once students leave for their home country, the scholarship is temporarily suspended and will be resumed when they are enabled to come back to pursue studies. However, some students need and use these scholarship fees to support their families. Additionally, as the COVID-19 outbreak surges, people worldwide face financial crises, and others have become jobless. It is worse in African countries with preexisted economic instability, extreme poverty, lack of savings, and a high unemployment rate. Furthermore, until now, several international students in China are still in confinement inside their campuses. They need to ask for a special authorization to be allowed to leave the campus for a very limited time and limited approved permissions such as going to the bank and purchasing necessities like food and medicine.

Finally, we wished to know whether there was anything negative or positive that our participants felt during this COVID-19 Pandemic period. The majority of participants were very pessimistic about the COVID-19 Pandemic. Many of them complained that, according to their experience, there was nothing positive to mention about the COVID-19 Pandemic. Instead, most students moaned that the COVID-19 Pandemic brought numerous troubles into their lives. Each student expressed one or more negative experiences he/she felt during the COVID-19 Pandemic. Below we quoted some of the participants' positive and negative feelings.

Positive feelings:
- The Pandemic allowed enough time to rest
- I learned how to save money and plan for the future
- I felt like school was useless, so I decided to read books based on my interests, which was life-changing
- I have always learned to practice hygiene
- The Pandemic allows me to talk with my family frequently
- Because it is my first experience being far away from home and unable to travel back, I think this has made me stronger and more independent
- I learned social responsibility
- I became closer to God
- I could meet more friends online and connect with those I am locked down with
- I was able to gain weight
- This pandemic taught me that anything might happen on the earth, and we people must always learn how to be ready for the changes
- I got closer to people I never thought I'd be close with, and now we're great friends, and some of them have become like my own family
- I learned about taking good care of myself
- I learned how to survive in a hard situation and adapt to living during abnormal conditions
- I learned to play guitar

Negative feelings:
- My sleeping and eating schedule are terrible, and I am very unmotivated
- I am depressed, unsure, and worried
- I had character change, developed bad habits, emotions and mental exhaustion, sadness, and an uncertain future
- Less physical interaction with people
- As foreigners in China, we are discriminated against during this period
- My parents lost their jobs, my project failed, and I felt so lonely because I was far from my family
- Difficulty in studying, such as online classes, and I can't do laboratory practices.
- Psychological stress, academic inconvenience, being hostage on the campus for a long time, being away from home and friends, being unable to

travel within China, unable to meet friends even though we are in the same city, and unable to participate in Church activities

- It affected my life, especially my clinical rotation in the hospital, and it has harmed my life
- An increase in prices for some products
- My dad's job has not been stable since the pandemic's beginning. Due to that, my monthly stipend has been reduced, and I won't be able to pay school fees for this upcoming academic year, so my dreams are going to hell for now due to the covid-19
- We will all die. I feel like it is an apocalypse
- Man, I have never been depressed before, but now I suffer severe depression to the point I had to go to the hospital. I was about to go insane, but I got some help
- I am worried about the future, my family, and my high-stress levels
- I had planned to travel to all of China's neighboring countries while studying. However, now I can't do that due to travel restrictions
- Lack of finances in different areas of my life, like paying bills
- I always feel so demotivated to attend online classes
- The isolation, the loneliness and feeling desperate, depression, heavy drinking and smoking
- I have not been able to reunite with my family for more than two years. I had to sacrifice myself to stay in China to be able to complete my studies, which affected me psychologically.

To the best of our knowledge, our study is the first to investigate the impact of the COVID-19 Pandemic on the MWB of African students in Chinese universities. The primary limitation of the present study was a small sample size due to a limited number of African students in China. Another limitation was the language barrier. Many African students are francophones and study their majors in the Chinese medium. Therefore, they couldn't speak English and could not complete our survey, which was administered in the English language only. The final limitation was the higher rate of male participants (67%).

Conclusion

It is well known that humanitarian crises and disasters affect the general population's mental well-being. University students are usually prone to a higher stress level, so adding extra stressors exacerbates their exposure. Research studies have considered studying abroad a risk factor for lower MWB due to several problems international students confront when staying in a foreign country, away from their families. Moreover, the COVID-19 Pandemic has worsened African countries' preexisting poverty and unemployment rate. Universities should ensure flexible teaching and evaluation, consider issues such as financial support, and provide stress management services that have to

be tailored to complement the regulatory environment of local and national government guidelines, and the complex and evolving international situation. Future large-scale exploration of the psychological distresses of these vulnerable African students in foreign countries is highly recommended.

Appendix 1: Questionnaire

1、 Do you agree to participate?

○ Yes. I have read the consent form, and agree to participate.
○ No. I don't agree to participate.
Section 1: Demographics
2、 NAME (Optional): _____

3、 HOME COUNTRY: _____

4、 GENDER ○ Male ○ Female

5、 AGE:_____

6、 MARITAL STATUS

○ Single
○ Married/Cohabitation
○ Divorced/Widowed
7、 Is your partner living together with you in China?

○ Yes   ○ No
8、 UNIVERITY: _____

9、 MAJOR:_____

10、 LEVEL OF EDUCATION

○ Undergraduate   ○ Masters   ○ PhD
11、 ACADEMIC YEAR

○ First year
○ Second year
○ Third year
○ Fourth year
○ Fifth year
○ Sixth year
12、 RESIDENCE   ○ Campus   ○ Off campus

13、 City/Province in China:_____

Section 2: YOUR EXPERIENCES
Answer the following initial questions by choosing the right answer that describe your experience.
14、 Have you or anyone close to you been tested positive for COVID-19?
□ Yourself
□ Family member
□ Close friends/Classmates
□ No one
15、 Has a person close to you died from COVID-19?

□ Family member   □ Close friends/Classmates   □ No one
16、 Have you had any change in the following behaviors during this COVID-19 period?
□ Alcohol drinking □ Tobacco smoking
□ Sexual activity   □ Other
17、 Have your parents or financial supporters lost their jobs or their source of income because of COVID-19? ○ Yes
○ No

18、Has your financial income decreased during this COVID-19 period?   ○ Yes   ○ No

19、Have you been unable to pay tuition fee during this COVID-19 period?   ○ Yes   ○ No

20、Have you experienced any problem about paying your basic needs like food and housing during this COVID-19 period?   ○ Yes   ○ No

21、Are you currently studying remotely from your dormitory/apartment? ○ Yes   ○ No

22、Do you think that online studying has a strong negative effect on your academic performance?○ Yes ○ No

23、Has COVID-19 pandemic influenced your academic performance?   ○ Yes   ○ No

24、Have you experienced or worried about delays in completing your degree because of COVID-19? ○ Yes ○ No

25、Are you worried about getting a job after graduation?
          ○ Yes   ○ No

26、Do you have students' psychological support service in your university? ○ Yes   ○ No

27、Have you looked for psychological help or counseling during this COVID-19 period?   ○ Yes   ○ No

28、Are you currently in university lockdown or city lockdown？   ○ Yes   ○ No

29、If yes, how long have you been in lockdown? (In months) _____

30、Please describe in your own words anything positive you felt about YOUR COVID-19 pandemic experience? (You can answer in any language you are comfortable with) _____

31、Please describe in your own words anything negative you felt about YOUR COVID-19 pandemic experience? (You can answer in any language you are comfortable with) _____

Section 3: YOUR FEELINGS AND HEALTH

Below are some statements about feelings and thoughts, please choose the one that best describes your experience.

32、Over the last two weeks, how often have you experienced any of the following feelings?

	NONE OF THE	RARELY	SOME OF THE	OFTEN	ALL OF THE
1. I've been feeling	○	○	○	○	○
2. I've been	○	○	○	○	○
3. I've been	○	○	○	○	○
4. I've been feeling	○	○	○	○	○
5. I've had energy to	○	○	○	○	○
6. I've been	○	○	○	○	○
7. I've been thinking	○	○	○	○	○
8. I've been feeling	○	○	○	○	○
9. I've been feeling	○	○	○	○	○
10. I've been feeling	○	○	○	○	○
11. I've been able to make up	○	○	○	○	○
12. I've been feeling	○	○	○	○	○
13. I've been interested	○	○	○	○	○
14. I've been feeling	○	○	○	○	○

NB: The survey is accessible at the following link:
https://www.wenjuan.com/s/UZBZJv3Eam/#

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Factors affecting posttraumatic growth of childhood cancer survivors

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Abstract
In the long-term follow-up (LTFU) of childhood cancer, the construction of psychological care to avoid posttraumatic stress disorder is an important issue from the perspective of medical ethics. Theoretical models of posttraumatic growth (PTG) assume that PTG occurs amid the psychological struggles and tension resulting from an event. However, scholars have not studied the PTG experienced according to the type of event encountered. Focusing on childhood cancer survivors (CCSs), the present study aimed to obtain basic data for using PTG in LTFU by examining survivor factors and to elucidate the factors affecting PTG in CCSs in adulthood. The study used the Japanese version of the Posttraumatic Growth Inventory to measure PTG in 13 Japanese CCSs with long-term survival (aged 20–39 years at survey and 1–14 years at diagnosis). The *t*-test showed that only

one item, participation in patient groups, exhibited a significant difference in the mean PTG value: the mean PTG scores were higher for persons who had participated in patient groups. Therefore, the support of close people, and talking with them, may contribute to feelings and cognitive processes associated with PTG and may possibly contribute to the mechanism of PTG.

Introduction

Among the psychological complications of childhood cancer survivors (CCSs), the prevalence rates of posttraumatic stress disorder (PTSD) and posttraumatic stress symptoms (PTSS) have been reported to be 2–20%, linked to reduced health-related quality of life and alienation of social development [1, 2]. In Japan, there are over 50,000 CCSs who have grown to adulthood. Recent stress research has, in relation to concerns about PTSD, focused on posttraumatic growth (PTG), reporting on PTG in CCSs in the US and in various countries in Europe and Asia [3–5]. PTG refers to positive psychological changes due to having contended with a very difficult life situation; persons who have experienced PTG report achieving personal growth [6]. PTG aids in flexible coping and changing one's outlook and assists the survivors in overcoming difficulties [7]. Although theoretical models of PTG have assumed that PTG occurs because of the psychological struggles and tension from an event, scholars have not yet studied, among CCSs who had cancer a long time ago, the strength of the PTG experienced by people according to the type of events encountered, or whether they themselves could easily perceive it.

The present study aimed to obtain basic data for using PTG in LTFU by focusing on such survivor factors and to elucidate the factors affecting PTG in CCSs in adulthood.

Methods

Participants: Participants had onset of cancer during childhood (1–14 years of age), and five or more years had elapsed since the end of treatment. CCSs belong to the Adolescent & Young Adult (AYA) age cohort. We made a nationwide request for cooperation by email and by writing to representatives of CCS self-help groups where associates gather from across Japan, as well as physicians and nurses collaborating in the treatment of pediatric and AYA age cohort cancer patients in major metropolitan and regional cities in Japan. One self-help group representative, one physician, and eight nurses cooperated in the recruitment of study participants. Through their cooperation, 13 CCSs participated in this study. Data were collected from October 2017 to November 2018.

Measures: We used the Japanese version (PTGI-J) [8] of the Posttraumatic Growth Inventory (PTGI) [9], which has been broadly used for measuring adult PTG. In the PTGI, PTG is measured using 21 items in five factors interrogating the degree of psychological

growth due to a critical event: Factor 1, Relating to Others (7 items); Factor 2, New Possibilities (5 items); Factor 3, Personal Strength (4 items); Factor 4, Spiritual Change (2 items); and Factor 5, Appreciation of Life (3 items). These five factors have been defined in studies on American subjects. In the Japanese version (PTGI-J), for purposes of measuring PTG in Japanese people with their different cultural background, factors 4 and 5 are not separated, and PTG is measured with 18 items in four factors: Factor 1, Relating to Others (6 items); Factor 2, New Possibilities (4 items); Factor 3, Personal Strength (4 items); and Factor 4, Spiritual Change and Appreciation of Life (4 items).

The participants were asked "To what degree did having childhood cancer change your life? Please circle the item that best matches you." Each item was assessed with a six-point Likert scale ranging from 0 = *did not experience any change* to 5 = *experienced to a very great degree*. The PTGI-J possesses sufficient validity and internal consistency. The Cronbach's α coefficient of all 18 items was .90. The Cronbach's α coefficients of each sub-scale were as follows: Relating to Others, .86; New Possibilities, .82; Personal Strength, .79; and Spiritual Change and Appreciation of Life, .66.

Data Analysis: The study investigated the PTG measurement values with the PTGI-J survey form and the attributes in the free-entry survey forms created by the researchers. Eight items related to the attributes from the demographic indicators and survivor factors were considered.

For data analysis, descriptive statistics were calculated for the PTG measurements and attributes. First, we calculated the mean values and mean scores of each factor in the PTG measurement. Second, we conducted a comparative analysis of the PTG values according to the demographic indicators and survivor factors using an independent *t*-test. The Mann–Whitney U-test was performed when no normality was confirmed with the Shapiro–Wilk test. Statistical analysis was carried out using IBM SPSS Statistics for Windows, Version 22.0; the significance level was less than 5%. Throughout the analysis, we ensured data reliability with the guidance and confirmation of the quantitative nursing research leader.

Ethical Considerations

The study participants received written explanations of the purpose and methods of the study, including the following: voluntary nature of their participation in the study, protection of their anonymity; confidentiality of their personal information. We conducted after obtaining participants' written informed consent. This study upheld the Guidelines for Medical Research on Human Subjects of the Ministry of Health, Labour and Welfare and was conducted after authorization of the Gunma Prefectural College of Health Sciences (Approval number: 2017-19) was obtained.

Table 1. Comparison of major attributes with mean PTG value, and factors 1–4

Participants (n = 13)

CCS Characteristics	N(%)	Mean PTG Value			Score by PTGI-J Factor (mean ± SD)											
					Factor 1 Relating to Others			Factor 2 New Possibilities			Factor 3 Personal Strength			Factor 4 Spiritual Change and Appreciation of Life		
		mean	SD	p Value	mean	SD	p Value	mean	SD	p Value	mean	SD	p Value	mean	SD	p Value
All Participants	13(100)	3.65	0.80		3.85	0.74		3.79	1.07		3.50	1.16		3.29	1.10	
Female[a]	4(30.8)	3.70	1.22	.899	3.79	1.21	.870	3.56	1.57	.671	3.75	1.34	.627	3.63	1.64	.486
Male	9(69.2)	3.63	0.62		3.87	0.51		3.85	0.87		3.39	1.15		3.14	0.85	
Type of Childhood Cancer[a]																
Solid tumor	7(53.8)	3.54	0.81	.611	3.57	0.71	.156	3.63	0.90	.652	3.46	1.29	.911	3.29	0.92	.993
Hematological malignancy	6(46.2)	3.78	0.83		4.17	0.68		3.92	1.31		3.54	1.11		3.29	1.37	
Age at Diagnosis[a]																
Up to school age (≤12 yrs)	6(46.2)	3.73	0.86	.746	3.97	0.66	.592	3.88	0.95	.743	3.75	1.35	.497	3.21	1.03	.820
Middle school (13–15 years)	7(53.8)	3.58	0.80		3.74	0.83		3.67	1.23		3.29	1.04		3.36	1.23	
Explicit Notification of Cancer at Diagnosis[a]																
Yes	4(30.8)	3.87	0.99	.521	3.59	1.09	.418	4.04	1.04	.553	3.81	1.09	.542	3.88	0.97	.213
No	9(69.2)	3.55	0.74		3.96	0.56		3.64	1.12		3.36	1.23		3.03	1.10	
Experience of Recurrence[a]																
Yes	5(38.5)	3.75	0.74	.721	3.93	0.63	.755	3.70	1.34	.875	3.75	0.95	.563	3.55	1.36	.521
No	8(61.5)	3.58	0.87		3.79	0.83		3.80	0.96		3.34	1.32		3.13	0.96	
Appearance of Complications[a]																
Yes	8(61.5)	3.43	0.83	.224	3.67	0.78	.284	3.44	1.18	.174	3.34	1.27	.563	3.16	1.17	.605
No	5(38.5)	4.00	0.67		4.13	0.62		4.28	0.66		3.75	1.05		3.50	1.06	
Work Experience in Regular Employment[a]																
Yes	9(69.2)	3.52	0.74	.397	3.72	0.76	.386	3.77	0.94	.978	3.28	1.21	.322	3.06	0.85	.269
No	4(30.8)	3.94	0.95		4.13	0.68		3.75	1.49		4.00	1.02		3.81	1.55	
Participation in Patient Groups[ab]																
Yes	7(53.8)	4.13	0.61	*t-test* .011*	4.12	0.66	*t-test* .157	4.32	0.72	*t-test* .035*	4.21	0.81	*Mann-Whitney U* .008**	3.86	1.06	*t-test* .037*
No	6(46.2)	3.09	0.62		3.53	0.74		3.11	1.08		2.67	0.96		2.63	0.75	

PTG: posttraumatic growth, measured by the Japanese version of the Posttraumatic Growth Inventory (PTGI-J); CCS: childhood cancer survivor; SD: Standard deviation; [a]Independent t-test; [b]Mann–Whitney U test
*p <.05; **p <.01

Results

Consent to participate in the study was obtained from 13 persons, all of whom cooperated in the survey. All 13 participants provided valid responses. The mean age of the participants at the time of the survey was 29.1 years (SD = 5.9, range = 20–39). The mean age at the time of childhood cancer diagnosis was 8.9 years (SD = 5.1, range = 1–14). Table 1 shows the mean PTG values for all 13 subjects, and the mean values for each of the factors. In the *t*-test, only one item, participation in patient groups, exhibited a significant difference in the mean PTG value: the mean PTG scores were higher for persons who had participated in patient groups than for those who had not. In this group, we observed a significant difference (p <0.05) in the mean values of factors 2, 3, and 4.

The results are in Table 1

Discussion

We investigated the factors affecting PTG from the attributes of Japanese CCSs with long-term survival. The mean PTG value for the CCSs participating in this study was 3.65, and the mean values for the four factors were all 3.0 (*experienced to a moderate degree*) or higher. Thus, we surmised that PTG had occurred in all 13 subjects. At present, the PTG occurrence rate is unknown for patients in the young adult period. One report claimed that the longer the time since the trauma, the greater the PTG [10]. Another report [11] suggested that PTG occurs in young adult CCSs, which is similar to our result.

Recent research has indicated that the experiences of people who have undergone a crisis and the amount of time elapsed must be taken into account, not merely the PTG score at a single point in time [12-13]. Therefore, among cancer survivors, their long-term life experiences and their self-comparison over time have major significance. Scholars have argued that constant high and moderate levels of PTG even with the passage of time reflect "stable PTG" [14]. For the participants in our study, a long time had elapsed since they contracted childhood cancer. They gave replies with regard to life changes after having experienced childhood cancer, thus indicating that they had highly stable PTG.

To elucidate the factors affecting the PTG of CCSs, we investigated eight demographic indicators and survivor factors, among which only "participation in patient groups" had an effect on high PTG. For CCSs in the AYA age cohort, no reports have shown that peer support played a role in promoting PTG. However, a long-term improvement in psychosocial function has been reported [15]. In addition, highly satisfactory social support provided by significant others and close friends has been reported as promoting PTG [16]. The results of the current survey supported this report. Thus, the support of close people, and talking with them, may contribute to feelings and cognitive processes associated with PTG and may possibly contribute to the mechanism of PTG. Among the various social supports, experience of participation in patient groups may have an effect on PTG. Therefore, research should investigate whether CCSs who participated in patient groups perceived positive psychological changes as a result. Confronting traumatic events, starting with rumination, is important for positive psychological change, and this is theorized to be connected to transformational psychological growth [17]. In previous research, CCSs have reported an intimate awareness of the risk of late complications, fear and anxiety from rediscovery of the threat of cancer, and re-experience of trauma through their participation in peer support [18]. In other words, in peer support, CCSs will experience, for good or for ill, a deep confrontation with the cancer that traumatized them, during which psychological growth must be catalyzed and PTG reinforced.

However, what do CCSs need to be able to participate in peer support? As stated previously, because the effects of peer support are not merely positive, it is first necessary that they accept the fact that they are CCSs and take on the challenge of disclosing that they themselves are cancer survivors to their associates. Notably, no research has fully elucidated how CCSs experience self-disclosure.

The developers of PTG theory have also expressed the importance of experiencing self-disclosure in the process of psychological change leading to PTG [6]. A recent report suggested an interaction between rumination and self-disclosure [19]. In the long-term follow-up (LTFU) of childhood cancer, the construction of psychological care to avoid PTSD is an important issue from the perspective of medical ethics. Therefore, for bringing about PTG in support structures for late psychological complications in CCSs, we believe that it will be necessary to investigate how CCSs with long-term survival experience self-disclosure, including being stricken with childhood cancer, and to search for support to be able to accept the challenges of self-disclosure.

Conclusions

"Participation in patient groups" had an effect on high PTG for Japanese CCSs with long-term survival. For young adult CCSs, the social support enjoyed from significant others and close friends may reinforce PTG. Future research should investigate the challenges in self-disclosure of being a cancer survivor to make use of PTG in support strategies for later psychological complications.

Conflict of Interest: The authors declare no conflict of interest.

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